

# **RALPH AVENUE AND PRESTON COURT**

**BROOKLYN, NEW YORK**

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## **Remedial Action Report**

**NYC VCP Project Number 15CVCP123K**

**Prepared For:**

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**MARCH 2022**

# **REMEDIAL ACTION REPORT**

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## LIST OF ACRONYMS

Acronym	Definition
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
RCA	Recycled Concrete Aggregate
SPDES	State Pollutant Discharge Elimination System
NYSDEC	New York State Department of Environmental Conservation
DUSR	Data Usability Summary Report

## CERTIFICATION

I, Xin Yuan, 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 Ralph Avenue and Preston Court site, site number 15CVCP123K.
- I have reviewed this document, to which my signature and seal are affixed.
- Engineering Controls implemented during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial action Work Plan and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated September 10, 2015 and Stipulations in letters dated September 11, 2015 and November 17, 2017 were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquid or other material from the property was taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Name Xin Yuan

PE License Number 096444

Signature *Xin Yuan*

Date 4/12/2022





I, Kevin Kleaka, certify the following:

- I am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the Ralph Avenue and Preston Court site, site number 15CVCP123K.
- The OER-approved Remedial Action Work Plan dated September 10, 2015 and Stipulations in letters dated September 11, 2015 and November 17, 2017 were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquid or other material from the property was taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

QEP Name

QEP Signature

Date

## **EXECUTIVE SUMMARY**

I.J. Litwak Realty I, LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1427 Ralph Avenue, 8033 Preston Court in the Canarsie 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 the 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 and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

### **Site Location and Background**

The Site is located at 8033 Preston Court in the Canarsie section of Brooklyn, New York and is identified as Block 7918, Lot 86 (formerly Lots 86, 93, and 141) on the New York City Tax Map. The Site is 67,518 square feet in total and is bounded by the New York City Sanitation Department beyond Chase Court to the north; Gold Caviar Seafood, Wholesale Market, Terminal Cash and Carry, and Brooklyn Borough Ambulance Command Station #33 adjoining to the east; AIA Auto Recycling, a parking lot, BP Station, Herr's, and a wholesale produce company beyond Preston Court to the south; Quick Lube adjoining to the southwest; and junk yards and a tire shop beyond Ralph Avenue to the west. Prior to redevelopment the Site consisted of a partially constructed, steel-framed building located on the central and eastern portions of the site and a one-story office building located on the southwest portion of the site. The remainder of the Site was paved with asphalt and utilized as a parking area.

### **Summary of Redevelopment Plan**

As part of development, the one-story office building was demolished, and the partially constructed building located in the central and eastern portions of the site was finished

into a 48,000-square-foot single-story, slab-on-grade warehouse structure. The structure was constructed on grade and does not contain a basement. The ground floor consists of eight (8) warehouse/storage areas, each containing office space. The remaining 19,518 square feet of the site was repaved for an asphalt parking lot.

Four (4) hot spots, identified as B-1, B-2, MW-3 and MW-4 required excavation to remove soils exceeding Track 4 SCOs. The excavation from hotspot B-1 measured approximately 70 ft by 50 ft, the excavation from hotspot B-2 measured approximately 45 ft by 45 ft, the excavation from hotspot MW-3 measured approximately 10 ft by 10 ft and the excavation from hotspot MW-4 measured approximately 12 ft by 10 ft. All remedial excavations were advanced to 2 ft bgs. Excavation to 12 feet bgs was required for the installation of a stormwater detention tank.

### **Summary of Description of Surrounding Property**

The subject property is bounded by the New York City Sanitation Department beyond Chase Court to the north; Gold Caviar Seafood, Wholesale Market, Terminal Cash and Carry, and Brooklyn Borough Ambulance Command Station #33 adjoining to the east; AIA Auto Recycling, a parking lot, BP Station, Herr's, and a wholesale produce company beyond Preston Court to the south; Quick Lube adjoining to the southwest; and junk yards and a tire shop beyond Ralph Avenue to the west. The area immediately surrounding the site primarily consists of commercial and light industrial/manufacturing uses. No hospitals, schools or daycare facilities are located within a 500-foot radius of the Site.

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

According to historical sources reviewed by Whitestone, the partially constructed building located on former Lot 93 was erected in 2005. Lot 93 historically was occupied by an industrial structure (identified as "manufacturing" per Sanborn Fire Insurance Maps) from at least 1960 until 2002; former Lot 141 of the subject property historically was used as a junk yard dating back to at least 1967; and former Lot 86 of the subject

property historically was used for truck parking dating back to at least 1976. City Directories indicate that former Lot 93 was occupied by United Case Stone Co. in 1960 and Bernstein Distributing Corp. from 1970 until 1985, and former Lot 86 was occupied by Parkway Motors Used Cars in 1960 and A&S Auto Wrecking in 1965. Prior to 1960, the subject property was undeveloped dating back to at least 1907.

Whitestone's draft *Summary Report of Findings – Phase I Environmental Site Assessment and Survey for Asbestos Containing Materials* dated March 21, 2012 and Whitestone's *Summary Report of Findings – Phase I Environmental Site Assessment* dated January 28, 2015 identified the following recognized environmental conditions/areas of concern (RECs/AOCs) at the site:

1. The historical usage of the Site was for manufacturing and a junk yard. Accordingly, impacts to subsurface conditions from former site operations were suspected.
2. Urban properties such as the subject site typically have been filled with material imported from off-site sources during initial site development or subsequent redevelopment to achieve final grades. Fill materials consisting of brown sandy silt with varying amounts of debris were encountered at the subject property to depths of up to 44 feet below ground surface (fbgs) during Whitestone's geotechnical investigations. Significant amounts of debris were encountered in the upper 15 feet of the fill. Such non-native materials may contain contaminants exceeding applicable standards.
3. Suspected petroleum staining was observed on an unpaved surface in the southwestern portion of the site.

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

Whitestone, on behalf of I.J. Litwak Realty I, LLC, performed the following scope of work between May 2013 and July 2013:

1. Conducted a Site inspection to identify RECs/AOCs and physical obstructions (i.e., structures, buildings, etc.);
2. Installed 57 soil borings across the entire project Site, and collected 65 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed ten [10] temporary well points and four [4] groundwater monitoring wells throughout the Site to establish groundwater flow and collected 14 groundwater samples for chemical analysis to evaluate groundwater quality; and
4. Installed six [6] soil vapor probes throughout the Site and collected six [6] samples for chemical analysis.

