1500 Astor Avenue

BRONX COUNTY

BRONX, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C203105

Prepared for:

Eastchester-Astor LLC

760 White Plains Road

Scarsdale, New York 10583

Prepared by:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

NOVEMBER 2023

CERTIFICATION STATEMENT

I, Matthew M. Carroll, certify that I am currently a NYS registered professional engineer, as defined in 6NYCRR Part 375, and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____ P.E.

____November 10, 2023____DATE

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SITE MANAGEMENT PLAN

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List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: C203105 – 1500 Astor Avenue, Bronx ,NY

Institutional Controls:	1. The property may be used for commercial and industrial use;
	2. Environmental Easement.
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Controls:	1. In-Situ chemical oxidation (ISCO) treatment of groundwater
	2. Active Sub-Slab Depressurization System (SSDS)
	3. Sump treatment system

Inspections:	Frequency
1. ISCO treatment	Quarterly
2. Active SSDS	Annually
3. Sump treatment system	Quarterly
Monitoring:	**Frequency**
1. Groundwater monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-13 and MW-14	Quarterly
2. Indoor Air: PRIA-1, PRIA-2, and PRIA-3	Annually
3. SSDS Pressure Monitoring	Annually
4. Sump Effluent	Quarterly*

Site Identification: C203105 – 1500 Astor Avenue, Bronx ,NY

Maintenance:	
1. SSDS Blower maintenance	As needed
2. SSDS valves and alarms	Annually
Reporting:	Frequency
1. Quarterly Groundwater Monitoring Report	Quarterly after FER/SMP Approval
2. Annual Indoor Air Sampling Report	Annually after FER/SMP Approval
3. SSDS pressure monitoring (to be provided with Periodic Review Report)	Annually
4. Periodic Review Report	16 months after issuance of COC, annually thereafter

* If effluent is present in sump.

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Site Management Plan ("SMP") is a required element of the remedial program for the 1500 Astor Avenue Site located in the Bronx, New York (hereinafter referred to as the "Site"). See Figure 1. The Site, designated as Site No. C203105, is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), which is administered by New York State Department of Environmental Conservation ("NYSDEC").

Eastchester-Astor, LLC entered into a Brownfield Cleanup Agreement (BCA) on February 21, 2018 with NYSDEC to remediate the Site. A figure showing the Site location and boundaries of this Site is provided in Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix 3.

After completion of the remedial work, some contamination remained, which is hereafter referred to as "Remaining Contamination." Institutional and Engineering Controls (ICs and ECs, respectively) have been incorporated into the Site remedy to control exposure to Remaining Contamination to ensure protection of public health and the environment. An Environmental Easement, granted to NYSDEC and recorded with the Bronx County Clerk, requires compliance with this SMP and all ICs placed on the Site.

This SMP was prepared to manage Remaining Contamination at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion ("COC"); and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the Brownfield Cleanup Agreement (BCA) for the Site (Index #C203105-01-18; Site #C203105)Site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in Appendix 1 of this SMP.

This SMP was prepared by Matthew Carroll, P.E. on behalf of Eastchester-Astor LLC, in accordance with the requirements of NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 3, 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions and Alterations

Revisions and alterations to this plan will be proposed in writing to NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the Site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a New York State Professional Engineer. In accordance with the Environmental Easement for the Site, NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to NYSDEC, as needed, in accordance with NYSDEC's DER–10 for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to NYSDEC.

Table 1 on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix 1.

Table 1: Notifications*

Name	**Contact Information**
Bryan Wong, NYSDEC Project Manager	(718) 482-4905, yukyin.wong@dec.ny.gov
Jane O'Connell, NYSDEC Regional HW Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control	(518) 402-9543, kelly.lewandowski@nyc.ny.gov
Sara Bogardus, NYSDOH Project Manager	(518) 402-7880, sara.bogardus@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in the Bronx, Bronx County, New York and is identified as Block 4393 and Lot 1 on the New York City Tax Map (see Figure 1). The Site is an approximately 0.644-acre area and is bounded by Waring Avenue to the north, Astor Avenue to the south, Woodhull Avenue to the east, and Eastchester Road to the west (see Figure 2 – Site Layout Map). The boundaries of the Site are more fully described in Appendix 3 –Environmental Easement. The owner of the Site parcel at the time of issuance of this SMP is Eastchester-Astor LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a two-story building along Astor Avenue connected to a one-story building along Eastchester Road. The building along Eastchester Road has a full basement, which is used for storage only. The portion of the building along Astor Avenue is slab on grade and does not have a basement or subsurface space. The Site is located in an R4A zoning district with a C-12 commercial overlay; a designation that typically denotes two- and three-story residential buildings with commercial uses that serve local retail needs. The building along Astor Avenue is currently occupied by medical offices, the one-story building along Eastchester Road is currently occupied by commercial units. Site occupants include a restaurant, an urgent care medical center and two real estate offices.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include residential with some commercial properties. The properties immediately south of the Site include residential use buildings; the properties immediately north of the

