

**79 Clay Street**  
**BROOKLYN, NEW YORK**

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# **Remedial Action Report**

**NYC VCP Number: 14CVCP174K**

**OER Project Number: 14EHAZ145K**

**Prepared for:**

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***EBC***

***ENVIRONMENTAL BUSINESS  
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**MAY 2016**

# REMEDIAL ACTION REPORT

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## LIST OF ACRONYMS

<b>Acronym</b>	<b>Definition</b>
CAMP	Community Air Monitoring Plan
DER-10	NYS DEC Division of Environmental Remediation Technical Guidance Manual 10
EC	Engineering Control
HASP	Health and Safety Plan
IC	Institutional Control
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
ORC	Oxygen Release Compound
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

## CERTIFICATION

I, Ariel Czemerinski, certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the redevelopment project located at 79 Clay Street, Brooklyn, NY, site number 14CVCP174K.
- Engineering Controls implemented during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial Action Work Plan; (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report; and (3) will achieve the goal of the Remedial Action Work Plan to prevent soil vapor intrusion and provide protection of public health for the occupants of the building.
- I have reviewed this document, to which my signature and seal are affixed.
- The OER-approved Remedial Action Work Plan dated October 2013 and Stipulations in a letter dated November 18, 2013, were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Name Ariel Czemerinski

PE License Number 076508

Signature

Date

5/18/2016



I, Chawinie Reilly, certify the following:

- I am a Qualified Environmental Professional.
- I had primary direct responsibility for implementation of the remedial program for the redevelopment project located at 79 Clay Street, Brooklyn, NY, site number 14CVCP174K.
- The OER-approved Remedial Action Work Plan dated October 2013 and Stipulations in a letter dated November 18, 2013, were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

QEP Name

Chawinie Reilly

QEP Signature

Date

5/18/16



ENVIRONMENTAL BUSINESS CONSULTANTS

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## EXECUTIVE SUMMARY

79 Clay LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 79 Clay Street in Greenpoint section of Brooklyn, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A remedial action was performed pursuant to an OER-approved RAWP in a manner that has rendered the Site protective of public health and the environment consistent with the proposed use of the property. This RAR describes the remedial action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

### Site Location and Prior Usage

The Site is located at 79 Clay Street in the Greenpoint section of Brooklyn, New York, and is identified as Block 2483 and Lot 61 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 2,500-square feet and is bounded by Block 2483 Lot 12, a parking lot to the north, Clay Street to the south, beyond which is Block 2488 Lot 11, a residential building, Block 2483 Lot 60, a commercial building to the east, and Block 2483 Lot 62, a residential building to the west.

Prior to redevelopment, the Site was a vacant lot.

### Implemented Redevelopment Plan

A new 4-story residential building with a full cellar and top soil capped rear yard has been constructed at the Site. Layout of the site redevelopment is presented in Figure 3. The current zoning designation is M1-2; manufacturing and residential R6A. The use is consistent with existing zoning for the property.

The new 4-story residential building and cellar occupies 73% of the Site, leaving a top soil capped rear courtyard (27% of the Site) behind the building. The cellar consists of accessory space, storage and utility rooms. Access to the basement is provided via stairwell. The upper

floors consists of residential space. The site is equipped with a 2<sup>nd</sup> floor mezzanine level and a 4<sup>th</sup> floor mezzanine level. There are a total of 8 residential units.

The top of the concrete cellar slab was installed a depth of approximately 11 feet below sidewalk level, which required excavation of the 73% of the Site to a depth of approximately 11 feet below grade. An additional 10 feet (10%) of the site was sloped and the excavation to a depth of approximately 3-3.5 feet was performed for an rear yard (17% of the Site). A total of approximately 546.40 tons of non-hazardous historic fill material and 1,076.88 tons of native soil was excavated for the new building and from the rear yard.

### **Summary of Past Uses of Site and Environmental Findings**

From 1887 to 1951, the Site was developed with one (1) three-story residential building. From 1978 to present the site has been vacant land.

The AOCs identified for this Site include:

- Historic fill layer is present at the Site from grade to depths as great as 6 feet below grade.

### **Summary of Environmental Findings**

1. Elevation of the property ranges from 13 to 14 feet.
2. Depth to groundwater ranges from 4.68 to 9.83 feet at the Site.
3. Groundwater flow is generally from north to south beneath the Site.
4. Depth to bedrock is at the Site is greater than 100 feet.
5. The stratigraphy of the Site, from the surface down, consists of historical fill from grade to depths as great as 6 feet below grade; underlain by brown silty sand.
6. Laboratory analytical results indicate the presence of trace levels of several VOCs in soil samples, but none of those VOCs exceeded Unrestricted Use SCOs. Several SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) were found within two shallow soil samples exceeding Unrestricted Use SCOs as well as Restricted Residential SCOs. These SVOCs included benzo(a)anthracene (max. of 12.7 ppm), benzo(a)pyrene (max. of 11.4 ppm), benzo(b)fluoranthene (max. of 9.5 ppm), benzo(k)fluoranthene (max. of 12.2 ppm), chrysene (max. of 12.5 ppm), dibenzo(a,h)anthracene (max. of 3.9 ppm), and indeno(1,2,3-cd)pyrene (max. of 7.5

- ppm). Three pesticides 4,4'-DDD (max. of 0.415mg/Kg); 4,4'-DDE (max. of 0.89 mg/Kg); and 4,4'-DDT (max. of 8.31 mg/Kg) were detected above Unrestricted Use SCOs in shallow soil samples. DDT also exceeded Restricted Residential SCO in one sample. Metals including arsenic (at 29 mg/Kg), barium (max. of 1160 mg/Kg), chromium trivalent (max. of 60.8 mg/Kg), copper (max. of 274 mg/Kg), lead (max. of 1480 mg/Kg), nickel (at 32.6 mg/Kg), selenium (max. of 9 mg/Kg), and zinc (max. of 615 mg/Kg) were detected at concentrations above Unrestricted Use SCOs in all shallow and two deep soils. Of these, arsenic, barium, chromium trivalent, copper and lead also exceeded the Restricted Residential SCOs. Findings of the RI were consistent with observations for historical fill sites in areas throughout NYC.
7. Groundwater samples collected during the investigations showed trace concentrations of several VOCs including 2-Butanone (4.5 ug/L), acetone (max. of 25 ug/L), MTBE (at 3.3 ug/l), naphthalene (3.4 ug/L) and toluene (1.2 ug/L) in two of three monitoring wells. None of these VOCs exceeded NYSDEC Part 703.5 Groundwater Quality Standards (GQS). One PAH related SVOC, Bis(2-ethylhexyl)phthalate (at 6.2 ug/L) exceeded its GQS. Three pesticides were detected in one groundwater sample at trace concentrations, below their respective GQS. Dissolved metals including magnesium, manganese and selenium were identified above GQS.
  8. Soil vapor samples collected during the RI showed moderate levels of petroleum related and low levels of chlorinated VOCs in all soil vapor samples. Total concentrations of petroleum-related VOCs (BTEX) ranged from 856  $\mu\text{g}/\text{m}^3$  to 1,775  $\mu\text{g}/\text{m}^3$ . Overall the highest reported concentrations were for acetone (maximum of 3,700  $\mu\text{g}/\text{m}^3$ ). Chlorinated VOCs including tetrachloroethene (PCE) was detected in all soil vapor samples at a maximum concentration of 4.4  $\mu\text{g}/\text{m}^3$ , carbon tetrachloride was detected in two samples at a maximum concentration of 0.56  $\mu\text{g}/\text{m}^3$ . Trichloroethene (TCE) was detected in all soil vapor samples at a maximum concentration of 1.34  $\mu\text{g}/\text{m}^3$  and 1,1,1-Trichloroethane (TCA) was non detected. Chlorinated VOCs concentrations were below the monitoring level ranges established within the State DOH soil vapor guidance matrix.

## Summary of the Remedial Action

The remedial action achieved protection of public health and the environment for the intended use of the property. The remedial action achieved all of the remedial action objectives established for the project and addressed applicable standards, criterion, and guidance; was effective in both the short-term and long-term and reduced mobility, toxicity and volume of contaminants; was cost effective and implementable; and used standards methods that are well established in the industry.

A Remedial Investigation (RI) was performed between September 6, 2013, and September 19, 2013 and a RI Report dated October 2013 was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Pre-Application meeting was held on September 4, 2013. A Site Contact List was established and a RAWP dated October 2013 was prepared and released with a Fact Sheet on October 15, 2013, for a 30-day public comment period. The RAWP with a Stipulation List dated November 18, 2013, was approved by the New York City Office of Environmental Remediation (OER) on November 27, 2013. A pre-construction meeting was held on March 24, 2014, and remedial action began in June 26, of 2014 and completed in October 15, of 2015.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan
2. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Established Track 2 Restricted Residential Use SCOs within the building footprint and Track 4 Site Specific Use SCOs in the rear yard. The approved RAWP indicated that Track 1 would be achieved for the Site. EBC collected and analyzed end-point samples to determine the performance of the remedy with respect to attainment of SCOs. Excavated soil/fill in excess of Track 2 Restricted Residential Use SCOs from the building footprint and Track 4 Site-Specific SCOs from within rear yard. End points in the building footprint achieved Track 2 Restricted Residential Use SCOs and end points within the rear yard achieved Track 4 Site-Specific SCOs. Track 4 within the rear yard will require Institutional Controls (ICs) and Engineering Controls (ECs).

4. Excavated 546.40 tons of historical fill material and transported to Clean Earth of New Castle, Delaware and excavated 1,076.88 tons of native soil and transported to Clean Earth of Carteret, New Jersey. The footprint of the building was excavated to a depth of 11 feet and the rear yard was excavated to a depth of 3-3.5 feet;
5. As part of development, installed a vapor barrier/waterproofing system below the concrete slab underneath the building, as well as behind foundation walls of the building. The waterproofing membrane/vapor barrier consists of Preprufe 300R 1.2 mm (0.046in) thick HDPE film barrier as manufactured by Grace;
6. As part of development, installed an engineered composite cover consisting of 8 inch thick concrete building slab underlain by 6 inches  $\frac{3}{4}$ -inch RCA stone;
7. Cover consisting of 24 inches of topsoil installed above a demarcation barrier in the open space area in the backyard;
8. Imported 1 truck load (approximately 20 CY) of  $\frac{3}{4}$  inch RCA stone from Russo Recycling Company in Rosedale, New York and imported approximately 60 cubic yards of top soil from Long Island Compost Westbury, New York for rear yard cover;
9. Transported and disposed off-Site of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Collected, sampled and analyzed samples representative of excavated media as required by disposal facilities. Appropriately segregated excavated media on Site;
10. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
11. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations;
12. Submission of a Sustainability Report. This report details sustainable remediation and redevelopment through a variety of means.
13. Performed all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations; and

14. Submitted a RAR that: certifies that the remedial requirements have been achieved; Engineering and Institutional Controls; defines the Site boundaries; and describes the remedial activities including all changes from the RAWP.
15. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of soil and soil vapor, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency and sustainability report; and
16. Continued registration of the property as an E-Designated property at the NYC Department of Buildings.

# REMEDIAL ACTION REPORT

## 1.0 OVERVIEW

79 Clay Street LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 79 Clay Street in the Greenpoint section of Brooklyn, New York. The boundary of the property subject to this Remedial Action is shown in Figure 2 and includes, in its entirety, Brooklyn Block 2483 and Lot 61. The Remedial Action was performed pursuant to the OER-approved RAWP in a manner that has rendered the property protective of public health and the environment consistent with its intended use. This RAR describes the remedial action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

### 1.1 Site Location and Prior Usage

The Site is located at 79 Clay Street in the Greenpoint section of Brooklyn, New York, and is identified as Block 2483 and Lot 61 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 2,500-square feet and is bounded by Block 2483 Lot 12, a parking lot to the north, Clay Street to the south, beyond which is Block 2488 Lot 11, a residential building, Block 2483 Lot 60, a commercial building to the east, and Block 2483 Lot 62, a residential building to the west. A map of the site boundary is shown in Figure 2.

Prior to redevelopment, the Site was a vacant lot.

### 1.2 Implemented Redevelopment Plan

A new 4-story residential building with a full cellar and top soil capped rear yard has been constructed at the Site. Layout of the site redevelopment is presented in Figure 3. The current zoning designation is M1-2; manufacturing and residential R6A. The use is consistent with existing zoning for the property.

The new 4-story residential building and cellar occupies 73% of the Site, leaving a top soil capped rear courtyard (27% of the Site) behind the building. The cellar consists of accessory

space, storage and utility rooms. Access to the basement is provided via stairwell. The upper floor consists of residential space. The site is equipped with a 2<sup>nd</sup> floor mezzanine level and a 4<sup>th</sup> floor mezzanine level. There are a total of 8 residential units.