#### **Summary of Findings of Remedial Investigation**

1. Elevation of the property ranges from 12.82 feet to 16.78 feet above mean sea level (msl).
2. Depth to groundwater ranges from 7.2 fbgs to 13.75 fbgs at the Site.
3. Groundwater flow is generally from east to west beneath the Site.
4. Bedrock was not encountered within 44 fbgs at the Site during Whitestone's geotechnical investigation.
5. The stratigraphy of the site, from the surface down during the RI, consists of up to 0.25 feet of topsoil, up to 0.25 feet of woodchips, or up to 0.25 feet of mulch at the surface underlain by up to 16.0 feet of fill material consisting of sand with variable amounts of silt, gravel, and debris or silt with variable amounts of sand, gravel, and debris. Fill materials were noted up to 44 fbgs in Whitestone's geotechnical borings. The fill materials are underlain in select borings by silty sand with variable amounts of rock fragments and gravel.
6. Soil/fill samples results were compared to New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives and Restricted Commercial Use Soil Cleanup Objectives (SCOs) as presented in 6NYCRR Part 375-6.8. Soil/fill results showed three volatile organic compounds

(VOCs), acetone (max. of 0.29 parts per million [ppm]), benzene (0.1 ppm), and total xylenes (0.275 ppm) above Unrestricted Use SCO. Several semi-volatile organic compounds (SVOCs) consisting of Polycyclic Aromatic Hydrocarbons (PAHs) were detected exceeding Unrestricted Use SCO, and of those, benz(a)anthracene (max. of 16 ppm), benzo(a)pyrene (max. of 11 ppm), benzo(b)fluoranthene (max. of 15 ppm), dibenz(a,h)anthracene (max. of 3.2 ppm), and indeno(1,2,3-cd)pyrene (max. of 7.4 ppm) also exceeded Restricted Commercial Use SCO in both shallow and deep soils. Total polychlorinated biphenyls (PCBs, max. of 14 ppm) were detected above Restricted Commercial Use SCO in 8 samples. Three pesticides, 4,4'-DDD (max. of 0.0138 ppm), 4,4',-DDT (0.0205 ppm), and endrin (max. of 0.0356 ppm) were detected above Unrestricted Use SCO, but none above Restricted Commercial Use SCO. Several metals including arsenic (max. of 33 ppm), barium (max. of 2,800 ppm), cadmium (max. of 95 ppm), copper (max. of 7,100 ppm), and lead (max. of 48,000 ppm) exceeded Restricted Commercial Use SCO. Mercury and zinc also exceeded Unrestricted Use SCO. Five hot-spots at locations B-1 area (PCB and metals), B-2 area (metals), B-5 area (metals), MW-4A area (PCB and metals), and MW-3 area (PCB and metals) were identified during investigations. TCLP analysis indicated hazardous concentrations of lead at various depths.

7. Groundwater sample results from the RI were compared to New York State 6NYCRR Part 703.5 Class GA Groundwater Quality Standards (GQS). Groundwater results showed no PCBs or pesticides in any sample. Two VOCs, benzene (max. of 1.3 mg/L) and methyl-t-butyl ether (29 mg/L) exceeded their GQS. Several SVOCs including 2,4-Dimethylphenol (1.6 mg/L), 3&4-methylphenol (2.9 mg/L), benz(a)anthracene (6.4 mg/L), benzo(a)pyrene (5.5 mg/L), benzo(b)fluoranthene (7.8 mg/L), benzo(k)fluoranthene (2.7 mg/L), chrysene (5.7 mg/L), indeno(1,2,3-cd)pyrene (3.0 mg/L), and naphthalene (15 mg/L) were detected above their respective GQS in two samples. Several dissolved metals were identified in groundwater, but only manganese (max. of 6,400 mg/L) and sodium (max. of 100,000 mg/L) exceeded their respective GQS in two samples.

8. Soil vapor samples collected during the RI were compared to the compounds listed by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples collected during the RI showed moderate levels of petroleum-related VOCs and chlorinated VOCs. The total concentration of petroleum-related VOCs (BTEX) ranged from 5.95  $\mu\text{g}/\text{m}^3$  to 16.08  $\mu\text{g}/\text{m}^3$ . The highest concentrations were detected for ethanol (max. of 1,090  $\mu\text{g}/\text{m}^3$ ) and acetone (max. of 1,030  $\mu\text{g}/\text{m}^3$ ). The chlorinated VOCs, 1,1,1-trichloroethane (TCA), carbon tetrachloride, trichloroethylene (TCE), and tetrachloroethylene (PCE) were not detected in any of the samples. Concentrations of the chlorinated VOCs were well below the monitoring level ranges established within the NYSDOH 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; addressed applicable standards, criteria, and guidance; reduced mobility, toxicity and volume of contaminants; was cost effective and implementable; and used standard methods that are well established in the industry. The remedial action is effective in the short-term and long-term.

A summary of the milestones achieved in the Remedial Action is as follows: A Pre-Application Meeting was held on December 30, 2014. A Remedial Investigation (RI) was performed from April to July 2013. A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Site Contact List was established. A draft RAWP was prepared and released with a Fact Sheet on September 14, 2015 for a 30-day public comment period. The RAWP and Stipulation Lists dated September 11, 2015 and November 17, 2017 were approved by the New York City Office of Environmental Remediation (OER) on November 28, 2017. A Pre-Construction Meeting was held on September 14, 2016 and April 22, 2019. A Fact Sheet

providing notice of the start of the remedial action was issued on August 23, 2016. The remedial action was begun in March 2018 and completed in November 2021.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and performed all required NYC VCP Citizen Participation activities according to the approved Citizen Participation Plan.
2. Performed a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon compounds.
3. Established Track 4 Site-Specific Soil Cleanup Objectives (SCOs) for the top two feet of soil across the property.

The Site-Specific (Track 4) SCOs for the top two feet of this property are:

<b><u>Contaminant</u></b>	<b><u>Track 4 Site Specific SCOs</u></b>
SVOCs (total)	250 ppm
Lead	1,200 ppm
Copper	350 ppm
Barium	850 ppm
Arsenic	23 ppm
PCBs	1.0 ppm surface and 10 ppm subsurface

4. Mobilized site equipment; setup Site security; completed utility mark outs; and marked and staked excavation areas.
5. Performed Waste Characterization Study prior to excavation activities. Three (3) waste characterization soil samples were collected on January 6, 2020. Waste characterization samples were collected at a frequency dictated by disposal facility(s).
6. The following excavations were performed: soil exceeding Site-Specific Track 4 SCOs was excavated from four (4) hot spots [hazardous B-1 and non-hazardous B-2, MW-3, and MW-4] to a depth of 2 feet bgs; and soil was removed to a depth of 12 feet from grade for installation of stormwater detention tanks. A total of 699.04 tons of soil/fill was excavated and removed from the property and 1,512.99 tons of material was removed as part of the sidewalk construction areas.



7. Excavated 350.63 tons of non-hazardous soil/fill and transported it to Bayshore Soil Management, LLC, 75 Crows Mill Road, Keasby, New Jersey; excavated 348.41 tons of hazardous characteristic soil/fill and transported to Republic Environmental Systems (PA) LLC, 2869 Sandstone Drive, Hatfield, Pennsylvania; excavated 1,512.99 tons of non-hazardous soil/fill and transported to Clean Earth of Carteret, 24 Middlesex Avenue, Carteret, New Jersey.
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
10. Appropriately segregated excavated media onsite prior to disposal. Transported and disposed all soil/fill material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and the RAWP.
11. Collected and analyzed end-point samples from four hotspot areas to determine attainment of SCOs. Track 4 Site-Specific SCOs were achieved for the top two feet of the Site. Material beneath the top two feet is capped by an engineered composite cover system and will be managed in place.
12. Constructed an engineered Composite Cover System consisting of the 4-inch-thick asphalt pavement in the open-air parking area and the 6-inch-thick reinforced concrete foundation slab for the warehouse building to prevent human exposure to residual soil/fill remaining under the Site. The contractor for the concrete cover construction was JT Masonry of Bedford Hills, NY and the contractor for the asphalt cap and street restoration was Tristate Paving of Bohemia, NY.
13. Installed a moisture barrier that consisted of 6 mil GripRite poly sheeting beneath the building slab and up the foundation walls. JT Masonry completed the installation of the moisture barrier.

14. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Submitted daily reports during construction oversight activities. Daily reports were submitted from 3/19/2018 to 07/23/2021.
17. Submitted a Remedial Action Report (RAR) that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved; defines the Site boundaries; describes all Engineering and Institutional Controls applicable to the Site; and describes any changes from the RAWP.
18. Submitted a Site Management Plan (SMP) for long-term management of engineering controls and residual soil, including plans for operation, maintenance, inspection and certification of the performance of Engineering Controls and Institutional Controls. Inspection and Certification reports will be submitted by July 31, 2028 (for the reporting period calendar year 2022-2027), July 31, 2033 (for the reporting period calendar years 2028-2032) and every five years thereafter (for the reporting period consisting of the prior five calendar years). Inspection and Certification Reports will cover the entire calendar year.
19. Recorded of a Declaration of Covenants and Restrictions that includes a listing of EC/ICs and a requirement that management of these controls must be in compliance with an approved SMP. ICs include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

# REMEDIAL ACTION REPORT

## 1.0 SITE BACKGROUND

I.J. Litwak Realty I, LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1427 Ralph Ave, 8033 Preston Court in the Canarsie section of Brooklyn, New York. The boundary of the property subject to this Remedial Action is shown in Figure 1 and includes, in its entirety, Brooklyn Block 7918 and Lot(s) 86, 93 and 141. 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 and complies with applicable environmental standards, criteria and guidance (SCGs) and applicable laws and regulations.

### 1.1 SITE LOCATION AND BACKGROUND

The Site is located at 8033 Preston Court in the Canarsie section of Brooklyn, New York and is identified as Block 7918, Lot 86 (formerly Lots 86, 93, and 141) on the New York City Tax Map. **Figure 2** shows the Site location. The Site is 67,518 square feet in total and is bounded by the New York City Sanitation Department beyond Chase Court to the north; Gold Caviar Seafood, Wholesale Market, Terminal Cash and Carry, and Brooklyn Borough Ambulance Command Station #33 adjoining to the east; AIA Auto Recycling, a parking lot, BP Station, Herr's, and a wholesale produce company beyond Preston Court to the south; Quick Lube adjoining to the southwest; and junk yards and a tire shop beyond Ralph Avenue to the west. Prior to redevelopment the Site consisted of a partially constructed, steel-framed building located on the central and eastern portions of the site and a one-story office building located on the southwest portion of the site. The remainder of the Site was paved with asphalt and utilized as a parking area. A map of the site boundary is shown in **Figure 1**.

## **1.2 REDEVELOPMENT PLAN**

As part of development, the one-story office building was demolished, and the partially constructed building located in the central and eastern portions of the site was finished into a 48,000-square-foot single-story, slab-on-grade warehouse structure. The structure was constructed on grade and does not contain a basement. The ground floor consists of eight (8) warehouse/storage areas, each containing office space. The remaining 19,518 square feet of the Site was repaved for an asphalt parking lot.

Four (4) hot spots, identified as B-1, B-2, MW-3 and MW-4 required excavation to remove soils exceeding Track 4 SCOs. The excavation from hotspot B-1 measured approximately 70 ft by 50 ft, the excavation from hotspot B-2 measured approximately 45 ft by 45 ft, the excavation from hotspot MW-3 measured approximately 10 ft by 10 ft and the excavation from hotspot MW-4 measured approximately 12 ft by 10 ft. All remedial excavations were advanced to 2 ft bgs. Excavation to 12 feet bgs was required for the installation of a stormwater detention tank. The Site development plan is presented in **Figure 4**.

## **1.3 DESCRIPTION OF SURROUNDING PROPERTY**

The subject property is bounded by the New York City Sanitation Department beyond Chase Court to the north; Gold Caviar Seafood, Wholesale Market, Terminal Cash and Carry, and Brooklyn Borough Ambulance Command Station #33 adjoining to the east; AIA Auto Recycling, a parking lot, BP Station, Herr's, and a wholesale produce company beyond Preston Court to the south; Quick Lube adjoining to the southwest; and junk yards and a tire shop beyond Ralph Avenue to the west. The area immediately surrounding the site primarily consists of commercial and light industrial/manufacturing uses. No sensitive receptors such as hospitals, schools or daycare facilities are located within a 500-foot radius of the Site. **Figure 3** shows the surrounding land usage.

## **1.4 SUMMARY OF PAST USES AND AREAS OF CONCERN**

According to historical sources reviewed by Whitestone, the partially constructed building located on former Lot 93 was erected in 2005. Lot 93 historically was occupied

by an industrial structure (identified as “manufacturing” per Sanborn Fire Insurance Maps) from at least 1960 until 2002; former Lot 141 of the subject property historically was used as a junk yard dating back to at least 1967; and former Lot 86 of the subject property historically was used for truck parking dating back to at least 1976. City Directories indicate that former Lot 93 was occupied by United Case Stone Co. in 1960 and Bernstein Distributing Corp. from 1970 until 1985, and former Lot 86 was occupied by Parkway Motors Used Cars in 1960 and A&S Auto Wrecking in 1965. Prior to 1960, the subject property was undeveloped dating back to at least 1907.

Whitestone’s draft *Summary Report of Findings – Phase I Environmental Site Assessment and Survey for Asbestos Containing Materials* dated March 21, 2012 and Whitestone’s *Summary Report of Findings – Phase I Environmental Site Assessment* dated January 28, 2015 identified the following recognized environmental conditions/areas of concern (RECs/AOCs) at the site:

1. The historical usage of the Site was for manufacturing and a junk yard. Accordingly, impacts to subsurface conditions from former site operations were suspected.
2. Urban properties such as the subject site typically have been filled with material imported from off-site sources during initial site development or subsequent redevelopment to achieve final grades. Fill materials consisting of brown sandy silt with varying amounts of debris were encountered at the subject property to depths of up to 44 feet below ground surface (fbgs) during Whitestone’s geotechnical investigations. Significant amounts of debris were encountered in the upper 15 feet of the fill. Such non-native materials may contain contaminants exceeding applicable standards.
3. Suspected petroleum staining was observed on unpaved surface in the southwestern portion of the site.

## **1.5 SUMMARY OF WORK PERFORMED UNDER THE REMEDIAL INVESTIGATION**

Whitestone, on behalf of I.J. Litwak Realty I, LLC, performed the following scope of work between May 2013 and July 2013:

1. Conducted a Site inspection to identify RECs/AOCs and physical obstructions (i.e., structures, buildings, etc.);
2. Installed 57 soil borings across the entire project Site, and collected 65 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed ten [10] temporary well points and four [4] groundwater monitoring wells throughout the Site to establish groundwater flow and collected 14 groundwater samples for chemical analysis to evaluate groundwater quality; and
4. Installed six [6] soil vapor probes throughout the Site and collected six [6] samples for chemical analysis.

## **1.6 SUMMARY OF FINDINGS OF REMEDIAL INVESTIGATION**

1. Elevation of the property ranges from 12.82 feet to 16.78 feet above mean sea level (msl).
2. Depth to groundwater ranges from 7.2 fbgs to 13.75 fbgs at the Site.
3. Groundwater flow is generally from east to west beneath the Site.
4. Bedrock was not encountered within 44 fbgs at the Site during Whitestone's geotechnical investigation.
5. The stratigraphy of the site, from the surface down during the RI, consists of up to 0.25 feet of topsoil, up to 0.25 feet of woodchips, or up to 0.25 feet of mulch at the surface underlain by up to 16.0 feet of fill material consisting of sand with variable amounts of silt, gravel, and debris or silt with variable amounts of sand, gravel, and debris. Fill materials were noted up to 44 fbgs

in Whitestone's geotechnical borings. The fill materials are underlain in select borings by silty sand with variable amounts of rock fragments and gravel.