Site include a medical office; the properties immediately east of the Site include residential properties; and the properties to the west of the Site include residential and commercial properties.

2.2.2 Geology

The Site is covered by four to eight feet of surface fill material, underlain by reddish-brown silt with sand and degraded bedrock. Bedrock was noted in Site-specific boring logs at depths of nine to 14.5 feet below grade (ft-bg) and dips down to the south.

A geologic cross section is shown in Figure 4. Site specific boring logs are provided in Appendix 4.

2.2.3 Hydrogeology

Groundwater was encountered at depths between 6.12 ft-bg to 7.8 ft-bg below the sidewalk grade. Groundwater was encountered at 1.34 ft-bg in the basement monitoring well MW-11. The groundwater flows in a southwest direction.

A groundwater contour map is shown in Figure 3. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix 4.

2.3 Investigation and Remedial History

The Site was historically used as a dry cleaner for approximately 32 years. The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

Investigations and sampling efforts conducted at the Site are described in the following reports:

- *Phase I Environmental Site Assessment Report, 1500 Astor Avenue and 2302-2314 Eastchester Road, Bronx, New York,* Property Solutions, February 4, 2016.

- *Limited Phase II Subsurface Investigation, 1500 Astor Avenue and 2302-2314 Eastchester Road, Bronx, New York,* Property Solutions, July 22, 2016.
- *Limited Phase II Subsurface Investigation Addendum, 1500 Astor Avenue and 2302-2314 Eastchester Road, Bronx, New York,* Property Solutions, August 8, 2016.
- *Summary of Investigation Activities – March 2017, 1500 Astor Avenue and 2302-2314 Eastchester Road, Bronx, New York,* Property Solutions, May 5, 2017.
- *Remedial Investigation Report, 1500 Astor Avenue, Bronx, New York. Tenen Environmental. July 2018.*

The results of the July 2018 Remedial Investigation (RI) indicated that there is a tetrachloroethene (PCE) source area in soil located behind the on-Site building fronting Eastchester Road. PCE was vertically and horizontally delineated in soil as part of the RI and was estimated to be limited to a 160 square-foot area having a depth of seven feet. Petroleum-related volatile organic compounds (VOCs) were not detected in soil at concentrations exceeding the applicable standards. One semivolatile organic compound (SVOC) [benzo(a)pyrene] was detected in one shallow (0-1 ft-bg) soil sample (TSB-9) at a concentration slightly exceeding the Commercial Use Soil Cleanup Objective (SCO). TSB-9 was located in the landscaped area south of the Astor Avenue Site building. SVOCs are common constituents of historic fill material.

Chlorinated solvents were detected above the TOGS 1.1.1 Ambient Class GA Water Quality Standards (Class GA Standards) in groundwater collected from the PCE source area (shallow and deep wells) and areas downgradient of the source area. Chlorinated solvents were either not detected or detected and very low concentrations below Class GA Standards in upgradient and crossgradient wells.

Two sets of sub-slab soil vapor and co-located indoor air samples (one each from the Eastchester Road and Astor Avenue buildings) and two exterior soil vapor samples were collected as part of the 2018 RI. Chlorinated solvents were detected in both sub-slab soil vapor samples, both co-located indoor air samples, and both exterior soil vapor samples. Comparison of PCE concentrations in sub-slab soil vapor and co-located indoor