The top of the concrete cellar slab was installed a depth of approximately 11 feet below sidewalk level, which required excavation of the 73% of the Site to a depth of approximately 11 feet below grade. An Additional 10 feet (10%) of the site was sloped and excavation to a depth of approximately 3-3.5 feet was performed for the rear yard (17% of the Site). A total of approximately 546.40 tons of non-hazardous historic fill material and 1,076.88 tons of native soil was excavated for the new building and from the rear yard.

### 1.3 Description of Surrounding Property

The area surrounding the Site consists of a mix of residential and industrial properties. Figure 4 shows the surrounding land usage of the adjacent properties listed below as well as additional properties located up to 500 feet away from the Site. No hospitals, daycare facilities or schools are located within a 250 ft radius of the Site.

#### Surrounding Property Usage

Direction	Property Description
<b>North</b> – Adjacent property	<u>Block 2483, Lot 12</u> (46 Box Street) – Developed as a parking lot.
<b>South</b> – Adjacent property	<u>Block 2266, Lot 34</u> (90 Clay Street) – developed with a residential building
<b>East</b> – Opposite side of Throop Avenue	<u>Block 2483, Lot 60</u> (81 Clay Street) – Developed with a commercial building.
<b>West</b> – Adjacent property	<u>Block 2483, Lot 62</u> (77 Clay Street) – Developed with a residential building.

### 1.4 Remedial Investigation

A remedial investigation was performed and the results are documented in a document called “*Remedial Investigation Report, 79 Clay Street*”, dated October 2013 (Appendix A).

### Summary of Past Uses of Site and Areas of Concern

From 1887 to 1951, the Site was developed with one (1) three-story residential building. From 1978 to present the site has been vacant land.

The AOCs identified for this Site include:

- Historic fill layer is present at the Site from grade to depths as great as 6 feet below grade.

### **Summary of the Work Performed under the Remedial Investigation**

Urban View Development performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. With a the prior consultant; three soil borings across the entire Site; and collected two soil samples for chemical analysis from the soil borings to evaluate the soil quality;
3. With the prior consultant; installed two monitoring wells; and collected two samples for chemical analysis;
4. Installed one soil borings across the entire project Site, and collected two soil samples for chemical analysis from the soil borings to evaluate soil quality; and
5. Installed three soil vapor probes around Site perimeter and collected three samples for chemical analysis.

### **Summary of Environmental Findings**

1. Elevation of the property ranges from 13 to 14 feet.
2. Depth to groundwater ranges from 4.68 to 9.83 feet at the Site.
3. Groundwater flow is generally from north to south beneath the Site.
4. Depth to bedrock is at the Site is greater than 100 feet.
5. The stratigraphy of the Site, from the surface down, consists of historical fill from grade to depths as great as 6 feet below grade; underlain by brown silty sand.
6. Laboratory analytical results indicate the presence of trace levels of several VOCs in soil samples, but none of those VOCs exceeded Unrestricted Use SCOs. Several SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) were found within two shallow soil samples exceeding Unrestricted Use SCOs as well as Restricted Residential SCOs. These SVOCs included benzo(a)anthracene (max. of 12.7 ppm), benzo(a)pyrene (max. of

11.4 ppm), benzo(b)fluoranthene (max. of 9.5 ppm), benzo-(k)fluoranthene (max. of 12.2 ppm), chrysene (max. of 12.5 ppm), dibenzo(a,h)anthracene (max. of 3.9 ppm), and indeno(1,2,3-cd)pyrene (max. of 7.5 ppm). Three pesticides 4,4'-DDD (max. of 0.415mg/Kg); 4,4'-DDE (max. of 0.89 mg/Kg); and 4,4'-DDT (max. of 8.31 mg/Kg) were detected above Unrestricted Use SCOs in shallow soil samples. DDT also exceeded Restricted Residential SCO in one sample. Metals including arsenic (at 29 mg/Kg), barium (max. of 1160 mg/Kg), chromium trivalent (max. of 60.8 mg/Kg), copper (max. of 274 mg/Kg), lead (max. of 1480 mg/Kg), nickel (at 32.6 mg/Kg), selenium (max. of 9 mg/Kg), and zinc (max. of 615 mg/Kg) were detected at concentrations above Unrestricted Use SCOs in all shallow and two deep soils. Of these, arsenic, barium, chromium trivalent, copper and lead also exceeded the Restricted Residential SCOs. Findings of the RI were consistent with observations for historical fill sites in areas throughout NYC.

7. Groundwater samples collected during the investigations showed trace concentrations of several VOCs including 2-Butanone (4.5 ug/L), acetone (max. of 25 ug/L), MTBE (at 3.3 ug/l), naphthalene (3.4 ug/L) and toluene (1.2 ug/L) in two of three monitoring wells. None of these VOCs exceeded NYSDEC Part 703.5 Groundwater Quality Standards (GQS). One PAH related SVOC, Bis(2-ethylhexyl)phthalate (at 6.2 ug/L) exceeded its GQS. Three pesticides were detected in one groundwater sample at trace concentrations, below their respective GQS. Dissolved metals including magnesium, manganese and selenium were identified above GQS.
8. Soil vapor samples collected during the RI showed moderate levels of petroleum related and low levels of chlorinated VOCs in all soil vapor samples. Total concentrations of petroleum-related VOCs (BTEX) ranged from 856  $\mu\text{g}/\text{m}^3$  to 1,775  $\mu\text{g}/\text{m}^3$ . Overall the highest reported concentrations were for acetone (maximum of 3,700  $\mu\text{g}/\text{m}^3$ ). Chlorinated VOCs including tetrachloroethene (PCE) was detected in all soil vapor samples at a maximum concentration of 4.4  $\mu\text{g}/\text{m}^3$ , carbon tetrachloride was detected in two samples at a maximum concentration of 0.56  $\mu\text{g}/\text{m}^3$ . Trichloroethene (TCE) was detected in all soil vapor samples at a maximum concentration of 1.34  $\mu\text{g}/\text{m}^3$  and 1,1,1-Trichloroethane (TCA) was non detected. Chlorinated VOCs concentrations were below the monitoring level ranges established within the State DOH soil vapor guidance matrix.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR (Appendix A) and the RAWP (Appendix B), disposal of significant amounts of hazardous waste was not suspected at this Site.

## 2.0 DESCRIPTION OF REMEDIAL ACTIONS

The remedial action was performed in accordance with an OER approved Remedial Action Work Plan (Appendix B) and achieved the remedial action objectives established for the project. The remedial action was evaluated in an alternatives analysis and was determined to be protective of human health and the environment, compliant with standards, criteria, and guidelines (SCGs), effective in the short-term, effective in the long-term, capable of attaining appropriate levels of reduction of toxicity, mobility, or volume of contaminated material, implementable, cost effective, acceptable to the community, consistent with land uses, and sustainable.

A Remedial Investigation (RI) was performed between September 6, 2013, and September 19, 2013 and a RI Report dated October 2013 was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Pre-Application meeting was held on September 4, 2013. A Site Contact List was established and a RAWP dated October 2013 was prepared and released with a Fact Sheet on October 15, 2013, for a 30-day public comment period. The RAWP with a Stipulation List dated November 18, 2013, was approved by the New York City Office of Environmental Remediation (OER) on November 27, 2013. A pre-construction meeting was held on March 24, 2014, and remedial action began in June 26 of 2014 and completed in July 1 of 2015.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan
2. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Established Track 2 Restricted Residential Use SCOs within the building footprint and Track 4 Site Specific Use SCOs in the rear yard. The approved RAWP indicated that Track 1 would be achieved for the Site. EBC collected and analyzed end-point samples to determine the performance of the remedy with respect to attainment of SCOs. Excavated soil/fill in excess of Track 2 Restricted Residential Use SCOs from the building footprint and Track 4 Site-Specific SCOs from within rear yard. End points in the building footprint achieved Track 2 Restricted Residential Use SCOs

- and end points within the rear yard achieved Track 4 Site-Specific SCOs. Track 4 within the rear yard will require Institutional Controls (ICs) and Engineering Controls (ECs).
4. Excavated 546.40 tons of historical fill material and transported to Clean Earth of New Castle, Delaware and excavated 1,076.88 tons of native soil and transported to Clean Earth of Carteret, New Jersey. The footprint of the building was excavated to a depth of 11 feet and the rear yard was excavated to a depth of 3-3.5 feet;
  5. As part of development, installed a vapor barrier/waterproofing system below the concrete slab underneath the building, as well as behind foundation walls of the building. The waterproofing membrane/vapor barrier consists of Preprufe 300R 1.2 mm (0.046in) thick HDPE film barrier as manufactured by Grace;
  6. As part of development, installed an engineered composite cover consisting of 8 inch thick concrete building slab underlain by 6 inches  $\frac{3}{4}$ -inch RCA stone;
  7. Cover consisting of 24 inches of topsoil installed above a demarcation barrier in the open space area in the backyard;
  8. Imported 1 truck load (approximately 20 CY) of  $\frac{3}{4}$  inch RCA stone from Russo Recycling Company in Rosedale, New York] and imported approximately 60 cubic yards of top soil from Long Island Compost Westbury, New York for rear yard cover;
  9. Transported and disposed off-Site of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Collected, sampled and analyzed samples representative of excavated media as required by disposal facilities. Appropriately segregated excavated media on Site;
  10. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
  11. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations;
  12. Submission of a Sustainability Report. This report details sustainable remediation and redevelopment through a variety of means.

13. Performed all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations; and
14. Submitted a RAR that: certifies that the remedial requirements have been achieved; Engineering and Institutional Controls; defines the Site boundaries; and describes the remedial activities including all changes from the RAWP.
15. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of soil and soil vapor, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency and sustainability report; and
16. Continued registration of the property as an E-Designated property at the NYC Department of Buildings.

### **3.0 COMPLIANCE WITH REMEDIAL ACTION WORK PLAN**

#### **3.1 Construction Health & Safety Plan (CHASP)**

The remedial construction activities performed under this program were in compliance with the Construction Health and Safety Plan and applicable laws and regulations. The Site Safety Coordinator was Kevin Waters - EBC.

#### **3.2 Community Air Monitoring Plan (CAMP)**

The Community Air Monitoring Plan provided for the collection and analysis of air samples during remedial construction activities to ensure proper protections were employed to protect workers and the neighboring community. Monitoring was performed in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air monitoring are shown in Appendix E.

#### **3.3 Soil/Materials Management Plan**

The Soil/Materials Management Plan in the RAWP provided detailed plans for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. It also included a series of controls to assure effective, nuisance free remedial activity in compliance with applicable laws and regulations. Remedial construction activities performed under this program were in full compliance with the SMMP in the approved RAWP.

#### **3.4 Storm-Water Pollution Prevention**

Storm water pollution prevention included physical methods and processes to control and/or divert surface water flows and to limit the potential for erosion and migration of Site soils, via wind or water. Remedial construction activities performed under this program were in full compliance with methods and processes defined in the RAWP for storm water prevention and applicable laws and regulations.

#### **3.5 Deviations from the Remedial Action Work Plan**

Deviations from the Remedial Action Work Plan are summarized below:

Track 1 was proposed in the RAWP but was not attained. Established Track 2 Restricted Residential Use SCOs within the building footprint and Track 4 Site Specific Use SCOs in the rear yard. Track 2 Restricted Residential Use SCOs were marginally exceeded in Rear Yard EP1

for SVOC's. Track 4 Site Specific SCO's are: SVOCs 250 ppm, lead 800 ppm and mercury 2.5 ppm. A majority of historic fill at the Site has been removed and soil at the final excavation depth consisted of mainly native soil. All metals (lead, mercury and zinc) and pesticides achieved Track 2 Restricted Residential Use SCO's. SVOC's did not achieve Track 2 Restricted Residential SCO's. A tabular summary of the end-point soil sample results is included on Table 1 (SVOCs), Table 2 (pesticides) and Table 3 (metals; lead, mercury and zinc), and Restricted Residential Use SCO and Unrestricted Use SCO exceedences are posted on Figure 7. It was determined that management in place is protective of public health and the environment to manage remaining material in place. The majority of historical fill was removed during the removal action and all remaining fill material would be present under a permanent cover, eliminating any potential for public health exposure. The cover will be inspected and maintained over the long term under a Site Management Plan ensuring that the cover remains intact and functioning as designed. Further, any future excavation on the property would be controlled by continued registration of the E Designation and adherence to the Soil and Materials Management Plan to ensure safe handling and proper reconstruction of the cover when work was complete. The historical fill did not cause groundwater quality standard contravention for the parameters that exceeded SCO's and thus do not pose a threat to the environment. Onsite groundwater use prohibitions for potable supply would ensure that there are no direct exposures through ingestion of groundwater. The rear yard was excavated to a depth of 3 to 3.5 feet instead of 2 feet as stated in the approved RAWP.