6. Soil/fill samples results were compared to New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives and Restricted Commercial Use Soil Cleanup Objectives (SCOs) as presented in 6NYCRR Part 375-6.8. Soil/fill results showed three VOCs, acetone (max. of 0.29 ppm), benzene (0.1 ppm), and total xylenes (0.275 ppm) above Unrestricted Use SCOs. Several SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) were detected exceeding Unrestricted Use SCOs, and of those, benz(a)anthracene (max. of 16 ppm), benzo(a)pyrene (max. of 11 ppm), benzo(b)fluoranthene (max. of 15 ppm), dibenz(a,h)anthracene (max. of 3.2 ppm), and indeno(1,2,3-cd)pyrene (max. of 7.4 ppm) also exceeded Restricted Commercial Use SCOs in both shallow and deep soils. Total PCBs (max. of 14 ppm) were detected above Restricted Commercial Use SCOs in 8 samples. Three pesticides, 4,4'-DDD (max. of 0.0138 ppm), 4,4',-DDT (0.0205 ppm), and endrin (max. of 0.0356 ppm) were detected above Unrestricted Use SCOs, but none above Restricted Commercial Use SCOs. Several metals including arsenic (max. of 33 ppm), barium (max. of 2,800 ppm), cadmium (max. of 95 ppm), copper (max. of 7,100 ppm), and lead (max. of 48,000 ppm) exceeded Restricted Commercial Use SCOs. Mercury and zinc also exceeded Unrestricted Use SCOs. Five hot-spots at locations B-1 (PCB and metals) area, B-2 area (metals), B-5 area (metals), MW-4A area (PCB and metals), and MW-3 area (PCB and metals) were identified during investigations. TCLP analysis indicated hazardous concentrations of lead at various depths.
7. Groundwater sample results from the RI were compared to New York State 6NYCRR Part 703.5 Class GA Groundwater Quality Standards (GQS). Groundwater results showed no PCBs or pesticides in any sample. Two VOCs, benzene (max. of 1.3 mg/L) and methyl-t-butyl ether (29 mg/L) exceeded their GQS. Several SVOCs including 2,4- Dimethylphenol (1.6 mg/L), 3&4-

methylphenol (2.9 mg/L), benz(a)anthracene (6.4 mg/L), benzo(a)pyrene (5.5 mg/L), benzo(b)fluoranthene (7.8 mg/L), benzo(k)fluoranthene (2.7 mg/L), chrysene (5.7 mg/L), indeno(1,2,3-cd)pyrene (3.0 mg/L), and naphthalene (15 mg/L) were detected above their respective GQS in two samples. Several dissolved metals were identified in groundwater, but only manganese (max. of 6,400 mg/L) and sodium (max. of 100,000 mg/L) exceeded their respective GQS in two samples.

8. Soil vapor samples collected during the RI were compared to the compounds listed by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples collected during the RI showed moderate levels of petroleum-related VOCs and chlorinated VOCs. The total concentration of petroleum-related VOCs (BTEX) ranged from 5.95  $\mu\text{g}/\text{m}^3$  to 16.08  $\mu\text{g}/\text{m}^3$ . The highest concentrations were detected for ethanol (max. of 1,090  $\mu\text{g}/\text{m}^3$ ) and acetone (max. of 1,030  $\mu\text{g}/\text{m}^3$ ). The chlorinated VOCs 1,1,1- trichloroethane (TCA), carbon tetrachloride, trichloroethylene (TCE), and tetrachloroethylene (PCE) were not detected in any of the samples. Concentrations of the chlorinated VOCs were well below the monitoring level ranges established within the NYSDOH Soil Vapor Guidance Matrix.

The Remedial Investigation Report is included as Appendix A.



## 2.0 DESCRIPTION OF REMEDIAL ACTIONS

The Remedial Action was performed in accordance with an OER-approved Remedial Action Work Plan 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 summary of the milestones achieved in the Remedial Action is as follows: A Pre-Application/Kick-off Meeting was held on September 14, 2016. A Remedial Investigation (RI) was performed from April to July 2013. A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Site Contact List was established. A RAWP was prepared and released with a Fact Sheet on September 14, 2015 for a 30-day public comment period [summarize public comments, if any]. The RAWP and Stipulation Lists dated September 11, 2015 and November 17, 2017 were approved by the New York City Office of Environmental Remediation (OER) on November 28, 2017. A Pre-Construction meeting was held on September 14, 2016 and April 22, 2019. A Fact Sheet providing notice of the start of the remedial action was issued on August 23, 2016. The remedial action was begun on March 19, 2018 and completed on July 23, 2021. **Appendix B** includes the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and performed all required NYC VCP Citizen Participation activities according to the approved Citizen Participation Plan.

2. Performed a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon compounds.
3. Established Track 4 Site-Specific Soil Cleanup Objectives (SCOs) for the top two feet of soil across the property.

The Site-Specific (Track 4) SCOs for the top two feet of this property are:

<b><u>Contaminant</u></b>	<b><u>Track 4 Site Specific SCOs</u></b>
SVOCs (total)	250 ppm
Lead	1,200 ppm
Copper	350 ppm
Barium	850 ppm
Arsenic	23 ppm
PCBs	1.0 ppm surface and 10 ppm subsurface

4. Mobilized site equipment; setup Site security; completed utility mark outs; and marked and staked excavation areas.
5. Performed Waste Characterization Study prior to excavation activities. Three (3) waste characterization soil samples were collected on January 6, 2020. Waste characterization samples were collected at a frequency dictated by disposal facility(s).
6. The following excavations were performed: soil exceeding site-specific Track 4 SCOs was excavated from four (4) hot spots [hazardous B-1 and non-hazardous B-2, MW-3, and MW-4] to a depth of 2 feet bgs; soil was removed to a depth of 12 feet from grade for installation of stormwater detention tanks. A total of 699.04 tons of soil/fill was excavated and removed from the property and an additional 1,512.99 tons was removed as part of the construction of the sidewalk areas.
7. Excavated 350.63 tons of non-hazardous soil/fill and transported it to Bayshore Soil Management, LLC, 75 Crows Mill Road, Keasbey, New Jersey; excavated 348.41 tons of hazardous characteristic soil/fill and transported to Republic Environmental Systems (PA) LLC, 2869 Sandstone Drive, Hatfield, Pennsylvania; excavated 1,512.99 tons of non-hazardous soil/fill and transported to Clean Earth of Carteret, 24 Middlesex Avenue, Carteret, New Jersey.