air samples to the New York State Department of Health (NYSDOH) Soil Vapor Intrusion (SVI) Guidance Decision Matrices (Matrix B for PCE) indicates monitoring is required at the sampling location within the Astor Avenue building and no further action is required at the sampling location within the Eastchester Road building. Comparison of all other chlorinated solvents included on the NYSDOH Decision Matrices, including trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), carbon tetrachloride, methylene chloride, 1,1,1-trichloroethane (1,1,1-TCA), and vinyl chloride, resulted in a 'no further action' matrix decision at both sampling locations. Chlorinated solvents were also detected in the indoor air sample collected from the Astor Avenue building at concentrations exceeding EPA BASE indoor air mean values. No chlorinated solvents were detected in indoor air at concentrations exceeding NYSDOH Soil Vapor Intrusion Guidance Air Guidance Values (AGVs). Petroleum-related VOCs were detected in indoor air samples at concentrations exceeding EPA BASE indoor air mean values. Petroleum-related VOCs were also detected in both sub-slab soil vapor samples and both exterior soil vapor samples.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated August 2019 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a Site.

2.5 Remaining Contamination

2.5.1 Soil

One sample collected by Property Solutions prior to entry in the BCP, 2110-SB-(4.0-4.5), reportedly contained cis-1,2-dichlorethene (cis-1,2-DCE) at 4.7 milligrams per kilogram (mg/kg) above the NYCRR 375-6.7(b) Protection of Groundwater SCOs (PGWSCOs). The groundwater sample collected from the well installed in the same boring did not contain any chlorinated VOCs above the TOGS 1.1.1 Ambient Water Quality (Class GA Standards). The sample location was not near the PCE source area that was subsequently remediated. Sampling by Tenen in the same area (i.e., boring TSB-6) did not indicate that any chlorinated VOCs were present above the Unrestricted Use SCOs in this

area. Third party data review was not completed on the pre-BCP sample and it is assumed that this was not representative of the soil quality at this location.

During the RI, several historic fill related semivolatile organic compounds (SVOCs), metals and pesticides were detected above the NYCRR 375-6.7(a) Unrestricted Use SCOs (UUSCOs) but below the NYCRR 375-6.7(b) Restricted Commercial Use SCOs (RCSCOs).

Soil in the PCE source area was excavated and disposed of off-Site in accordance with state and federal regulations. Post excavation endpoint samples were collected and compared to the RCSCOs for non-PCE constituents and the PGWSCOs for PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride. All post excavation samples contained concentrations of PCE, TCE, cis-1,2-DCE and vinyl chloride below their respective PGWSCOs and non-PCE constituents below their respective RCSCOs. The PCE hotspot area was backfilled with imported clean, virgin stone.

On April 10, 2020, surface and cap documentation samples were collected from 0-2 and 2-12 inches at five locations within the onsite landscaped area, spaced approximately 30 feet apart. On June 19, 2020, a vertical delineation sample was collected from 1-2 feet below grade, directly below the interval of the TSB-9 (0-1') sample. In the surface and cap documentation samples, all results were below the Commercial Use SCOs with the exception of cap sample LD-4 (2-12IN), which contained benzo(a)pyrene at 1.1 mg/kg. On July 30, 2020, at the request of NYSDEC, two additional surface (0-2 inches) and cap (2-12) samples were collected at RI location LD-6. The results of both samples collected at LD-6 were below Unrestricted Use SCOs. All surface and cap samples were analyzed for PAHs via EPA Method 8270.

The results of the above sampling (excluding LD-6) and conclusions associated with this sampling were presented to NYSDEC in a technical memorandum dated July 10, 2020 (Appendix M of the FER). Concentrations of benzo(a)pyrene in surface and cap samples ranged from an estimated concentration of 0.15 mg/kg to 1.1 mg/kg and averaged 0.49 mg/kg, well below the Commercial Use SCO of 1 mg/kg. Further, concentrations of benzo(a)pyrene exceeded the Commercial Use SCO in just two of the twelve samples and, in both of those samples, only exceeded the Commercial Use SCO by 0.1 mg/kg (10%).

As detailed in Section 5.4(b)2i of the Technical Guidance for Site Investigation and Remediation (DER-10):

i. The uses of averages, means or other statistical techniques are generally not allowed, however, recognizing the heterogeneity of contaminated sites and the uncertainty of sampling and analysis of samples, the DER project manager may judge that remediation is complete for sites when:
   (1) There is a large number of confirmatory samples;
   (2) The vast majority of confirmation samples indicate that the soil cleanup levels for the site have been achieved; and,
   (3) Those that do not achieve the SCO exceed it only by a small amount.