## **4.0 REMEDIAL PROGRAM**

### **4.1 Project Organization**

The PE responsible for implementation of the remedial action for this project was Ariel Czmerinski P.E., AMC Engineering. On-Site air monitoring in accordance with the CHASP and CAMP, soil screening and soil sampling was performed by either Chawinie Reilly, Evan Delitsky, Kevin Waters, Erica Mungall, Reuben Levinton, Eleni Kavvadias, Pat Recio and Dexter Carter of EBC. The Qualified Environmental Professional which implemented the remedial action was Chawinie Reilly, Project Manager-EBC.

The excavation and foundation contractor was New York Palace Construction, and the developer was Urban View Development.

### **4.2 Site Controls**

#### ***Site Preparation***

Plans for the new building (NYC DOB Job number NB-320576934) were approved on December 21, 2013. Waste characterization soil sampling was performed on March 26, 2014, prior to mobilization to obtain soil disposal approval and to minimize the need for on-Site soil stockpiles.

#### ***Soil Screening***

Intrusive soil excavation activities were overseen by an EBC qualified environmental professional (QEP). In addition to extensive sampling and chemical testing of soils on the Site, excavated soil was screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection. No olfactory or PID evidence of contamination was observed. Historical fill material was noted from 0-6 feet below side walk grade. Native soil was noted from 6-12 feet below sidewalk grade.

#### ***Stockpile Management***

For the majority of the project, soil was excavated from the ground and live loaded into trucks to eliminate the need for stockpiling. However, any soil stockpiles that were generated and kept overnight were covered with 6-mil poly-sheeting to prevent dust. Stockpile covers were inspected by the EBC QEP.

### ***Truck Inspection***

A stabilized construction entrance was constructed at the front of the Site, which exited and entered from Clay Street. The stabilized entrance was constructed of a bed of crushed concrete which was sloped back toward the interior of the Site. The stabilized entrance was inspected on a daily basis during soil loading activities and reinforced as needed with additional concrete material to prevent the accumulation of ruts, mud or soil and to minimize the potential for impacted soil to be dispersed beyond the Site boundary. Before exiting the Site, trucks were examined for evidence of contaminated soil on the undercarriage, body, and wheels. If soil/debris was observed, it was removed utilizing brooms or shovels.

### ***Site Security***

An 8-ft high construction fence was constructed around the perimeter of the property. The fence was locked with a chain and padlock during non-working hours/days.

### ***Nuisance Controls***

No petroleum or other odors were detected during excavation activities. On-site soil screening did not detect any excessive PID readings and no complaints were reported. Dust and odor was minimized by excavating and live-loading directly into trucks, and covering stockpiles with 6-mil poly sheeting overnight during off-work hours.

### ***Reporting***

Daily status reports were prepared and forwarded to the OER project manager for soil disturbance activities. A copy of each of the daily status reports is included in Appendix F. Digital photographs of the remedial action are included in Appendix D.

## **4.3 Materials Excavation and Removal**

Historic Fill was encountered across the Site from grade to depths as great as 6 feet. Excavation and removal of all historic fill material from across the entire Site was completed from June 2014 to early August 2014. A total of approximately 546.40 tons of historic fill material was excavated and transported to Clean Earth of New Castle (CENC) mid-August 2014 and early October 2014. Native soil present below the fill material was excavated from across the

remainder of the Site for construction of the new building. A total of approximately 1,076.88 tons of native soil was transported to Clean Earth of Carteret.

A map showing the location where excavation were performed is shown in Figure 5. No material was reused on-Site.

#### 4.3.1 End Point Sample Results

The SCOs for this project are:

Total SVOCs	250 ppm
Lead	800 ppm
Mercury	2.5 ppm

Following excavation for construction of the new building, on October 20, 2014; EBC collected four endpoint soil samples (EP1 through EP4). An additional two samples (RY 2FT and RY 3FT) were collected on November 25, 2014 from the rear yard prior to removing additional soil. These samples were collected to determine if Track 1 or Track 2 could be attained for the rear yard. On September 9, 2015, following additional soil removal in the rear yard to a depth of 3-3.5 feet, EBC collected Rear Yard EP1 and Rear Yard EP2. The location of each of the endpoint soil samples is shown on Figure 7. Dedicated disposable sampling equipment was utilized to collect each endpoint sample, eliminating the need for field equipment (rinsate) blanks.

The endpoint soil samples were appropriately packaged, placed in a cooler and picked up by laboratory courier for transport to the analytical laboratory. The samples were containerized in laboratory provided glassware and shipped in plastic coolers preserved utilizing ice or “cold-paks” to maintain a temperature of 4°C.

Prior RI samples and Endpoint samples EP1 through EP4 were submitted to Phoenix Environmental Laboratories, Inc. located at 587 East Middle Turnpike, in Manchester, CT 06040 (NYS ELAP Certification No. 11301) for laboratory analysis utilizing the following methodology:

- Volatile organic compounds by EPA Method 8260;

- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals (Lead, Mercury and Zinc); and
- Pesticides/PCBs by EPA Method 8081/8082.

A copy of each of the laboratory reports for the endpoint soil samples is attached in Appendix G. The laboratory results of the five soil samples (SP1, SP2, SP3, SP4 2-4 feet, SP4 4-6 feet) collected below the final excavation depth during the RI (2-4 feet, 4-6 feet, 6-8 feet and 10-12 feet below grade) and the endpoint soil samples (EP1, EP2, EP3, EP4, RY 2FT, RY 3FT, Rear Yard EP1 and Rear Yard EP2) are summarized on Tables 1 through 4 and Figure 7, respectively. Results from SP1, SP2, SP3 and SP4 represent soil which remains on site below the final excavation depth.

Track 4 Site Specific SCOs are as follows: SVOCs 250 ppm, lead 800 ppm, mercury 2.5 ppm. Results from EP2, EP3 and EP4 do not indicate any SVOCs, pesticides, lead, zinc or mercury above Restricted Residential Use SCOs. End point samples collected within the foot print of the new building meet Track 2 Restricted Residential Use SCOs. Results from EP1 show SVOCs above Restricted Residential Use SCOs and Unrestricted Use SCOs, pesticides above Unrestricted Use SCOs and lead, zinc and mercury above Unrestricted Use SCOs.

Based on the exceedances in EP1 and to determine if Track 1 or Track 2 could be attained for the rear yard; RY 2FT and RY 3FT were collected (prior to any additional soil removal) and analyzed. Results from RY 2FT show SVOCs above Restricted Residential Use SCOs and Unrestricted Use SCOs, no pesticides were detected, mercury above Restricted Residential Use SCOs, lead and zinc above Unrestricted Use SCOs. Analysis of RY 3FT shows no SVOCs and pesticides were detected, lead and mercury below Unrestricted Use SCOs and zinc above Unrestricted Use SCOs. RY 2FT does not meet Track 2 Restricted Residential Use SCOs. RY 3FT meets Track 2 Restricted Residential Use SCOs.

Rear Yard EP1 and Rear Yard EP2 were collected on September 9, 2015, immediately following removal of an additional 1-1.5 feet of soil from the rear yard. These samples were collected after EP1, RY 2FT and RY 3FT. Analysis of Rear Yard EP1 shows SVOCs above Restricted

Residential Use SCOs and Unrestricted Use SCOs, pesticides and metals (lead, mercury and zinc) above Unrestricted Use SCOs. Rear Yard EP2 shows no SVOCs and pesticides above Unrestricted Use SCOs and metals (lead, mercury and zinc) above Unrestricted Use SCOs. The results from Rear Yard EP1 and Rear Yard EP2 show that Track 4 Site Specific SCOs were achieved for the rear yard.

#### **4.4 Materials Disposal**

Waste characterization soil sampling was performed on March 26, 2014. To collect the waste characterization soil samples, test pits were excavated from grade to a depth of 12 feet below grade. EBC formed two 5-pt composite soil samples from the test pits representing the intervals 0 to 6 feet below grade and 6 to 12 feet below grade.

The laboratory results, profile form and a formal letter describing the sampling process and material type, was forwarded to Clean Earth to obtain soil disposal approval at Clean Earth of New Castle (CENC) for the historical fill located in the 0-6 foot interval and to Clean Earth of Carteret (CEC) for the native soil from the 6-12 foot interval. CENC is located at 94 Pyles Lane, New Castle, DE 19720. The CENC facility is a thermal treatment facility operating under DNREC Resource Recovery Facility Permit No. SW02b16. CEC is a Class B Recycling Center operating under permit No. CBG060003 issued by the New Jersey Department of Environmental Protection (NJDEP).

A copy of the soil disposal request letter with the sampling plan and laboratory results are attached in Appendix H. A copy of the soil disposal acceptance letters issued by Clean Earth are attached in Appendix I.

From June 26, 2014, to August 13, 2014, a total 546.40 tons of historical fill was excavated and loaded into 10-wheel dump trucks for transport to Clean Earth of New Castle. Copies of each of the non-hazardous manifests and associated scale tickets are included in Appendix J.

From August 13, 2014 to September 1, 2015, a total 1,076.88 tons of native soil was excavated and loaded into 10-wheel dump trucks and containers for transport to Clean Earth of Carteret. Copies of each of the non-hazardous manifests and associated scale tickets are included in

Appendix K.

The volume/tonnage and destination of material removed and disposed off-Site is presented below:

**Table 6 - Disposal Quantities and Disposal Facilities**

<b>Destination</b>	<b>Type of Material</b>	<b>Quantity</b>
Clean Earth of New Castle 94 Pyles Lane, Kearny, NJ 07032	Historical Fill	546.40 tons
Clean Earth of Carteret - Carteret, NJ	Native Soil	1,076.88 tons

**4.5 Backfill Import**

On October 5, 2015 and October 15, 2015, approximately 60 cubic yards of topsoil was imported from Long Island Compost Corp. located at 100 Urban Avenue Westbury, New York. The 60 cubic yards of topsoil was installed above a demarcation barrier (orange safety fencing) in the rear yard.

In February 2015, 20 cubic yards of  $\frac{3}{4}$  stone RCA was imported as an underlayment for the slab. 6 inches of  $\frac{3}{4}$  stone was installed under the slab. RCA was imported from Russo Recycling Company.

A copy of the source invoice for the stone and topsoil is attached in Appendix L. No other backfill was imported to the Site.

## 5.0 ENGINEERING CONTROLS

Engineering Controls were employed in the remedial action to address residual contamination remaining in the rear yard of the Site. The Site has one primary Engineering Control System:

### Composite Cover System

The Composite Cover System consists of 2 feet of topsoil installed above a demarcation barrier (orange safety fence) in the rear yard and is an EC to address residual soil contamination. Photographs of construction of the Composite Cover System are included in Appendix D. The composite cover system was installed by Palace Construction. The building area achieved Track 2 RR SCOs and composite cover is not required. However, the new building's 8-inch thick concrete cellar slab underlain by 6 inches of  $\frac{3}{4}$  stone was built as part of construction

### Waterproofing Membrane/Vapor Barrier System

As part of construction, migration of potential future offsite soil vapor into the building is mitigated with a combination of building slab and waterproofing system/vapor barrier. Preprufe® 300R Plus by Grace Construction Products was installed below the cellar slab and behind all foundation walls of the new building. Preprufe 300R Plus is a composite sheet comprising a 1.2 mm (0.046 inch) thick HDPE film, a pressure sensitive adhesive, a weather resistant protective coating and an adhesive to adhesive seam overlap. The PE for the remedial action verified with the GC that the waterproofing was installed below the slab and above RCA and soil. All end point samples were collected in soil below the buildings new slab. Photos of Preprufe® 300R Plus being installed below the cellar slab are included in Appendix D and the approximate layout is shown on Figure 8. The vapor barrier was installed by D-Star Waterproofers, Inc.

## 6.0 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under this Remedial Action to implement, maintain, inspect and certify Engineering Controls and prevent future exposure to residual contamination by controlling disturbances of the subsurface soil. Adherence to these Institutional Controls is required under this remedial action and will be implemented under the Site Management Plan included in this RAR. These Institutional Controls for the Site are:

- (1) The property will continue to be registered with an E-Designation with the NYC Department of Buildings. Property owner and property owner's successors and assigns are required to comply with the approved SMP;
- (2) Compliance with an OER-approved Site Management Plan including procedures for appropriate operation, maintenance, inspection, and certification of performance of EC's and IC's. The property owner and property owner's successors and assigns will inspect EC's and IC's and submit to OER a written certification that evaluates their performance in a manner and at a frequency to be determined by OER;
- (3) Engineering Controls will not be discontinued without prior OER approval;
- (4) OER has the right to enter the Site upon notice for the purpose of evaluating the performance of EC's and IC's;
- (5) The Site will be used for restricted residential use and will not be used for a higher level of use without prior approval by OER.
- (6) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;
- (7) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;
- (8) All future activities on the Site that will disturb residual soil/fill must be conducted pursuant to the Soil/Materials Management provisions of the SMP, or otherwise approved by OER;

## **7.0 SITE MANAGEMENT PLAN**

Site management is the last phase of the remedial process and begins after the approval of the Remedial Action Report (RAR) and issuance of the Notice of Completion (NOC) by OER. It is the responsibility of the property owner (79 Clay Street LLC) to ensure that all Site management responsibilities are performed. The penalty for failure to implement the SMP includes revocation of the Notice of Completion and all associated certifications and liability protections. If the building is sold, the new owners will be notified of the SMP requirements.