8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
10. Appropriately segregated excavated media onsite prior to disposal. Transported and disposed all soil/fill material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and the RAWP.
11. Collected and analyzed end-point samples from four hotspot areas to determine attainment of SCOs. Track 4 Site-Specific SCOs were achieved for the top two feet of the Site. Material beneath the top two feet is capped by an engineered composite cover system and will be managed in place.
12. Constructed an engineered Composite Cover System consisting of the 4-inch-thick asphalt pavement in the open-air parking area and 6-inch-thick reinforced concrete foundation slab for the warehouse building to prevent human exposure to residual soil/fill remaining under the Site. The contractor for the concrete cover construction was JT Masonry of Bedford Hills, NY and the contractor for the asphalt cap and street restoration was Tristate Paving of Bohemia, NY.
13. Installed a moisture barrier that consisted of 6 mil GripRite poly sheeting beneath the building slab and up the foundation walls. JT Masonry completed the installation of the moisture barrier.
14. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Submitted daily reports during construction oversight activities. Daily reports were submitted from 3/19/2018 to 07/23/2021.
17. Submitted a Remedial Action Report (RAR) that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work

Plan have been achieved; defines the Site boundaries; describes all Engineering and Institutional Controls applicable to the Site; and describes any changes from the RAWP.

18. Submitted a Site Management Plan (SMP) for long-term management of engineering controls and residual soil, including plans for operation, maintenance, inspection and certification of the performance of Engineering Controls and Institutional Controls. Inspection and Certification reports will be submitted by July 31, 2028 (for the reporting period calendar year 2022-2027), July 31, 2033 (for the reporting period calendar years 2028-2032) and every five years thereafter (for the reporting period consisting of the prior five calendar years). Inspection and Certification Reports will cover the entire calendar year.
19. Recorded of a Declaration of Covenants and Restrictions that includes a listing of EC/ICs and a requirement that management of these controls must be in compliance with an approved SMP. ICs include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

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

#### **3.1 CONSTRUCTION HEALTH & SAFETY PLAN**

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 Manan Dalal.

#### **3.2 COMMUNITY AIR MONITORING PLAN**

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 from March 19, 2018 to July 23, 2021 in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air Monitoring are shown in **Appendix C**. There were no recorded exceedances of action limits.

#### **3.3 SOIL/MATERIALS MANAGEMENT PLAN**

The Soil/Materials Management Plan provided detailed plans for managing all soil/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 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**

There were several deviations from the Remedial Action Work Plan. The work plan stated that a 20-mil vapor barrier system would be installed under the foundation slab throughout the footprint of the building. However, based on a 2019 conversation with OER and approval, a GripRite 6-mil moisture barrier was installed under the foundation slab. It was determined that the 6-mil moisture barrier will operate to the same standards given the final proposed use of the Site.

Daily Reports between June 28, 2021 and the Site's completion in November 2011 were missed and is considered a deviation from the Remedial Action Work Plan where it was stated that Daily Reports will be issued and uploaded to EPIC throughout the entire construction phase of the project. Daily Reports missing from this Remedial Action Report include the documentation of the removal of the remainder of the excavated sidewalk material and reused soils placed across the Site. Reused soils were only used as a sub-base under the asphalt cover in the parking lot area.

The Remedial Action Work Plan and STIP List completed by Whitestone Associates, Inc, dated September 2015, stated 4,105 tons of soils will be imported for backfilling and raising Site grade. However, only 52.10 tons of 1.5-inch Blue Stone, 635.33 tons of Structural Fill, and 480 cubic yards of RCA was imported to the Site.

## **4.0 REMEDIAL PROGRAM**

### **4.1 PROJECT ORGANIZATION**

Principal personnel who participated in the Remedial Action include Mr. Manan Dalal, Project Manager. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project were Mr. Xin Yuan and Mr. Kevin Kleaka, respectively. The principal contractor involved in the Remedial Action was All Boro, Inc and the developer of the Site was I.J. Litwak Realty I, LLC.

### **4.2 SITE CONTROLS**

#### **Site Preparation**

The following activities were involved during Site Preparation:

- OER was invited to the Site for a Pre-Construction meeting on September 14, 2016 and April 22, 2019;
- Mobilization to the Site which included personnel orientation, equipment mobilization, marking sampling locations and utility mark-outs;
- Dewatering was not required;
- Erosion and sedimentation controls;
- Utility marker layout. Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations were employed during the remedial activities. The integrity and safety of on-Site and off-Site structures were maintained during all invasive, excavation or other remedial activity performed;
- All required agency approvals (city permits, etc.) were obtained prior to the start of any remedial activities.
- Equipment and material was stored and staged in a matter that complies with the appropriate rules and regulations;
- A stabilized construction entrance was constructed to ensure on-Site material does not get tracked off-Site;
- Traffic control was implemented on Site.

An OER Project Notice was erected at the project entrance and was in place during all phases of the Remedial Action.

### **Soil Screening**

Soil was screened during all intrusive soil excavation activities by Impact Environmental. Excavated materials were screened for visual and olfactory evidence of contamination (i.e., staining and odors) and with a PID to measure concentrations of VOCs. Excavated material was segregated based on these observations in conjunction with the waste characterization disposal Site plan, pending transport and disposal at the appropriate facilities.

### **Stockpile Management**

Excavated soil from suspected areas of contamination (e.g., hot spots) were stockpiled separately and segregated from clean soil and construction materials. While stockpiles were in place, they were inspected daily, and before and after every storm event. Excavated soils were stockpiled on, at minimum, double layers of 8-mil minimum sheeting, covered at all times with appropriately anchored plastic tarps, and routinely inspected. Broken or ripped tarps were promptly replaced.

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

### **Truck Inspection**

Outbound trucks were inspected before exiting the Site. A gravel pad was created and maintained at the entry and exit gate(s) along Ralph Avenue and Preston Court to prevent



off-site tracking of soil/debris onto city streets. Trucks were examined for evidence of soil on undercarriage, body, and wheels. Soil/debris was removed (within the Site) with brooms, shovels, and/or potable water, as necessary. Trucks did not track soil/debris from the Site to the surrounding community.

### **Site Security**

Site access was controlled by plywood construction fencing and gated entrances and monitored by All Boro, Inc. during working hours. The Site was not accessible to the public during off work hours.

### **Nuisance Controls**

Site perimeters, CAMP stations, the surrounding vicinity, and on-site working conditions were monitored periodically during remedial activities by an on-site Impact Environmental field representative. All Boro, Inc. was notified immediately if elevated particulate concentrations, odors, or visible dust were observed. Corrective actions were taken in accordance with the CAMP, Construction Health and Safety Plan (CHASP), and RAP. No complaints from the public or surrounding property owners regarding dust and/or odors were reported during the Remedial Action.

### **Reporting**

An Impact field representative was on-site during all soil excavation, material stockpiling and loading, installation of engineering controls, and collection of endpoint samples. CAMP station air monitoring data and observations were recorded in field logs. Daily, weekly, and monthly reports were completed and provided to OER for each day of remedial oversight conducted by Impact's representative. Those reports included:

- Project number and statement of activities and an update of progress made and locations of work performed;
- Quantities of material exported from the Site;
- Status of on-Site soil/fill excavation;
- A summary of any citizen complaints, with relevant details (basis of

complaint, actions taken, etc.);

- A summary of CAMP excursions, if any;
- Photographs of notable Site conditions and activities.

Initially daily reports were issued, reducing in frequency to weekly reports once excavation reached final depth for the development. During general construction and fit-out activities, reports were issued on a monthly basis. All daily, weekly, and monthly reports are included in **Appendix C**. Digital photographs of the Remedial Action are included in **Appendix D**.