Based on the above, given the large number of confirmatory samples, that the vast majority of concentrations meet the Commercial Use SCOs, and that the two exceedances are minor and the average concentration is well below the Commercial Use SCO, Tenen requested that NYSDEC consider the remedial goals in the landscaped area met and that a Track 2 remediation had been achieved in soil. Based on the data presented in the July 30, 2020 memorandum, NYSDEC determined that Track 2 Commercial SCOs had been achieved (August 4, 2020 email correspondence, Appendix M of the FER) despite the individual exceedances of benzo(a)pyrene in two of the twelve surface and cap samples collected. As such, a composite cover system is not a Figure and Table 1 of the July 30, 2020 memorandum depict PAH concentrations in surface and cap samples located within the landscaped area of the Site. Table 7 and Figure 7 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the Commercial Use SCOs at the Site after completion of remedial action.

2.5.2 Groundwater

Residual PCE contamination remains in the groundwater. In-situ chemical oxidation (ISCO) treatment has been implemented at the Site via potassium permanganate cylinders to reduce chlorinated volatile organic compounds (cVOCs) to concentrations below the NYSDEC Class GA Standards. Baseline groundwater sampling was conducted at five groundwater monitoring wells (MW-1S, MW-5, MW-11, MW-13 and MW-14) in January 2020, prior to the installation of reactant cylinders. All baseline groundwater

samples were analyzed for cVOCs. The results of the baseline groundwater sampling indicated concentrations of PCE were detected in exceedance of its Class GA Standard of 5 ug/l in all five samples and the duplicate sample. PCE was detected at a maximum concentration of 160 ug/l in MW-13. No other cVOCs were detected in exceedance of Class GA Standards in any baseline groundwater samples.

2.5.2.1 First Quarterly Groundwater Sampling Event – July 2020

On July 30, 2020, approximately six months after the initial installation of the cylinders, the first round of post-remedial groundwater sampling was performed for MW-1S, MW-11, MW-13, and MW-14. Monitoring well MW-5 could not be sampled due to difficulties removing the potassium permanganate cylinder from the well. Approximately one week prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial groundwater samples were analyzed for cVOCs only, and were compared to the corresponding baseline groundwater samples.

The results of the first round of post-remedial groundwater sampling indicated concentrations of PCE have increased in MW-1S, MW-11, and MW-13, while concentrations of PCE have decreased in MW-14. In addition, cis-1,2-DCE, a breakdown product of PCE, was detected slightly exceeding its Class GA Standard of 5 ug/l in one monitoring well, MW-11. PCE was detected at a maximum concentration of 760 ug/l in MW-13 and cis-1,2-DCE was detected at a concentration of 5.2 ug/l in MW-11. No other cVOCs were detected in exceedance of Class GA Standards in any first round post-remedial groundwater samples. Following the completion of the first round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-11, MW-13, and MW-14.

2.5.2.2 Second Quarterly Groundwater Sampling Event – December 2020

Monitoring well MW-5 was decommissioned and reinstalled on November 20, 2020 and will continue to be part of the monitoring well network. During decommissioning, the potassium permanganate cylinder within the well was removed. A second round of post-treatment groundwater sampling was completed on December 8, 2020. In addition to monitoring wells MW-1S, MW-5, MW-11 MW-13, and MW-14,

NYSDEC requested that previously installed monitoring wells MW-6, MW-7, MW-8 and MW-9 also be sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial groundwater samples were analyzed for cVOCs only, and were compared to the corresponding baseline and first round post-treatment groundwater samples, if available.