Engineering Controls (ECs) and Institutional Controls (ICs) have been incorporated into this remediation to ensure that the Site remains protective of public health and the environment. EC's provide physical protective measures. ICs provide restrictions on Site usage and provide operation, maintenance, inspection and certification measures. This SMP includes all methods necessary ensure compliance with ECs and ICs required for the property.

The SMP provides a detailed description of procedures required to manage residual material at the Site following the completion of remedial construction in accordance with the NYC Voluntary Cleanup Agreement with OER. This includes: (1) operation and maintenance of Engineering Controls (2) periodic inspections of IC's and EC's and (3) certification of Engineering Controls and Institutional Controls.

### **ENGINEERING AND INSTITUTIONAL CONTROLS**

#### **Engineering Controls**

Engineering Controls are employed in the remedial action to address residual materials remaining at the Site. The Site has one Engineering Control:

- Composite Cover System in the rear yard

#### **Operation and Maintenance of the Composite Cover System**

The composite cover system EC only applies to the rear yard. The composite cover system for the rear yard is comprised of two feet of top soil installed over a demarcation barrier. The composite cover system is a permanent engineering control for the Site. The composite cover system does not require any special operation or maintenance in order to perform as designed in

the RAWP. A Soil/Materials Management Plan is included in this Site Management Plan to outline the procedures to be followed in the event that the composite cover system and underlying residual soil/material must be disturbed after the remedial action is complete.

The system will be inspected and its performance certified at specified intervals defined in this SMP. Procedures for the inspection and maintenance of this cover are provided below.

### **Institutional Controls**

A series of Institutional Controls are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These IC's define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. These Institutional Controls will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls for this property are:

- (1) The property will continue to be registered with an E-Designation with the NYC Department of Buildings. Property owner and property owner's successors and assigns are required to comply with the approved SMP;
- (2) Compliance with an OER-approved Site Management Plan including procedures for appropriate operation, maintenance, inspection, and certification of performance of EC's and IC's. The property owner and property owner's successors and assigns will inspect EC's and IC's and submit to OER a written certification that evaluates their performance in a manner and at a frequency to be determined by OER;
- (3) Engineering Controls will not be discontinued without prior OER approval;
- (4) OER has the right to enter the Site upon notice for the purpose of evaluating the performance of EC's and IC's;
- (5) The Site will be used for restricted residential use and will not be used for a higher level of use without prior approval by OER;
- (6) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;

- (7) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;
- (8) All future activities on the Site that will disturb residual soil/fill must be conducted pursuant to the Soil/Materials Management provisions of the SMP, or otherwise approved by OER;

## **INSPECTIONS**

Engineering Controls and Institutional Controls will be inspected by a qualified environmental professional and certification of inspection shall be submitted by July 31, 2018 (for calendar year 2017), July 31, 2020 (for calendar years 2018 through 2019) and every three years thereafter.

The QEP inspections will evaluate the following:

- If Engineering Controls or Institutional Controls employed at the Site continue to perform as designed and continue to be protective of human health and the environment;
- If anything has occurred that impairs the ability of the Engineering Controls or Institutional Controls to protect public health and the environment;
- If changes are needed to the remedial systems or controls;
- If compliance with this SMP has been maintained;
- If site records are complete and up to date; and
- General Site conditions at the time of inspection.

In an addition, if an emergency occurs, such as a natural disaster, or if an unforeseen failure of any of the Engineering Controls occurs, an inspection of the Site will be performed within 30 days to evaluate the Engineering Controls and a letter report of findings will be submitted to OER.

### **Engineering Control Inspection**

#### **Inspection of Composite Cover System**

The composite cover system for the rear yard consists of 2 feet of top soil installed over demarcation barrier. Inspection of the composite cover will consist of a visual inspection of the

rear yard. The inspection will include all accessible locations including the site perimeter. The inspector will document any faulty or defective conditions observed during the inspection or any failure in the integrity of the system that would compromise the ability of the composite cover to perform as an engineering control. Perforations or soil disturbances shall be recorded on the Inspection Checklist (Appendix O). Inspections by building superintendent will identify any obvious damage to the composite cover system.

### **Site Use Prohibitions**

Inspections to evaluate the status of site use prohibitions will include an evaluation of whether the Site is being used for vegetable gardening and has been used for a higher level of use other than the restricted residential use addressed by the Remedial Action.

### **INSPECTION AND CERTIFICATION LETTER REPORT**

Results of inspections performed during a reporting period and certification of performance of all Engineering Controls and Institutional Controls will be included in an Inspection and Certification Letter Report to be submitted by July 31, 2018 (for calendar year 2017), July 31, 2020 (for calendar years 2018 through 2019) and by July 31 every third year thereafter. Inspection and Certification Letter Reports will be submitted to OER in digital format. The letter report will include, at a minimum:

- Date of inspections;
- Personnel conducting inspections;
- Description of the inspection activities performed;
- Any observations, conclusions, or recommendations;
- Copy of any inspection forms;
- Certification of the performance of Engineering Controls and Institutional Controls, as discussed below; and
- Confirmation of regular periodic inspection of engineering controls by building superintendent.

The certification of the performance of EC's and IC's will establish:

- If Engineering Controls or Institutional Controls employed at the Site continue to be in place and perform as designed and continue to be protective of human health and the environment;
- If anything has occurred that impairs the ability of Engineering Controls or Institutional Controls to protect public health and the environment;
- If changes are needed to the remedial systems or controls;
- If compliance with this Site Management Plan has been maintained;
- If the Site has been used for a higher level of use other than the restricted residential use addressed by the Remedial Action;
- If site records are complete and up to date;
- If the Site continues to be registered as an E-Designated property by the NYC Department of Buildings;

OER may enter the Site upon notice for the purpose of evaluating the performance of EC's & IC's.

## **NOTIFICATIONS**

Notifications are to be submitted by the property owner to OER as described below:

- 60-day advance notice of any proposed changes in Site use to Unrestricted Use that is not contemplated is the Remedial Action.
- Notice within 30 days of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site.

## **SOIL/MATERIALS MANAGEMENT PLAN**

Any future intrusive work that will disturb residual soil/fill beneath the rear yard of the property, including modifications or repairs to the existing composite cover system, will be performed in compliance with this Soil/Materials Management Plan (SMMP). Intrusive work will also be conducted in accordance with the procedures defined in the Community Air Monitoring Plan (CAMP) in this plan and a Construction Health and Safety Plan (HASP). The HASP is the responsibility of the property owner and should be in compliance with NYSDEC DER-10 Technical Guide and 29 CFR 1910 and 1926, and all other applicable Federal, State and City regulations. Intrusive construction work should be compliant with this SMMP and described in

the next Inspection and Certification Letter Report.

### **Soil Screening Methods**

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional (QEP). Soil screening will be performed during any future intrusive work.

### **Stockpile Methods**

Stockpiles will be used to isolate excavated soil and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 6-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters, and other discharge points.

### **Characterization of Excavated Materials**

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Excavated soil will only be reused on-site with prior approval by OER.

### **Materials Excavation, Load-Out and Departure**

The PE/QEP overseeing the remedial action will:

- oversee intrusive work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this management plan;

- ensure that Site maintenance activities and maintenance-related grading cuts will not interfere with, or otherwise impair or compromise the remedial measures established during the remediation construction phase;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site intrusive work.

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

### **Off-Site Materials Transport**

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

Outbound truck transport routes are shown on Figure 9. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

### **Materials Disposal Off-Site**

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

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

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

### **Materials Reuse On-Site**

All of the soil excavated during any future repair or construction purposes will be placed in the same excavation it was derived from or will be disposed of off-site unless otherwise approved by OER beforehand.

### **Repair of Remedial Systems**

After completion of invasive work, any damage of the engineering controls (composite cover system, vapor barrier, etc.) will be restored to the original condition established during initial construction.

### **Import of Backfill Soil from Off-Site Sources**

In the event that soil importation is needed for the backfilling purposes, this Section presents the requirements for imported fill materials. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives including NYSDEC Part 375 Track 2 Residential SCOs and groundwater protections standards. A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

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

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC; and
- Virgin quarried material or other materials with an approved Beneficial Use Determination (BUD) from NYSDEC for reuse as clean fill.

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

### **Source Screening and Testing**

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

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

Composite samples of imported material from the identified clean soil sources will be taken at a minimum frequency of one sample for every 500 cubic yards of material. One composite sample will be collected from each source of virgin quarried material or other material with an NYSDEC approved BUD, unless otherwise approved by OER. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

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

### **Fluids Management**

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. 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 NYSDEC.

### **Storm-water Pollution Prevention**

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. All existing stormwater systems will be inspected to ensure proper operation.

### **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/QEPs.

### **Dust Control**

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

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

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/QEPs.

## **Noise**

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

## **COMMUNITY AIR MONITORING PLAN**

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

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

## **VOC Monitoring, Response Levels, and Actions**

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The

equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

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

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

### **Particulate Monitoring, Response Levels, and Actions**

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

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) 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<sup>3</sup> 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<sup>3</sup> 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<sup>3</sup> of the upwind level and in preventing visible dust migration.

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

## CONTINGENCY PLAN

### Emergency Telephone Numbers

In the event of any emergency condition pertaining to this remedial system, or if the building slab is disturbed, removed or altered, the Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to Environmental Business Consultants. These emergency contact lists must be maintained in an easily accessible location at the Site.

#### Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center: 3 day notice required for utility markout	(800) 272-4480
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

#### Contact Numbers

Environmental Business Consultants	(631) 504-6000
Office of Environmental Remediation	(212) 788-8841; 311

# **TABLES**

TABLE 1  
79 Clay Street,  
Brooklyn, New York  
Soil Analytical Results  
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	Hydrotech Site Investigation Report						EBC RIR			
			SP1		SP2		SP3		SP4		SP4	
			1/2/2013		1/2/2013		1/2/2013		9/6/2013		9/6/2013	
			(10-12') µg/Kg		(10-12') µg/Kg		(6-8') µg/Kg		(2-4') µg/Kg		(4-6') µg/Kg	
Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	
1,1,1,2-Tetrachloroethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,1,1-Trichloroethane	680	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,1,2,2-Tetrachloroethane			ND	5.9	ND	4.2	ND	5.9	ND	5.9	ND	4.2
1,1,2-Trichloroethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,1-Dichloroethane	270	26,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,1-Dichloroethene	330	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,1-Dichloropropene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2,3-Trichlorobenzene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2,3-Trichloropropane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2,4-Trichlorobenzene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2,4-Trimethylbenzene	3,600	52,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2-Dibromo-3-chloropropane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2-Dibromoethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2-Dichlorobenzene	1,100	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2-Dichloroethane	20	3,100	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,2-Dichloropropane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,3,5-Trimethylbenzene	8,400	52,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,3-Dichlorobenzene	2,400	4,900	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,3-Dichloropropane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
1,4-Dichlorobenzene	1,800	13,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
2,2-Dichloropropane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
2-Chlorotoluene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
2-Hexanone (Methyl Butyl Ketone)			ND	49	ND	35	ND	49	ND	49	ND	35
2-Isopropyltoluene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
4-Chlorotoluene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
4-Methyl-2-Pentanone			ND	49	ND	35	ND	49	ND	49	ND	35
Acetone	50	100,000	ND	50	ND	42	<b>10</b>	50	ND	50	ND	42
Acrylonitrile			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Benzene	60	4,800	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Bromobenzene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Bromochloromethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Bromodichloromethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Bromoform			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Bromomethane			ND	9.8	<b>10</b>	6.9	ND	9.8	ND	9.8	ND	6.9
Carbon Disulfide			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Carbon tetrachloride	760	2,400	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Chlorobenzene	1,100	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Chloroethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Chloroform	370	49,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Chloromethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
cis-1,2-Dichloroethene	250	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
cis-1,3-Dichloropropene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Dibromochloromethane			ND	5.9	ND	4.2	ND	5.9	ND	5.9	ND	4.2
Dibromomethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Dichlorodifluoromethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Ethylbenzene	1,000	41,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Hexachlorobutadiene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Isopropylbenzene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
m&p-Xylenes	260	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Methyl Ethyl Ketone (2-Butanone)	120	100,000	ND	59	ND	42	ND	59	ND	59	ND	42
Methyl t-butyl ether (MTBE)	930	100,000	ND	20	ND	14	ND	20	ND	20	ND	14
Methylene chloride	50	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Naphthalene	12,000	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
n-Butylbenzene	12,000	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
n-Propylbenzene	3,900	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
o-Xylene	260	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
p-Isopropyltoluene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
sec-Butylbenzene	11,000	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Styrene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
tert-Butylbenzene	5,900	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Tetrachloroethene	1,300	19,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Tetrahydrofuran (THF)			ND	20	ND	14	ND	20	ND	20	ND	14
Toluene	700	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Total Xylenes			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
trans-1,2-Dichloroethene	190	100,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
trans-1,3-Dichloropropene			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
trans-1,4-dichloro-2-butene			ND	20	ND	14	ND	20	ND	20	ND	14
Trichloroethene	470	21,000	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Trichlorofluoromethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Trichlorotrifluoroethane			ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Vinyl Chloride	20	900	ND	9.8	ND	6.9	ND	9.8	ND	9.8	ND	6.9
Total BTEX Concentration			<b>0.0</b>		<b>0.0</b>		<b>0.0</b>		<b>0.0</b>		<b>0.0</b>	
Total VOCs Concentration			<b>0.0</b>		<b>10.0</b>		<b>10.0</b>		<b>0.0</b>		<b>0.0</b>	