### **4.3 MATERIALS EXCAVATION AND REMOVAL ACTION**

#### **Soil/Fill Excavation and Removal**

Excavation activities on-Site were completed with conventional hydraulic excavation equipment and was kept to a minimum as the building was constructed slab-on-grade. Soil exceeding Site-Specific Track 4 SCOs in the top two feet was excavated from four (4) hotspots, B-1, B-2, MW-4A, and MW-3 between March 19<sup>th</sup> and 20<sup>th</sup>, 2018 by PAL. The excavated material was stockpiled and staged on poly sheeting and covered adjacent to each hotspot location prior to load-out activities. Stockpiled material was removed from the Site between March 20<sup>th</sup> and March 26<sup>th</sup>, 2018. Hotspot B-1 was excavated and removed. It was classified as hazardous due to the elevated levels of cadmium and lead. Hotspots B-2, MW-3, and MW-4 were excavated and removed due to the elevated levels of PCBs.

The Site remained stagnant between June 2018 and July 2019, during which time no work was completed on Site. Soils surrounding the existing piles were excavated, stockpiled on the proposed asphalt parking area, and disposed of. A 20 cubic yard stockpile, as a result of the piles excavation, was sampled and chemically tested for disposal purposes. Soil was also excavated and removed to a depth of 12 feet bgs for the installation of stormwater detention tanks on September 1, 2020. Additional excavations occurred along Preston Court and Chase Avenue for the construction of new sidewalks. A map showing the approximate locations where excavations were performed and approximate thickness of excavated material is shown in **Figure 5**. A total of 699.04 tons

of soil/fill were excavated and removed from the property for remedial purposes. An additional 1,512.99 tons of non-hazardous soil/fill material was removed from the property as part of construction during the stormwater detention tank installation and street and sidewalk restoration work.

Materials removed from the property under this Removal Action is generally classified, as follows: non-hazardous soil/fill, 1,863.62 tons; and hazardous characteristic soil/fill, 348.41 tons. Of the 1,863.62 tons, 350.63 tons of the non-hazardous soil/fill was transported to Bayshore Recycling Corporation of Keasby, New Jersey and the remainder was transported to Clean Earth of Carteret in Carteret, New Jersey. The hazardous characteristic material was transported to Republic Environmental Systems in Hatfield, Pennsylvania. The Removal Action was performed under the oversight of Mr. Xin Yuan, P.E of Impact Environmental.

### **Hotspot Excavation**

During the September 2015 Remedial Investigation completed by Whitestone Associates, four (4) hotspots, B-1, B-2, MW-4A, and MW-3 were identified, of which B-1 was identified as hazardous. B-1 was excavated down to 2 feet bgs in its entirety under direct oversight of Impact Environmental. Material excavated from B-1 (348.41 tons) was stockpiled on and covered with poly sheeting until the material was disposed of. Hotspot B-1 material was classified as a characteristic hazardous waste via TCLP results which showed exceedances for cadmium and lead criteria and transported to Republic Environmental Systems in Hatfield, PA. Material from the B-2, MW-3, and MW-4 hotspots (350.63 tons) was classified as non-hazardous with elevated levels of PCBs and transported to Bayshore Recycling in Keasby, NJ. Material consisted of brown medium sand with some brick and rock fragments, and debris consisting of residential waste and vehicle parts. Excavation and disposal of hotspot material was completed between March 19<sup>th</sup> through 26<sup>th</sup>, 2018 under direct oversight of Impact Environmental. Upon removal of the material, the excavations were backfilled with certified clean fill as per the RAWP. The clean fill was imported from IRRC in Lyndhurst, New Jersey. A figure showing the approximate locations of the hotspots removed is provided as **Figure 6** herein.

### **Stormwater Detention Tanks**

A 45'x25' excavation for the stormwater detention tanks was advanced to a depth of 12 feet bgs. Material from the excavation was sampled for chemical analysis via test pits on January 6, 2020 and transported to Clean Earth of Carteret for disposal. Material consisted of mostly medium to fine silty brown sand with trace large angular gravel. PID readings ranged from 0.2 ppm to 5.4 ppm within the excavation. Approximately 500 cubic yards of material was excavated and disposed of from the detention tank excavation.

### **Sidewalk and Pile Excavation**

Sidewalk excavation and replacement was completed around the property boundary along Chase Court and Preston Court. Excavated material consisted of brown medium sand with some rock fragments, concrete, and brick fragments. Material was stockpiled and sampled for chemical analyses. Based on the results, IEC obtained facility approval from Clean Earth of Carteret for disposal purposes and from OER for on-site reuse of approximately 100 cubic yards to be placed beneath the asphalt cap within the parking lot area.

Minimal excavation was completed for the installation of helical piles throughout the footprint of the building. Excavated material from around the piles was placed back within the excavation once the piles were installed. Odorous material was encountered during footing excavation along the northeast corner, 2<sup>nd</sup> column row. The odorous material was stockpiled and prepared for off-site disposal. Stockpiled material was sampled on October 22, 2019 for facility approval for disposal. Excavated material was transported to Bayshore Recycling in Keasby, NJ on June 11, 2020.

### **Onsite Reuse**

Approximately 100 cubic yards of material generated during the sidewalk excavation activities was used for placement under the parking lot asphalt layer. The excavated material was stockpiled, sampled, and chemically analyzed for disposal purposes. The

sampling consisted of a five-point composite sample and one associated grab sample. The material met Commercial and Site-Specific SCOs and all organics/MSW were segregated as per the RAWP. Since the material met the Commercial and Site-Specific SCOs, IEC requested OER's approval for reuse on-site under the proposed parking lot. On-Site reuse was approved by NYCOER in an e-mail dated October 29, 2020. A map showing the approximate source location of reused soil and the location of placement of reused soil is shown in **Figure 7**.

### **Soil Cleanup Objectives**

The following Track 4 Site-Specific SCOs were utilized for the top two feet across the site this project:

<b><u>Contaminant</u></b>	<b><u>Track 4 Site Specific SCOs</u></b>
SVOCs (total)	250 ppm
Lead	1,200 ppm
Copper	350 ppm
Barium	850 ppm
Arsenic	23 ppm
PCBs	1.0 ppm surface and 10 ppm subsurface

### **End Point Sample Results**

The Track 4 Site Specific SCOs for the top two feet across the site for this project were achieved.

A total of 39 end point samples were obtained from the Site at the completion of the remedial actions. On October 10, 2017, twenty-two (22) end point samples were collected from the sidewall and base of hotspot excavations B-2, B-5, and MW-4. Endpoint samples from within the B-2 excavation were collected from 4 feet bgs, while the samples collected from B-5 and MW-4 were collected from 2 feet bgs. On October 11, 2017, seventeen (17) end point samples were collected from the sidewall and base of hotspot excavations B-1 and MW-3. Samples from the B-1 excavation were collected from 3 feet bgs while samples from the MW-3 excavation were collected from 2 feet bgs.

All endpoint samples were collected by Impact Environmental staff utilizing a hand auger. Hand augers were decontaminated between each sample collection via an Alconox solution. Endpoint samples were collected immediately following completion of excavation activities when possible. Otherwise, samples were collected from an unexposed soil layer approximately 6-12 inches below the excavation surface. Endpoint sample locations and collection depths were biased towards the area of highest contamination based on previous investigations and field observations at the time of collection. Samples were placed in laboratory provided containers and stored on ice in a cooler until laboratory pick-up. Endpoint samples were submitted for laboratory analysis to Alpha Analytical of Westborough, MA, a New York State Department of Health (NYSDOH) ELAP certified laboratory.