The results of the second round of post-remedial groundwater sampling indicated concentrations of PCE have continued to increase in MW-1S, have continued to decrease in MW-14, and, after increasing for the first round of sampling, have now decreased in MW-11 and MW-13. The concentration of PCE in MW-11 during the second round of sampling was higher than the baseline concentration in this well, but lower than the first round of sampling; and the concentration of PCE in MW-13 during the second round of sampling was lower than both the baseline and first round of sampling concentrations in this well. The PCE concentration in MW-5, which could not be sampled during the first round of quarterly sampling, has decreased compared to the baseline sample and was detected at a concentration below the Class GA Standard. Monitoring wells MW-6, MW-7, MW-8, and MW-9 do not have baseline sample results associated with them because they were not previously part of the post-remedial groundwater sampling network; however, these wells were sampled as part of Property Solution's 2017 Phase II ESI. The concentrations of PCE in MW-6 and MW-9 were detected in slight exceedance of the Class GA Standard, but one order of magnitude and two orders of magnitude, respectively, lower than the concentrations detected in these wells during the 2017 Phase II ESI. The concentrations of PCE detected in MW-7 and MW-8 were below the Class GA Standard and slightly lower than the concentrations detected in these wells during the 2017 Phase II ESI. PCE was detected at a maximum concentration of 100 ug/l in MW-13. Cis-1,2-DCE, which was detected slightly in exceedance of its Class GA Standard in MW-11 during the first round of sampling and was not detected in exceedance of its Class GA Standard in any wells sampled during the second round of quarterly sampling. No other cVOCs were detected in exceedance of Class GA Standards in any second round post-remedial groundwater samples. Following the completion of the second round of sampling, the

potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.3 Third Quarterly Groundwater Sampling Event – April 2022

A third round of post-treatment groundwater sampling was completed on April 1, 2022. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8 MW-9, MW-11 MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for target compound list (TCL) VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the third round of post-remedial groundwater sampling indicated concentrations of PCE have remained relatively stable in MW-1S, MW-5, MW-6, MW-7, MW-8, and MW-13 and have increased in MW-9, MW-11, and MW-14. The concentration of PCE in MW-9 and MW-14 are higher than any previous rounds of post-remedial groundwater sampling, but lower than the 2017 Phase II ESI concentration detected in MW-9 and the baseline concentration detected in MW-14. The concentration of PCE in MW-11 is higher than the baseline concentration, but lower than the first round of post-remedial groundwater sampling. PCE was detected at a maximum concentration of 100 ug/l in MW-13. Trichloroethene (TCE), which was not detected in exceedance of its Class GA Standard during baseline sampling or any previous rounds of post-remedial groundwater sampling, was detected in exceedance of its Class GA Standard in MW-9. TCE was detected in MW-9 at a concentration of 18 ug/l, slightly below the concentration of PCE detected in this well during the 2017 Phase II ESI (34 ug/l). In addition, cis-1,2-DCE, which was not detected in exceedance of its Class GA Standard in any wells during the second round of post-remedial sampling, was detected slightly in exceedance of its Class GA Standard in MW-5 and MW-9. TCE was detected at a maximum concentration of 14 ug/l in MW-9. The concentration of cis-1,2-DCE detected in MW-5 was higher than the concentration detected during baseline sampling, while the concentration detected in

MW-9 was lower than the concentration detected during the 2017 Phase II ESI. No other cVOCs were detected in exceedance of Class GA Standards in any third round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-7 and MW-8 during the third round of sampling. Following the completion of the third round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.4 Fourth Quarterly Groundwater Sampling Event – June 2022

A fourth round of post-treatment groundwater sampling was completed on June 23, 2022. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8 MW-9, MW-11 MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for TCL VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the fourth round of post-remedial groundwater sampling indicated concentrations of PCE have decreased in MW-1S, MW-5, MW-6, MW-9, MW-11 and MW-13, remained relatively stable in MW-7 and MW-8, and have increased in MW-14. In addition, the concentration of TCE in MW-9 has decreased since the last round of sampling, while the concentrations of cis-1,2-DCE in MW-5 and MW-9 have slightly increased since the last round of sampling. Vinyl chloride, which was not detected in exceedance of its Class GA Standard during baseline sampling or any previous rounds of post-remedial groundwater sampling, was detected in exceedance of its Class GA Standard in MW-9 at a concentration similar to what was detected in this well during the 2017 Phase II ESI. The concentration of PCE in MW-6 has decreased below the Class GA Standard during this round of sampling. The concentration of PCE in MW-14 is higher than any previous rounds of post-remedial groundwater sampling, but lower than the baseline concentration detected in MW-14. PCE was detected at a maximum concentration of 41 ug/l in MW-13 and MW-14; TCE was detected at a maximum concentration of 5.6 ug/l in

MW-9; cis-1,2-DCE was detected at a maximum concentration of 23 ug/l in MW-9; and, vinyl chloride was detected at a maximum concentration of 5.8 ug/l. No other cVOCs were detected in exceedance of Class GA Standards in any fourth round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-6, MW-7, and MW-8 during the fourth round of sampling. Following the completion of the fourth round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.5 Fifth Quarterly Groundwater Sampling Event – September 2022