Notes:

\*\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

RL - Reporting Limit

**Bold/highlighted-** Indicated exceedance of the NYSDEC UUSCO Guidance Value

**Bold/highlighted-** Indicated exceedance of the NYSDEC RRSO Guidance Value

TABLE 3  
79 Day Street,  
Brooklyn, New York  
Soil Analytical Results  
Semi Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives**	Hydrotech Site Investigation Report																EBC RI Data				End Point Data							
			SP1		SP2		SP3		SP4		SP4		EP1		EP2		EP3		EP4		RY				Rear Yard EP1		Rear Yard EP2			
			1/2/2013		1/2/2013		1/2/2013		9/6/2013		9/6/2013		10/20/2014		10/20/2014		10/20/2014		10/20/2014		11/25/2014		11/25/2014		9/9/2015		9/9/2015			
			(10-12) µg/Kg		(10-12) µg/Kg		(6-8) µg/Kg		(2-4) µg/Kg		(4-6) µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		(2) µg/Kg		(3) µg/Kg		µg/Kg		µg/Kg			
Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL					
1,2,4,5-Tetrachlorobenzene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
1,2,4-Trichlorobenzene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
1,2-Dichlorobenzene			ND	370	ND	360	< 350	350	ND	370	ND	360	< 350	350	< 360	360	< 370	370												
1,2-Diphenylhydrazine			ND	360	ND	370	< 250	250	ND	360	ND	370	< 250	250	< 260	260	< 270	270												
1,3-Dichlorobenzene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
1,4-Dichlorobenzene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,4,5-Trichlorophenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,4,6-Trichlorophenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,4-Dichlorophenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,4-Dimethylphenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,4-Dinitrophenol			ND	630	ND	580	< 1800	1,800	ND	630	ND	580	< 1800	1,800	< 1900	1,900	< 2000	2,000												
2,4-Dinitrotoluene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2,6-Dinitrotoluene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2-Chloronaphthalene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2-Chlorophenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2-Methylnaphthalene			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
2-Methylphenol (o-cresol)	330	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270		400	410	< 400	400							
2-Nitroaniline			ND	630	ND	580	< 1800	1,800	ND	630	ND	580	< 1800	1,800	< 1900	1,900	< 2000	2,000												
2-Nitrophenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
3,4-Methylphenol (m,p-cresol)			ND	360	ND	370	< 250	250	ND	360	ND	370	< 250	250	< 260	260	< 270	270												
3,3'-Dichlorobenzidine			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
3-Nitroaniline			ND	630	ND	580	< 1800	1,800	ND	630	ND	580	< 1800	1,800	< 1900	1,900	< 2000	2,000												
4,6-Dinitro-2-methylphenol			ND	1,100	ND	1,100	< 1,800	1,800	ND	1,100	ND	1,100	< 1,800	1,800	< 1,900	1,900	< 2,000	2,000												
4-Bromophenyl phenyl ether			ND	360	ND	370	< 250	250	ND	360	ND	370	< 250	250	< 260	260	< 270	270												
4-Chloro-3-methylphenol			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
4-Chloroaniline			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
4-Chlorophenyl phenyl ether			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
4-Nitroaniline			ND	630	ND	580	< 1800	1,800	ND	630	ND	580	< 1800	1,800	< 1900	1,900	< 2000	2,000												
4-Nitrophenol			ND	1,100	ND	1,100	< 1,800	1,800	ND	1,100	ND	1,100	< 1,800	1,800	< 1,900	1,900	< 2,000	2,000												
Acenaphthene	20,000	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Acenaphthylene	100,000	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Acetophenone			ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Aniline			ND	1,100	ND	1,100	< 1,800	1,800	ND	1,100	ND	1,100	< 1,800	1,800	< 1,900	1,900	< 2,000	2,000												
Anthracene	100,000	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(a)anthracene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(b)fluoranthene	1,000	1,000	ND	470	ND	440	< 700	700	ND	470	ND	440	< 700	700	< 750	750	< 780	780												
Benzo(k)fluoranthene	800	3,900	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(a)pyrene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(b)fluoranthene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(g)perylene	100,000	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(k)fluoranthene	800	3,900	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(a)anthracene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(b)fluoranthene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(k)fluoranthene	800	3,900	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(a)pyrene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(b)fluoranthene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(g)perylene	100,000	100,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(k)fluoranthene	800	3,900	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(a)anthracene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(b)fluoranthene	1,000	1,000	ND	270	ND	260	< 250	250	ND	270	ND	260	< 250	250	< 260	260	< 270	270												
Benzo(k)fluoranthene	800																													

TABLE 4  
79 Clay Street,  
Brooklyn, New York  
Soil Analytical Results  
Pesticides / PCBs

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	Hydrotech Site Investigation Report												EBC RIR				End Point Data										
			SP1		SP2		SP3		SP4		SP4		EP1		EP2		EP3		EP4		RY		Rear Yard EP1		Rear Yard EP2				
			1/2/2013		1/2/2013		1/2/2013		9/6/2013		9/6/2013		10/20/2014		10/20/2014		10/20/2014		10/20/2014		11/25/2014		11/25/2014		9/9/2015		9/9/2015		
			(10-12) µg/Kg		(10-12) µg/Kg		(6-8) µg/Kg		(2-4) µg/Kg		(4-6) µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		(2) µg/Kg		(3) µg/Kg		µg/Kg		µg/Kg		
Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL				
4,4'-DDD	3.3	13,000	ND	2.1	ND	2.1	ND	2.3	ND	2.4	ND	2.1	<b>5.7</b>	2.1	<2.3	2.3	<2.4	2.4	<2.3	2.3	<2.5	2.5	<2.4	2.4	<2.3	2.3	<2.3	2.3	
4,4'-DDE	3.3	8,900	ND	2.1	ND	2.1	ND	2.3	<b>2.8</b>	2.4	<b>4.7</b>	2.1	<b>6.8</b>	2.1	<2.3	2.3	<2.4	2.4	<2.3	2.3	<2.5	2.5	<2.4	2.4	<b>7.9</b>	2.3	<2.3	2.3	
4,4'-DDT	3.3	7,900	<b>3.53</b>	2.1	ND	2.1	ND	2.3	<b>2.9</b>	2.4	<b>15</b>	2.1	<b>35</b>	2.1	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
a-BHC	20	480	ND	3.4	ND	7	ND	7.6	ND	3.8	ND	3.4	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
a-Chlordane			ND	-	ND	3.5	ND	3.8	-	-	-	-	-	<b>66</b>	3.5	<b>5.3</b>	3.8	<b>5</b>	3.9	<b>5.2</b>	3.8	<4.1	4.1	<4.0	4	<b>41</b>	3.8	<3.9	3.9
Alachlor			ND	3.4	ND	-	ND	-	ND	3.8	ND	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aldrin	5	97	ND	1.1	ND	3.5	ND	3.8	ND	1.2	ND	1.1	<b>6.7</b>	3.5	<b>6.7</b>	3.8	<b>5.9</b>	3.9	<b>7.5</b>	3.8	<4.1	4.1	<4.0	4	<3.8	3.8	<3.9	3.9	
b-BHC	36	360	ND	3.4	ND	7	ND	7.6	ND	3.8	ND	3.4	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Chlordane			ND	11	ND	35	ND	38	ND	12	ND	11	<b>440</b>	35	<b>52</b>	38	<b>45</b>	39	<b>46</b>	38	<41	41	<40	40	<b>440</b>	38	<39	39	
d-BHC	40	100,000	ND	3.4	ND	7	ND	7.6	ND	3.8	ND	3.4	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Dieldrin	5	200	ND	1.1	ND	3.5	ND	3.8	ND	1.2	ND	1.1	<b>6.7</b>	3.5	<b>8.3</b>	3.8	<b>7.4</b>	3.9	<b>7.7</b>	3.8	<4.1	4.1	<4.0	4	<b>9.4</b>	3.8	<3.9	3.9	
Endosulfan I	2,400	24,000	ND	3.4	ND	7	ND	7.6	ND	3.8	ND	3.4	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Endosulfan II	2,400	24,000	ND	6.8	ND	7	ND	7.6	ND	7.7	ND	6.8	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Endosulfan sulfate	2,400	24,000	ND	6.8	ND	7	ND	7.6	ND	7.7	ND	6.8	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Endrin	14	11,000	ND	6.8	ND	7	ND	7.6	ND	7.7	ND	6.8	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Endrin aldehyde			ND	6.8	ND	7	ND	7.6	ND	7.7	ND	6.8	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Endrin ketone			ND	6.8	ND	7	ND	7.6	ND	7.7	ND	6.8	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
g-BHC	100	280	ND	1.1	ND	1.4	ND	1.5	ND	1.2	ND	1.1	<1.4	1.4	<1.5	1.5	<1.6	1.6	<1.5	1.5	<1.7	1.7	<1.6	1.6	<2.0	2.0	<1.6	1.6	
g-Chlordane			-	-	-	-	-	-	-	-	-	-	<b>56</b>	3.5	<b>4.3</b>	3.8	<b>4.6</b>	3.9	<b>4.6</b>	3.8	<4.1	4.1	<4.0	4	<b>51</b>	3.8	<3.9	3.9	
Heptachlor	42	2,100	ND	2.1	ND	7	ND	7.6	ND	2.4	ND	2.1	<b>9.3</b>	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<b>9.3</b>	7.5	<7.8	7.8	
Heptachlor epoxide			ND	3.4	ND	7	ND	7.6	ND	3.8	ND	3.4	<7.0	7	<7.6	7.6	<7.9	7.9	<7.6	7.6	<8.3	8.3	<8.1	8.1	<7.5	7.5	<7.8	7.8	
Methoxychlor			ND	34	ND	35	ND	38	ND	38	ND	34	<35	35	<38	38	<39	39	<38	38	<41	41	<40	40	<38	38	<39	39	
Toxaphene			ND	34	ND	140	ND	150	ND	38	ND	34	<140	140	<150	150	<160	160	<150	150	<170	170	<160	160	<150	150	<160	160	
PCB-1016	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1221	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1232	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1242	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1248	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1254	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1260	100	1,000	ND	71	ND	-	ND	80	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1262	100	1,000	-	-	-	-	-	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39
PCB-1268	100	1,000	-	-	-	-	-	ND	80	ND	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<38	38	<39	39