Samples collected from the B-2 and B-5 excavations were analyzed for NY Part 375 Metals via EPA Method 6010. Samples collected from the B-1, MW-3, and MW-4 excavations were analyzed for NY Part 375 Metals via EPA Method 6010 and NY Part 375 PCBs via Method 8082.

All samples collected from the MW-3 and B-5 hotspots were compared to their respective Track 4 Site Specific SCOs and NY Part 375 Restricted Commercial Criteria and found to have no exceedances. Several samples collected from the B-1, MW-4, and B-2 hotspots resulted in exceedances of both NY Part 375 Restricted Commercial Use SCOs and Track 4 Site-Specific SCOs. A waste characterization sample was obtained for each hotspot consisting of a five-point composite samples and an associated grab sample. Accordingly, all material within the hotspots was excavated and disposed of at an approved facility. All residual soils remaining below two feet at the Site will be managed in place under an engineered composite cover system consisting of either a 6-inch reinforced concrete slab and moisture barrier within the footprint of the building or a 4" thick asphalt cover in the open-space parking area. A map of end-point sample locations and exceedances is included as **Figure 4**. A tabular summary of end-point sampling results compared to SCOs is included in **Table 1**. Full laboratory reports are included in **Appendix H**.

### End Point Data Usability Summary

All laboratory Method Blanks analyzed were non-detects. The recovery percentage of all surrogate compounds analyzed was within acceptable criteria ranges. The recovery percentage of all Lab Control Sample analytes was within acceptable recovery percentage limits and therefore are not likely to have greatly affected the precision or accuracy of the endpoint sample concentrations reported.

### 4.4 MATERIALS DISPOSAL

The type, quantity and disposal location of each material removed and disposed off-Site is presented below:

Disposal Location/Address	Type of Material	Quantity
Bayshore Recycling Corporation 75 Crows Mill Road Keasby, New Jersey 08832	Non-Hazardous Soil	350.63 tons
Republic Environmental Systems 21 Church Road Hatfield, Pennsylvania 19440	Characteristic Hazardous Soil	348.41 tons
Clean Earth of Carteret 24 Middlesex Avenue Carteret, New Jersey 07008	Non-Hazardous Soil	1,512.99 tons

Letters from Client to disposal facility providing materials type, source and data, and acceptance letters from disposal facility stating it is approved to accept above materials are attached in **Appendix E**. Manifests are included in **Appendix F**. Waste characterization report is presented in **Appendix G**. A table of individual truck transport and material disposal quantities is included in **Table 2**.

#### 4.5 BACKFILL IMPORT

Clean RCA and structural fill material was imported to the Site to backfill the hotspot and detention tank excavations as well as around piles from where soil was removed during construction activities. The RCA was used to level grade within the footprint of the building prior to the installation of the moisture barrier. Structural fill was imported from Impact Reuse and Recycling Center in Lyndhurst, New Jersey to backfill the hotspot excavations. RCA was imported to the Site from Russo Recycling in Rosedale, New York.

Import Location/Address	Type of Material	Quantity
Impact Reuse and Recycling Center 1000 Page Avenue Lyndhurst, New Jersey 07071	1.5-inch Blue Stone	52.10 tons
Impact Reuse and Recycling Center 1000 Page Avenue Lyndhurst, New Jersey 07071	Structural Fill	635.33 tons
NYC Concrete Materials 5700 47 <sup>th</sup> Street Maspeth, New York 11378	RCA	480 cubic yards

A table of all sources of backfill with quantities for each source is shown in **Table 4**. Full laboratory reports are included in **Appendix K**. Imported RCA was non-conforming with supplied specifications. Material was stockpiled and two (2) sample sets were obtained to be analyzed for full NY Part 375 parameter list. Sample results met Restricted Residential criteria. The only exceedance was for Acetone against the Protection of Groundwater Criteria (52 ug/kg vs a limit of 50 ug/kg). However, it is assumed to be a laboratory contaminant as the quality control spike sample exceeded the recovery criteria.



#### **4.6 DEMARCATION**

A demarcation barrier consisting of orange snow fencing was placed at the bottom of each of the four hotspot locations prior to placement of clean backfill. The remainder of the site is capped by either a concrete building slab or asphalt; therefore, a demarcation barrier is not required in these areas. Remaining materials onsite will be managed in place under the composite cover system and in conformance with the Site Management Plan.

## 5.0 ENGINEERING CONTROLS

Engineering Controls were employed in the Remedial Action to address residual soil and soil vapor remaining at the site. The Site has two (2) primary Engineering Control Systems. These are:

- (1) Composite Cover System
- (2) Moisture Barrier

### Composite Cover System

Exposure to residual soil/fill is prevented by an engineered Composite Cover System that has been built on the Site. The Composite Cover System is comprised of a 4-inch-thick asphalt pavement underlain by 6-inches of clean sub-base in the open-space parking areas and a 6-inch-thick reinforced concrete slab underlain by 8-inches of clean sub-base within the building footprint. The contractor for the Composite Cover System construction in the open-space parking area was Tristate Paving and for the concrete within the building footprint was JT Masonry.

**Appendix J** shows the as-built design for each cover type used in the Composite Cover System on this Site. **Figure 8** shows a map of the location of each Composite Cover System type built at the Site. Photographs of construction of the Composite Cover System are included in **Appendix D**.

### Moisture Barrier

A standard 6-mil moisture barrier was installed beneath the building footprint. The moisture barrier system consists of GripRite 6-mil thick poly sheeting underneath a 6-inch reinforced concrete slab throughout the foundation footprint of the building. 3M Construction Seaming Tape 8087CW was used to seal all seams and wrapped around all utility penetrations. 3M Construction Seaming Tape 8087CW was used to adhere and seal the membrane to the concrete footings. All moisture barrier components were installed as per manufacturers specifications. The contractor for the moisture barrier construction was JT Masonry.

**Figure 9** shows the as-built engineering diagram for the Moisture Barrier System used on this Site. Photographs of installation are included in **Appendix D** and a copy of the manufacturer's specifications is included in **Appendix J**.

## 6.0 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 ICs define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. Adherence to these Institutional Controls is required by the Declaration of Covenants and Restrictions recorded with the deed for this property and will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls for this property are:

- (1) Recorded an OER-approved Declaration of Covenant and Restrictions (DCR) with the deed with the Brooklyn County Clerk. The DCR includes a description of all ECs and ICs, summarizes the requirements of the Site Management Plan, and notes that the 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 ECs and ICs. The property owner and property owner's successors and assigns will inspect ECs and ICs 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 ECs and ICs;
- (5) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;
- (6) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;

- (7) 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;
- (8) The Site is intended to be used for restricted commercial use and will not be used for a higher level of use without prior approval 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 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 providing notice of the revocation to the NYC DOB.

Engineering Controls and Institutional Controls have been incorporated into this Remedial Action to ensure that the site remains protective of public health and the environment. Generally, ECs provide physical protective measures and ICs provide restrictions on Site usage and establish remedial operation, maintenance, inspection and certification measures. This Site Management Plan has been established to govern long-term performance of ECs and ICs for this 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) inspection of ECs and ICs; and (3) certification of performance of ECs and ICs.