A fifth round of post-treatment groundwater sampling was completed on September 22, 2022. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8 MW-9, MW-11 MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for TCL VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the fifth round of post-remedial groundwater sampling indicated concentrations of PCE have decreased in MW-14, remained relatively stable in MW-1S, MW-7, and MW-8, and have increased in MW-5, MW-6, MW-9, MW-11, MW-13. In addition, the concentration of TCE in MW-9 and cis-1,2-DCE in MW-5 have increased since the last round of sampling, while the concentration of cis-1,2-DCE and vinyl chloride in MW-9 have decreased since the last round of sampling. The concentration of PCE in MW-14 and vinyl chloride in MW-9 have decreased below the Class GA Standards during this round of sampling. The concentration of PCE detected in MW-13 is one to two orders of magnitude higher than any previous rounds of post-remedial groundwater sampling and the baseline sampling, while the concentration of PCE detected in MW-9 rebounded to the 2017 Phase II ESI concentration in this well, and is higher than any previous rounds of post-remedial sampling conducted at this well. PCE was detected at a maximum concentration of 1,300 ug/l in MW-13; TCE was detected at a maximum concentration of

9.2 ug/l in MW-9; and, cis-1,2-DCE was detected at a maximum concentration of 33 ug/l in MW-5. No other cVOCs were detected in exceedance of Class GA Standards in any fifth round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-7, MW-8, and MW-14 during the fifth round of sampling. Following the completion of the fifth round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.6 Sixth Quarterly Groundwater Sampling Event – December 2022

A sixth round of post-treatment groundwater sampling was completed on December 15, 2022. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8 MW-9, MW-11 MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for TCL VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the sixth round of post-remedial groundwater sampling indicated concentrations of PCE have decreased in MW-5, MW-7, MW-9, MW-11, and MW-13, remained relatively stable in MW-1S and MW-6, and have increased in MW-8. In addition, the concentrations of TCE and cis-1,2-DCE in MW-13 have increased since the last round of sampling, while the concentrations of TCE in MW-9 and cis-1,2-DCE in MW-5 and MW-9 have decreased since the last round of sampling. The concentrations of PCE in MW-5 and MW-9 and TCE and cis-1,2-DCE in MW-9 have decreased below the Class GA Standards during this round of sampling. In addition, dichlorodifluoromethane was detected in slightly in exceedance of its Class GA Standard in one monitoring well, MW-6, for the first time during any post-remedial groundwater monitoring events. Lastly, acetone and chloroform were each detected in exceedance of the Class GA Standards in one monitoring well, MW-1S. Acetone and chloroform are common laboratory artifacts. Prior to the December 2022 sampling event, acetone and chloroform were not detected in exceedance of Class GA Standards in any groundwater samples; as noted below, these were

not detected above the Class GA Standards in future sampling events which also indicates that this was related to laboratory contamination. PCE was detected at a maximum concentration of 750 ug/l in MW-13; TCE was detected at a concentration of 11 ug/l in MW-13; cis-1,2-DCE was detected at a maximum concentration of 13 ug/l in MW-5; dichlorodifluoromethane was detected at a concentration of 5.3 ug/l in MW-6; acetone was detected at a concentration of 850 ug/l in MW-1S; and, chloroform was detected at a concentration of 66 ug/l in MW-1S. No other VOCs were detected in exceedance of Class GA Standards in any sixth round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-7, MW-9, and MW-14 during the sixth round of sampling. Following the completion of the sixth round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.7 Seventh Quarterly Groundwater Sampling Event – March 2023

A seventh round of post-treatment groundwater sampling was completed on March 23, 2023. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8 MW-9, MW-11 MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for TCL VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the seventh round of post-remedial groundwater sampling indicated concentrations of PCE have decreased in MW-1S, MW-5, MW-6, and MW-8, remained relatively stable in MW-7, and have increased in MW-9, MW-11, MW-13, and MW-14. In addition, the concentrations of TCE and cis-1,2-DCE in MW-13 have decreased since the last round of sampling, while the concentrations of cis-1,2-DCE and vinyl chloride in MW-9 have increased since the last round of sampling. The concentrations of PCE in MW-6 and MW-8, cis-1,2-DCE in MW-5 and MW-13, TCE in MW-13, dichlorodifluoromethane in MW-6, and chloroform and acetone in MW-1S have decreased below the Class GA Standards during this round of sampling. Notably, TCE was not detected in exceedance of