Notes:  
 \* Due to matrix interference from non target compounds in the sample an elevated RL was reported.  
 \*\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives  
 ND - Non-Detect  
 Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value  
 Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5  
79 Box Street,  
Brooklyn, New York  
Soil Analytical Results  
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	Hydrotech Site Investigation Report								EBC RIR Data				End Point Data													
			SP1		SP2		SP3		SP4		SP4		EP1		EP2		EP3		EP4		RY				Rear Yard EP1		Rear Yard EP2	
			1/2/2013 (10-12) µg/Kg		1/2/2013 (10-12) µg/Kg		1/2/2013 (6-8) µg/Kg		9/6/2013 (2-4) µg/Kg		9/6/2013 (4-6) µg/Kg		10/20/2014 µg/Kg		10/20/2014 µg/Kg		10/20/2014 µg/Kg		10/20/2014 µg/Kg		11/25/2014 2ft µg/Kg		11/25/2014 3ft µg/Kg		9/9/2015 µg/Kg		9/9/2015 µg/Kg	
			Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Aluminum			17,800	-	20,500	-	8,180	-	13,600	64	9,350	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Antimony			<0.267	-	<0.279	-	<0.253	-	BRL	4.2	BRL	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Arsenic	13	16	2.05	-	7.43	-	2.01	-	3.5	0.8	2.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Barium	350	400	48.2	-	36.5	-	124	-	112	0.42	76.2	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Beryllium	7.2	72	<0.122	-	0.127	-	<0.115	-	0.69	0.34	0.53	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cadmium	2.5	4.3	<0.122	-	0.127	-	<0.115	-	0.82	0.42	0.91	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Calcium			2200	-	1190	-	2110	-	3,340	6.4	3,750	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chromium	30	180	56.4	-	60.8	-	28.8	-	33.7	0.42	28.9	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chromium, Trivalent			56.4	-	60.8	-	28.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chromium, Hexavalent			<0.426	-	<0.444	-	<0.402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cobalt			436	-	2.51	-	15.3	-	9.77	0.42	8.59	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Copper	50	270	16.3	-	8.32	-	17.7	-	30	0.42	25.3	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Iron			96,400 E	-	94,200 E	-	26,400 D	-	28,800	64	33,000	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Lead	63	400	10.1	-	12.7	-	5.37	-	32.5	0.42	22.2	0.36	88.4	0.8	34.2	0.7	31.3	0.8	54	0.8	148	0.8	12	0.8	94.4	0.7	30.3	0.8
Magnesium			1,460	-	733	-	3,620	-	6,450	64	4,110	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese	1,600	2,000	866	-	417	-	1,380 D	-	388	4.2	403	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mercury	0.18	0.81	<0.114	-	<0.119	-	<0.180	-	BRL	0.08	BRL	0.07	0.21	0.08	<0.09	0.09	0.05	0.07	0.08	0.08	0.84	0.09	0.12	0.07	0.27	0.03	0.31	0.03
Nickel	30	310	3.05	-	3.75	-	18.9	-	26.3	0.42	18.2	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Potassium			533	-	485	-	2,160	-	3,620	6.4	2,280	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	3.9	180	8.83	-	9.04	-	5.07	-	BRL	1.7	BRL	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	2	180	<0.122	-	<0.127	-	<0.115	-	BRL	0.42	BRL	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium			137	-	139	-	165	-	238	6.4	168	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium			<0.389	-	<0.406	-	<0.368	-	BRL	0.7	BRL	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium			193	-	210	-	44.7	-	39.7	0.42	48.2	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Zinc	109	10,000	21.6	-	13.6	-	47.5	-	96.4	0.42	61.5	0.36	148	7.6	67.3	0.7	58.8	0.8	87.9	0.8	177	7.8	146	0.8	134	0.7	296	7.6

Notes:

- \*\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
- E - Result is estimated and cannot be accurately reported due to levels encountered or interferences
- D - Result is from and analysis that required dilution
- BRL - Below Reporting Limit
- Bold/highlighted**- Indicated exceedance of the NYSDC UUSCO Guidance Value
- Bold/highlighted**- Indicated exceedance of the NYSDC RRSCO Guidance Value

**Table 5**  
**Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
<b>METALS</b>							
Arsenic	7440-38 -2	16 <sub>f</sub>	16 <sub>f</sub>	16 <sub>f</sub>	16 <sub>f</sub>	13 <sub>f</sub>	16 <sub>f</sub>
Barium	7440-39 -3	350 <sub>f</sub>	400	400	10,000 <sub>d</sub>	433	820
Beryllium	7440-41 -7	14	72	590	2,700	10	47
Cadmium	7440-43 -9	2.5 <sub>f</sub>	4.3	9.3	60	4	7.5
Chromium, hexavalent <sup>h</sup>	18540-29-9	22	110	400	800	1 <sub>e</sub>	19
Chromium, trivalent <sup>h</sup>	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50 -8	270	270	270	10,000 <sub>d</sub>	50	1,720
Total Cyanide <sup>h</sup>		27	27	27	10,000 <sub>d</sub>	NS	40
Lead	7439-92 -1	400	400	1,000	3,900	63 <sub>f</sub>	450
Manganese	7439-96 -5	2,000 <sub>f</sub>	2,000 <sub>f</sub>	10,000 <sub>d</sub>	10,000 <sub>d</sub>	1600 <sub>f</sub>	2,000 <sub>f</sub>
Total Mercury		0.81 <sub>j</sub>	0.81 <sub>j</sub>	2.8 <sub>j</sub>	5.7 <sub>j</sub>	0.18 <sub>f</sub>	0.73
Nickel	7440-02 -0	140	310	310	10,000 <sub>d</sub>	30	130
Selenium	7782-49 -2	36	180	1,500	6,800	3.9 <sub>f</sub>	4 <sub>f</sub>
Silver	7440-22 -4	36	180	1,500	6,800	2	8.3
Zinc	7440-66 -6	2200	10,000 <sub>d</sub>	10,000 <sub>d</sub>	10,000 <sub>d</sub>	109 <sub>f</sub>	2,480
<b>PESTICIDES / PCBs</b>							
2,4,5-TP Acid (Silvex)	93-72-1	58	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 <sub>e</sub>	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 <sub>e</sub>	136
4,4'-DDD	72-54-8	2.6	13	92	180	0.0033 <sub>e</sub>	14
Aldrin	309-00-2	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	319-84-6	0.097	0.48	3.4	6.8	0.04 <sub>g</sub>	0.02
beta-BHC	319-85-7	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	5103-71 -9	0.91	4.2	24	47	1.3	2.9
delta-BHC	319-86-8	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	0.04 <sub>g</sub>	0.25
Dibenzofuran	132-64-9	14	59	350	1,000 <sub>c</sub>	NS	210
Dieldrin	60-57-1	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	959-98-8	4.8 <sub>i</sub>	24 <sub>i</sub>	200 <sub>i</sub>	920 <sub>i</sub>	NS	102
Endosulfan II	33213-65-9	4.8 <sub>i</sub>	24 <sub>i</sub>	200 <sub>i</sub>	920 <sub>i</sub>	NS	102
Endosulfan sulfate	1031-07 -8	4.8 <sub>i</sub>	24 <sub>i</sub>	200 <sub>i</sub>	920 <sub>i</sub>	NS	1,000 <sub>c</sub>
Endrin	72-20-8	2.2	11	89	410	0.014	0.06
Heptachlor	76-44-8	0.42	2.1	15	29	0.14	0.38
Lindane	58-89-9	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	1336-36 -3	1	1	1	25	1	3.2
<b>SEMI-VOLATILES</b>							
Acenaphthene	83-32-9	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	20	98
Acenaphthylene	208-96-8	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	107
Anthracene	120-12-7	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	1,000 <sub>c</sub>
Benz(a)anthracene	56-55-3	1 <sub>f</sub>	1 <sub>f</sub>	5.6	11	NS	1 <sub>f</sub>
Benzo(a)pyrene	50-32-8	1 <sub>f</sub>	1 <sub>f</sub>	1 <sub>f</sub>	1.1	2.6	22
Benzo(b) fluoranthene	205-99-2	1 <sub>f</sub>	1 <sub>f</sub>	5.6	11	NS	1.7
Benzo(g,h,i) perylene	191-24-2	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	1,000 <sub>c</sub>
Benzo(k) fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1 <sub>f</sub>	3.9	56	110	NS	1 <sub>f</sub>
Dibenz(a,h) anthracene	53-70-3	0.33 <sub>e</sub>	0.33 <sub>e</sub>	0.56	1.1	NS	1,000 <sub>c</sub>
Fluoranthene	206-44-0	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	1,000 <sub>c</sub>
Fluorene	86-73-7	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	30	386
Indeno(1,2,3-cd) pyrene	193-39-5	0.5 <sub>f</sub>	0.5 <sub>f</sub>	5.6	11	NS	8.2
m-Cresol	108-39-4	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	0.33 <sub>e</sub>
Naphthalene	91-20-3	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	12
o-Cresol	95-48-7	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	0.33 <sub>e</sub>
p-Cresol	106-44-5	34	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	0.33 <sub>e</sub>
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8 <sub>e</sub>	0.8 <sub>e</sub>
Phenanthrene	85-01-8	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	1,000 <sub>c</sub>
Phenol	108-95-2	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	30	0.33 <sub>e</sub>
Pyrene	129-00-0	100 <sub>a</sub>	100 <sub>a</sub>	500 <sub>b</sub>	1,000 <sub>c</sub>	NS	1,000 <sub>c</sub>

**Table 5  
Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
<b>VOLATILES</b>							
1,1,1-Trichloroethane	71-55-6	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.33
1,2-Dichlorobenzene	95-50-1	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02 <sup>d</sup>
cis-1,2-Dichloroethene	156-59-2	59	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.19
1,3-Dichlorobenzene	541-73-1	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	106-46-7	9.8	13	130	250	20	1.8
1,4-Dioxane	123-91-1	9.8	13	130	250	0.1 <sup>e</sup>	0.1 <sup>e</sup>
Acetone	67-64-1	100 <sup>a</sup>	100 <sup>b</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	40	1.1
Chloroform	67-66-3	10	49	350	700	12	0.37
Ethylbenzene	100-41-4	30	41	390	780	NS	1
Hexachlorobenzene	118-74-1	0.33 <sup>e</sup>	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	100 <sup>a</sup>	0.12
Methyl tert-butyl ether	1634-04 -4	62	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.93
Methylene chloride	75-09-2	51	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	12	0.05
n-Propylbenzene	103-65-1	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	3.9
sec-Butylbenzene	135-98-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	11
tert-Butylbenzene	98-06-6	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	36	0.7
Trichloroethene	79-01-6	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	95-63-6	47	52	190	380	NS	3.6
1,3,5-Trimethylbenzene	108-67-8	47	52	190	380	NS	8.4
Vinyl chloride	75-01-4	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	1330-20 -7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified. See Technical Support Document (TSD). Footnotes

a The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

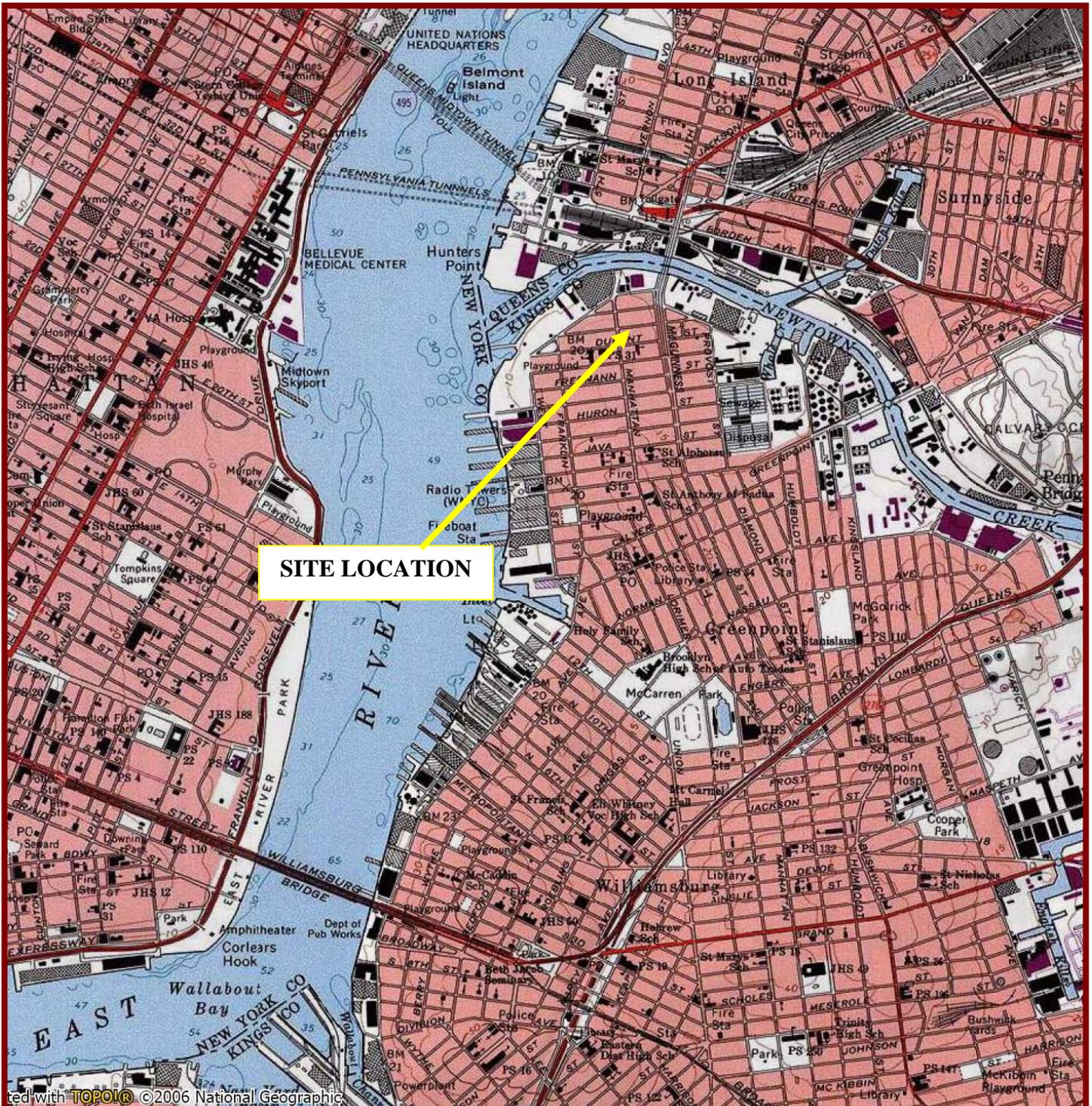
b The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