### **ENGINEERING CONTROLS**

Engineering Controls were employed in the Remedial Action to address residual soil and soil vapor remaining at the site. The Site has two (2) primary Engineering Control Systems. These are:

- (1) Composite Cover System
- (2) Moisture Barrier

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

Exposure to residual soil/fill is prevented by an engineered Composite Cover System that has been built on the Site. The Composite Cover System is comprised of a 4-inch-thick asphalt pavement underlain by 6-inches of clean sub-base in the open-space parking areas and a 6-inch-thick reinforced concrete slab underlain by 8-inches of clean sub-base within the building footprint. The contractor for the Composite Cover System construction in the open-space parking area was Tristate Paving and for the concrete within the building footprint was JT Masonry.

The Composite Cover System is a permanent Engineering Control for the Site. The system will be inspected and its performance certified at specified intervals defined in this SMP. A Soil/Materials Management Plan is included in this Site Management Plan and outlines 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 Composite Cover System does not require any special operation or maintenance activities. If the system is breached during future construction activities [or “normal wear and tear”], the system will be rebuilt by reconstructing the system according to the original design and tying newly constructed cover layers into existing cover layers to form a continuous layer(s).

### **Operation and Maintenance of Moisture Barrier**

A standard 6-mil moisture barrier was installed beneath the building footprint. The moisture barrier system consists of GripRite 6-mil thick poly sheeting underneath a 6-inch reinforced concrete slab throughout the foundation footprint of the building. 3M Construction Seaming Tape 8087CW was used to seal all seams and wrapped around all utility penetrations. 3M Construction Seaming Tape 8087CW was used to adhere and seal the membrane to the concrete footings. All moisture barrier components were

installed as per manufacturers specifications. The contractor for the moisture barrier construction was JT Masonry.

The moisture barrier is a permanent Engineering Control for the Site. The system will be inspected and its performance certified at specified intervals defined in this SMP.

**The moisture barrier does not require any special operation or maintenance activities. If the system is breached during future construction activities, the system will be rebuilt by reconstructing the moisture barrier layers and sealing the newly constructed materials with existing barrier materials in accordance with manufacturer specifications.**

## **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 ICs define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. Adherence to these Institutional Controls is required under the Site Management Plan established for this Remedial Action and the Declaration of Covenants and Restrictions recorded with the deed for this property and will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls are also designed to prevent future exposure to residual soil/materials by controlling disturbances in the subsurface, restricting higher uses of the property than those addressed by the Remedial Action and establishing restrictions on activities and site usage. Institutional Controls for this property are:

- (1) Recorded an OER-approved Declaration of Covenant and Restrictions (DCR) with the deed with the Brooklyn County Clerk. The DCR includes a description of all ECs and ICs, summarizes the requirements of the Site Management Plan, and notes that the 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 ECs and ICs. The property owner and property owner's successors and assigns will inspect ECs and ICs 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 ECs and ICs;
- (5) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;
- (6) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;
- (7) 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;
- (8) The Site is intended to be used for restricted commercial use and will not be used for a higher level of use without prior approval by OER.

## **INSPECTIONS**

Engineering Controls and Institutional Controls will be inspected on a periodic basis at a frequency established in this plan. The 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 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.

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

Inspections for the Composite Cover System will consist of a visual evaluation of all accessible system components. Evidence of active invasive activity through the cover system, or past invasive activity, such as patches and repairs, will be evaluated. Inspections of the Composite Cover System will take place annually. Photographs will be taken and presented in the Inspection and Certification Letter Report to document the findings.

### **Inspection of Moisture Barrier**

Inspection of the moisture barrier will be inspected concurrently with cover system inspection. If there is breach in the building slab, a determination will be made if the moisture barrier will need to be repaired. Inspections of the moisture barrier will take place annually. Photographs will be taken and presented in the Inspection and Certification Letter Report to document the findings.

### **Site Use Prohibitions**

Inspections to evaluate the status of site use prohibitions will include an evaluation of all of the ICs listed above, including:

- whether there is vegetable gardening or farming in residual soil/fill;
- whether groundwater underlying the site has been used without treatment rendering it safe for its intended use;
- whether activities that have disturbed site soil/fill have been conducted pursuant to the Soil/Material Management provisions of the SMP, or otherwise approved by OER; and

- whether the site has been used for a higher level of use other than the restricted commercial 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. Inspections will be performed in 2022, 2023 and every year thereafter. Inspection and Certification Letter Reports will be submitted by July 31, 2028 (for the reporting period calendar years 2022-2027), July 31, 2033 (for the reporting period calendar years 2028-2032) and every 5 years thereafter. Inspection and Certification Reports will cover all calendar years since the prior reporting period. Inspection and Certification Letter Reports will be submitted to OER in digital format. The letter report will utilize a form established by OER. This form includes, at a minimum:

- Date of inspections;
- Personnel conducting inspections;
- Description of the inspection activities performed;
- Observations, conclusions, or recommendations;
- Copy of any monthly inspection forms;
- Photographs; and
- Certification of the performance of Engineering Controls and Institutional Controls executed by the P.E. or QEP responsible for this Inspection and Certification Letter Report, as discussed below.

The certification of the performance of ECs and ICs will establish:

- If Engineering Controls and Institutional Controls employed at the Site continue to be in place, 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 vegetable gardening and farming in residual soils has been prevented;
- If groundwater underlying the Site is being utilized without treatment rendering it safe for the intended purpose has been prevented;
- If activities on the Site that have disturbed residual soil/fill material have been in accordance with the Soil/Materials Management Plan in this SMP;
- If the Site has been used for a higher level of use other than the restricted commercial use addressed by the Remedial Action;
- If site records are complete and up to date;
- If the Site continues to have an OER-approved Declaration of Covenants and Restrictions recorded with the property deed by the Brooklyn County Clerk.

OER may enter the Site upon notice for the purpose of evaluating the performance of ECs and ICs.

## **NOTIFICATIONS**

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

- 60-day advance notice of any proposed changes in Site use, such as an upgrade from existing use to commercial use that was not contemplated in the Remedial Action.
- Notice within 30 days of any emergency, such as a fire, flood, or earthquake that 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 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) included in this chapter 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**

If stockpiles are used to isolate excavated soil they 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 permits or authorized notifications.;;
- Ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site; and
- 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 8. 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) an OER Historical Fill Notification Form and letter from the PE/QEP or property owner to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include, as an attachment, a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material.

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 non-hazardous 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 to the engineering controls (composite cover system, moisture 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 include 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.
- [Asphalt Millings from approved Park Department facilities?]

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 Letter 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, is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) without fines 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. [Clarify use of Asphalt Millings]

### **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 feasible, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility or some other means compliant with applicable laws and regulations. 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 storm-water 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 be controlled by these means, 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.

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

### **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 soil/fill stockpiles;

- Exercise extra care during dry and high-wind periods; and
- Use of asphalt millings, 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 dust 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. Exceedances of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included

in the Daily Report.

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

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

If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 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 shut down.

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 ( $\mu\text{g}/\text{m}^3$ ) 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  $150 \mu\text{g}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \mu\text{g}/\text{m}^3$  above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \mu\text{g}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

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

### **CONTINGENCY PLAN**

This contingency plan is developed for the remedial construction or repair work to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to

the NYS DEC Spill Hotline. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

### **Emergency Telephone Numbers**

In the event of any emergency condition pertaining to these remedial systems, the Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to Kevin Kleaka. 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 mark-out	(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**

Kevin Kleaka (Impact Environmental)	(516) 805-8892
Office of Environmental Remediation	(212) 788-8841; 311