c The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

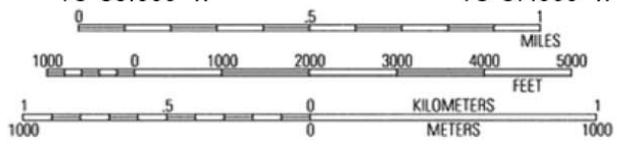
# **FIGURES**



**SITE LOCATION**

Map created with **TOPOLO** ©2006 National Geographic

73°59.000' W                      73°58.000' W                      73°57.000' W                      WGS84 73°56.000

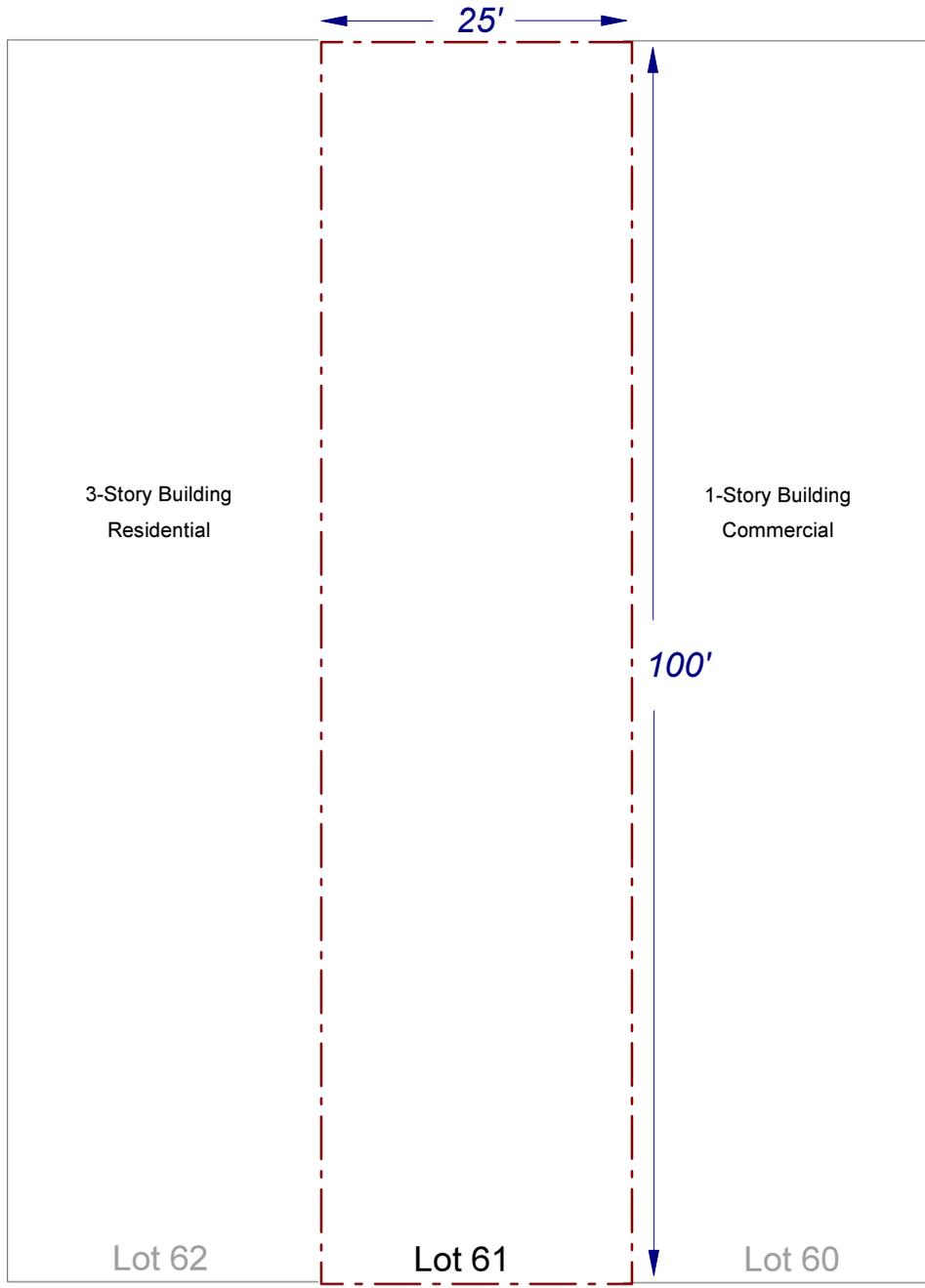


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79 CLAY STREET  
 BROOKLYN, NEW YORK 11222

**FIGURE 1 - SITE LOCATION MAP**

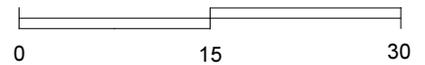


Sidewalk

# CLAY STREET

### Key

 Property Boundary



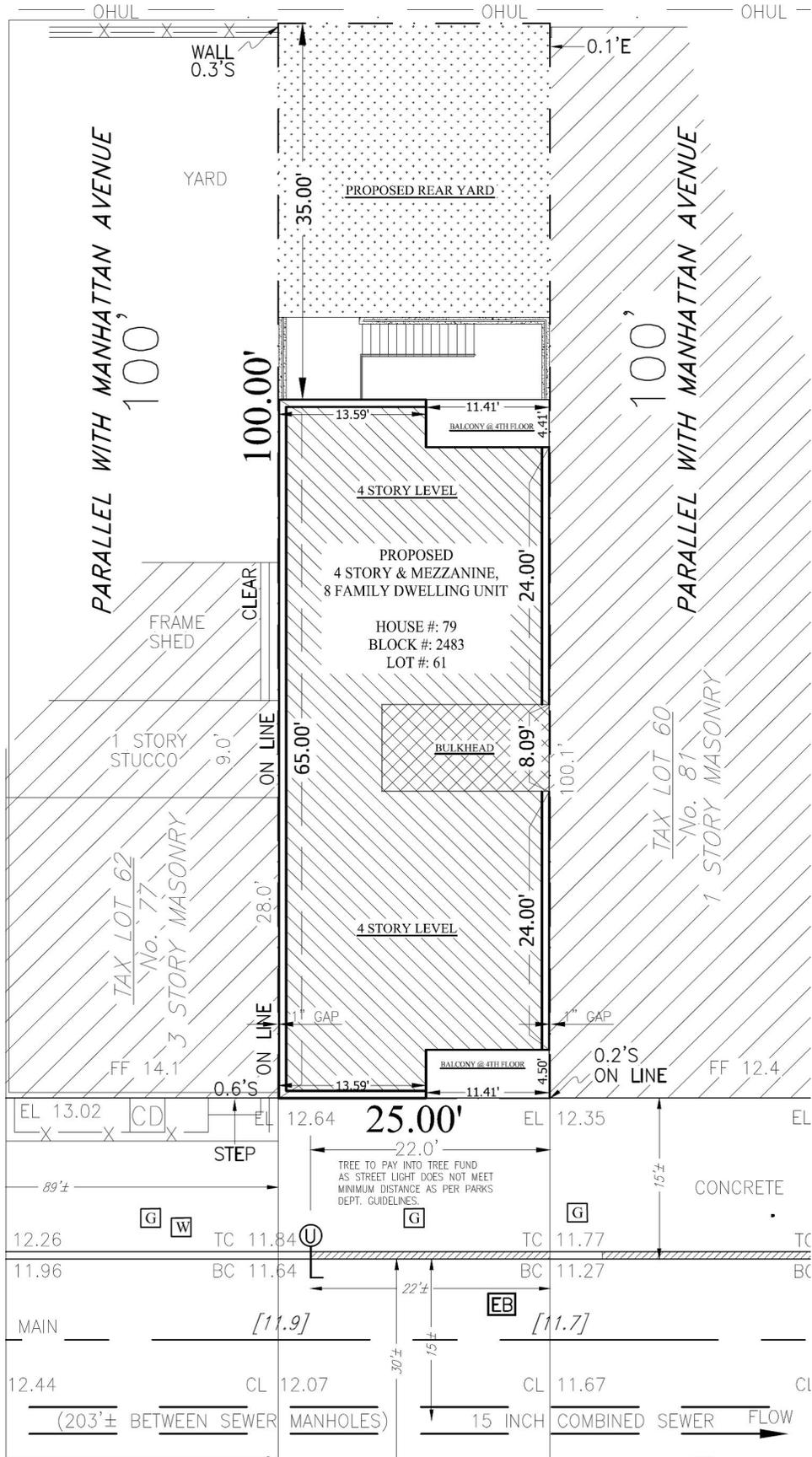
Scale: 1 inch = 15 feet



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Figure No.  
**2**

Site Name: Vacant Lot  
Site Address: 79 Clay Street, Brooklyn, NY  
Drawing Title: Site Boundary Map

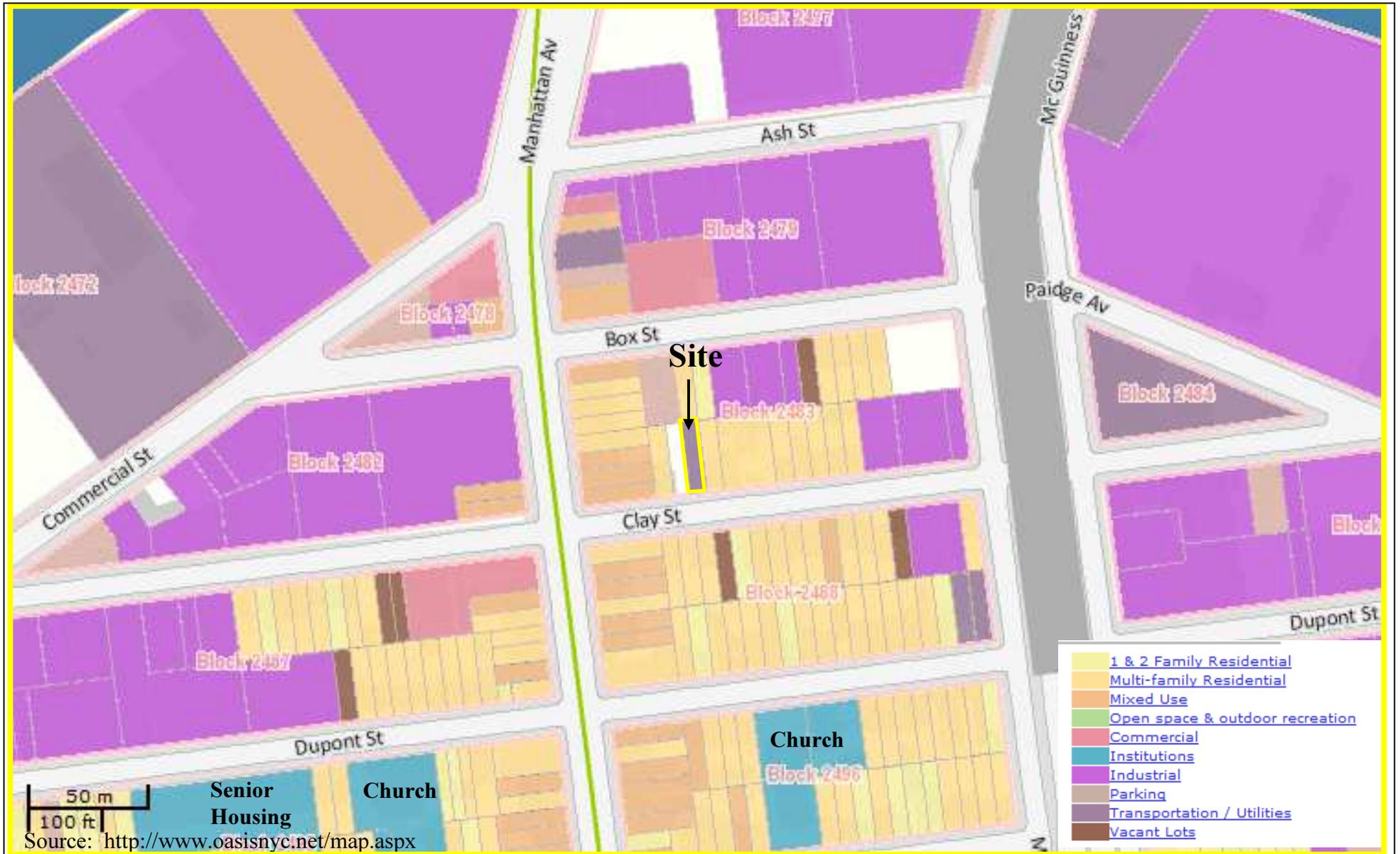


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Figure No.  
**3**

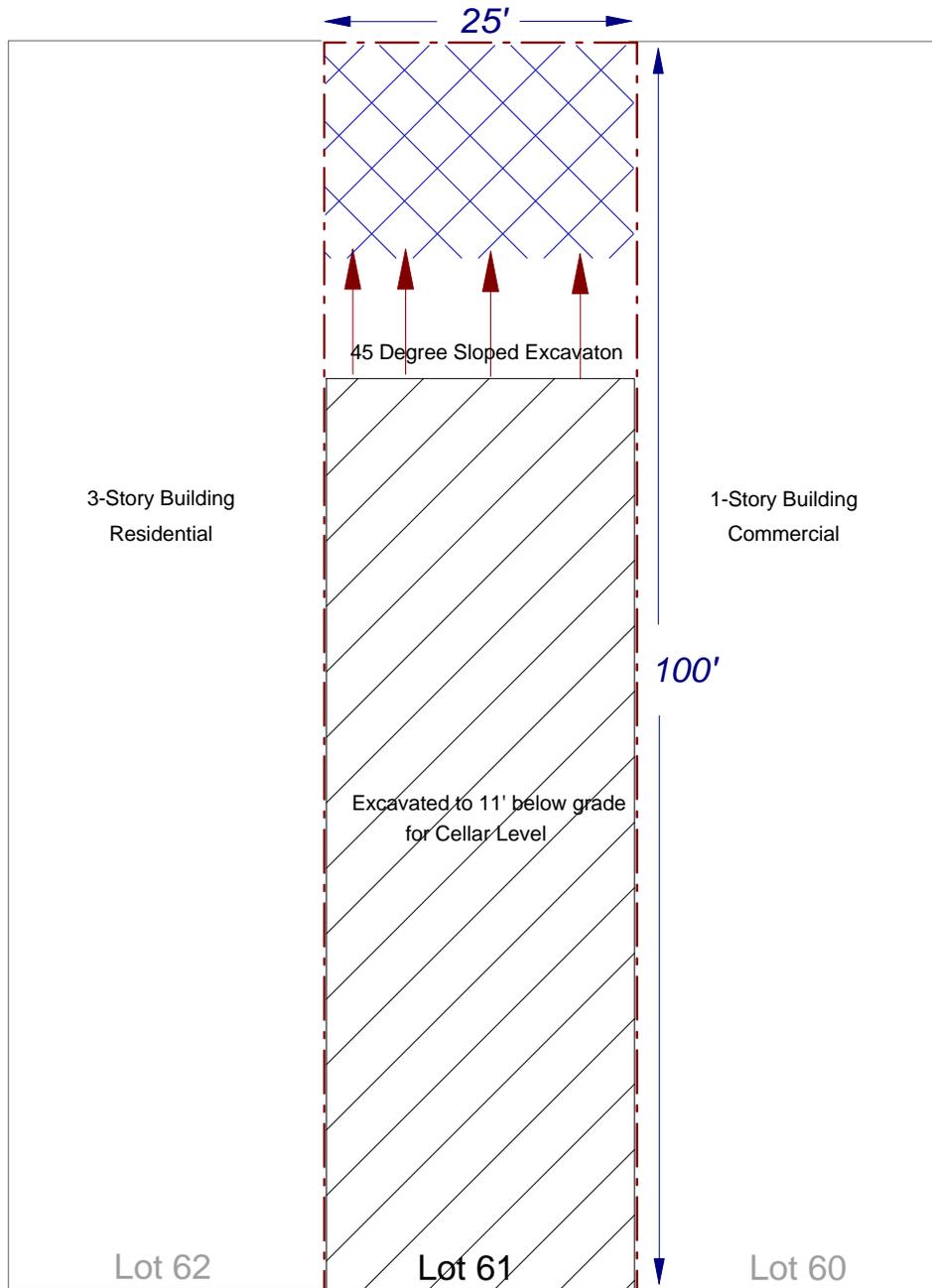
Site Name: Vacant Lot  
Site Address: 79 Clay Street, Brooklyn, NY  
Drawing Title: Redevelopment Plan



**FIGURE 4**  
**SURROUNDING LAND USE MAP**  
 79 CLAY STREET, BROOKLYN, NY

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3-Story Building  
Residential

1-Story Building  
Commercial

Lot 62

Lot 61

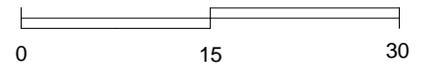
Lot 60

Sidewalk

# CLAY STREET

## Key

-  Property Boundary
-  Excavated to 3-3.5 Feet below grade for Rear Yard

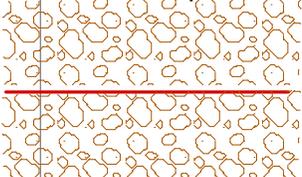


Scale: 1 inch = 15 feet



### Detail A / Rear Yard

2 Feet of Top Soil



Native Soil

3-Story Building  
Residential

Demarcation Barrier

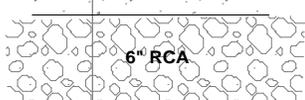
25'

100'

1-Story Building  
Commercial

### Detail B / Building Footprint

8" Concrete Slab



6" RCA

Lot 62

Lot 61

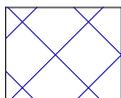
Lot 60

Sidewalk

# CLAY STREET

### Key

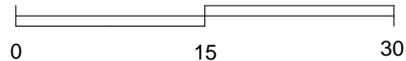
 Property Boundary



Rear Yard  
Installed Demarcation Barrier (Orange Safety Fence)  
and added 2 Feet of Top Soil



8" Thick Concrete Cellar Slab  
Installed over a 6" Layer of RCA



Scale: 1 inch = 15 feet

<b>SP3 (6-8')</b>	
Selenium	5.07

<b>EP1 10/20/2014</b>	
Benz(a)anthracene	1,800
Benzo(a)pyrene	1,800
Benzo(b)fluoranthene	2,200
Benzo(k)fluoranthene	810
Chrysene	1,900
Indeno(1,2,3-cd)pyrene	1,100
4,4' -DDD	5.7
4,4' -DDE	6.8
4,4' -DDT	35
Aldrin	6.7
Dieldrin	6.7
Lead	88.4
Mercury	0.21
Zinc	148

<b>Rear Yard EP1 9/9/2015</b>	
Benz(a)anthracene	1,300
Benzo(a)pyrene	1,300
Benzo(b)fluoranthene	1,100
Benzo(k)fluoranthene	1,200
Chrysene	1,400
Indeno(1,2,3-cd)pyrene	1,000
4,4' -DDE	7.9
Dieldrin	9.4
Lead	94.4
Mercury	0.27
Zinc	134

<b>SP2 (10-12')</b>	
Chromium	60.8
Selenium	9.04

<b>SP1 (10-12')</b>	
4,4' -DDT	3.53
Chromium	56.4
Selenium	8.83

<b>RY 2' 11/25/2014</b>	
Benz(a)anthracene	1,400
Benzo(a)pyrene	1,100
Benzo(b)fluoranthene	1,500
Chrysene	1,300
Indeno(1,2,3-cd)pyrene	570
Lead	148
Mercury	0.84
Zinc	177

<b>RY 3' 11/25/2014</b>	
Zinc	146

<b>Rear Yard EP2 9/9/2015</b>	
Mercury	0.31
Zinc	296

<b>SP4 (2-4')</b>	
Chromium	33.7

<b>SP4 (4-6')</b>	
4,4'-DDE	4.7
4,4'-DDT	15

<b>EP2 10/20/2014</b>	
4,4' -DDT	6.4
Aldrin	6.7
Dieldrin	8.3

<b>EP3 10/20/2014</b>	
4,4' -DDT	7.1
Aldrin	5.9
Dieldrin	7.4

<b>EP4 10/20/2014</b>	
4,4' -DDT	5.4
Aldrin	7.5
Dieldrin	7.7

Lot 62      Lot 61      Lot 60

Sidewalk

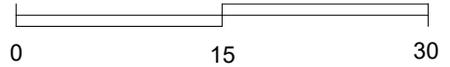
# CLAY STREET



## Key

- Property Boundary
- Soil Boring Location

SVOCs/Pesticides	ppb
Metals	ppm



Scale: 1 inch = 15 feet

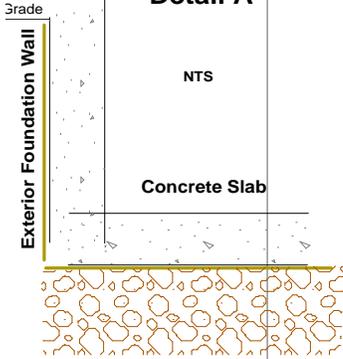
- Exceedence of Restricted Residential SCO
- Exceedence of Unrestricted Use SCO



25'

100'

### Detail A



### Detail B



Rear Yard

1-Story Building  
Commercial

Grace Preprufe 300 R

3-Story Building  
Residential

Lot 62

Lot 61

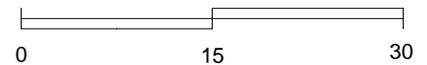
Lot 60

Sidewalk

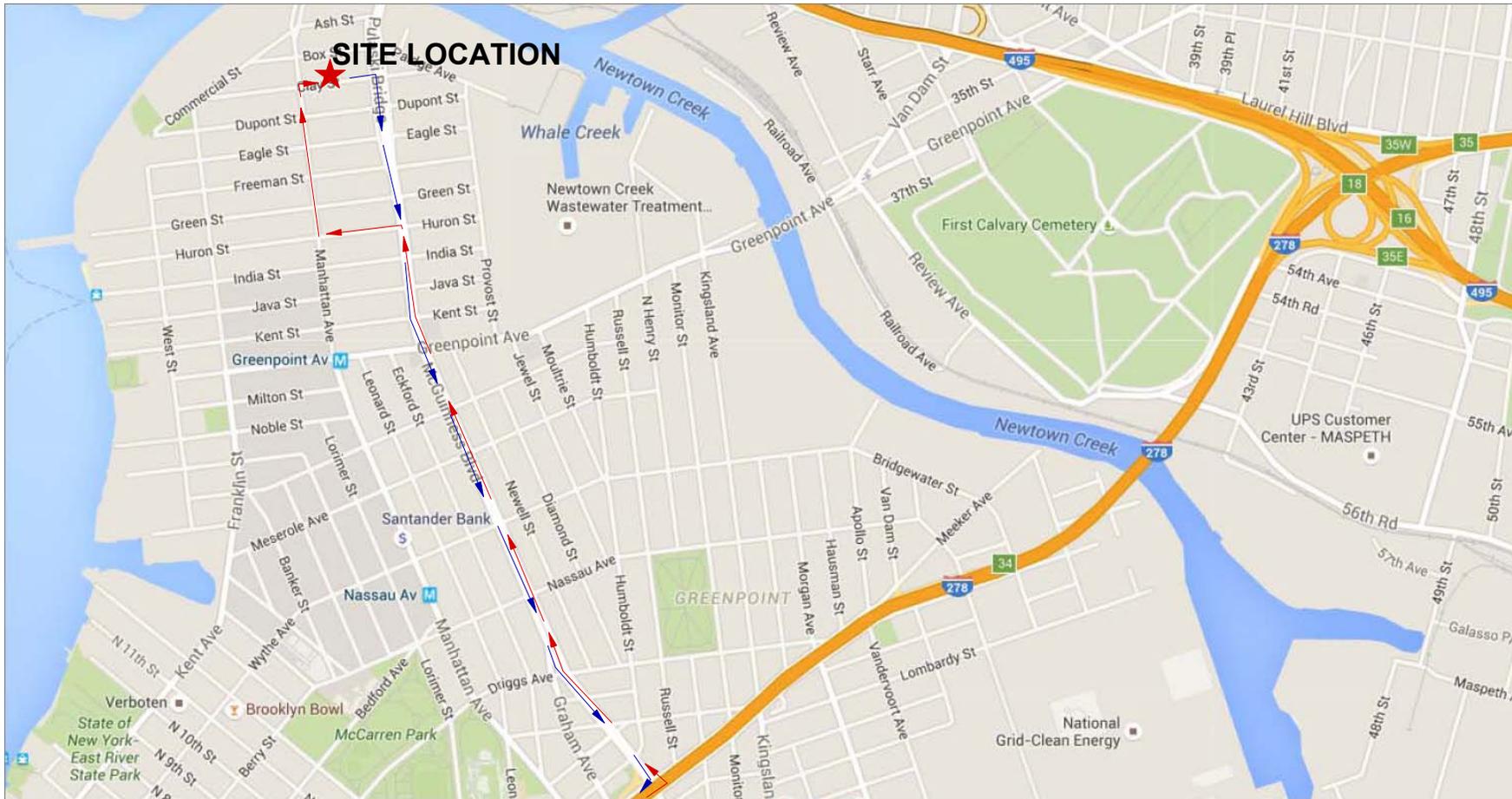
# CLAY STREET

### Key

 Property Boundary



Scale: 1 inch = 15 feet



**Key:**

-  Truck Route From Site
-  Truck Route To Site

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**FIGURE 9 TRUCK ROUTE**