its Class GA Standard in any groundwater monitoring wells during this round of sampling. PCE was detected at a maximum concentration of 55 ug/l in MW-13, one order of magnitude below the highest concentration of PCE detected during the previous round of sampling; cis-1,2-DCE was detected at a concentration of 9.2 ug/l in MW-9; and, vinyl chloride was detected at a concentration of 2.4 ug/l in MW-9. No other VOCs were detected in exceedance of Class GA Standards in any seventh round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-5, MW-6, MW-7, and MW-8 during the seventh round of sampling. Following the completion of the seventh round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

2.5.2.8 Eighth Quarterly Groundwater Sampling Event – June 2023

An eighth round of post-treatment groundwater sampling was completed on June 28, 2023. Monitoring wells MW-1S, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-13, and MW-14 were sampled to determine the efficacy of the ISCO treatment. Approximately two weeks prior to the sampling event, the potassium permanganate cylinders were removed from monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14 in order to allow the aquifer to equilibrate prior to sampling. All post-remedial quarterly groundwater samples were analyzed for TCL VOCs and were compared to the corresponding baseline and previous rounds of post-treatment groundwater samples.

The results of the eighth round of post-remedial groundwater sampling indicated concentrations of PCE have remained relatively stable in all nine post-remedial groundwater monitoring wells compared to the last round of sampling. In addition, the concentration of cis-1,2-DCE in MW-5 has increased since the last round of sampling, while the concentrations of cis-1,2-DCE and vinyl chloride in MW-9 have decreased since the last round of sampling. The concentrations of cis-1,2-DCE and vinyl chloride in MW-9 have decreased below the Class GA Standards during this round of sampling. PCE was detected at a maximum concentration of 46 ug/l in MW-13 and cis-1,2-DCE was detected at a concentration of 11 ug/l in MW-5. No other VOCs were detected in exceedance of Class GA Standards in any eighth round post-remedial groundwater samples. cVOCs were not detected in exceedance of Class GA Standards in monitoring wells MW-6, MW-7, and

MW-8 during the eighth round of sampling. Following the completion of the eighth round of sampling, the potassium permanganate cylinders were placed back in monitoring wells MW-1S, MW-5, MW-11, MW-13, and MW-14.

As of the most recent round of post-remedial quarterly groundwater sampling (6/28/2023), PCE was detected below the Class GA Standard in monitoring wells MW-5, MW-6, MW-7, MW-8 and MW-9. Groundwater will continue to be monitored on a quarterly basis. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. The results of the most recent post-treatment quarterly groundwater sampling indicate that cVOCs continue to be below Class GA Standards in monitoring wells MW-6, MW-7, and MW-8, while one cVOC, cis-1,2-DCE, is now slightly in exceedance of its Class GA Standard in MW-5.

Table 8 and Figure 5 summarize the results of the baseline and post-remedial quarterly groundwater sampling. Figure 8 depicts the post-remedial sampling network for all future events and presents the results of all samples of groundwater that exceed the SCGs after completion of the most recent round of post-remedial quarterly sampling.

2.5.3 Soil Vapor

Residual soil vapor contamination remains at the Site, as a result, a non-continuous soil vapor venting system was installed in the basement of the Eastchester Road building on June 17, 2020 and was converted to a permanent sub-slab depressurization system (SSDS) on October 11, 2022 (see Section 3.3.2 of this SMP for system details).

On September 25, 2020, the first round of post-remedial soil vapor and co-located indoor air sampling was performed within the basement of the Site building to assess the efficacy of the Remedial Action. In addition, one indoor air sample was collected in proximity to the sump in the basement to evaluate potential soil vapor migration into the building from this area. Prior to sampling the soil vapor venting system was run for two days in June, seven days in July and two days in August. On January 14, 2021, the second round of post-remedial soil vapor and co-located indoor air sampling was performed. Prior to the second round of post-remedial soil vapor and co-located indoor air sampling, the soil vapor venting system was run for five consecutive days, beginning January 9, 2021 and ending January 13, 2021. One day later, on January 14, 2021, the second round of post-

remedial sampling was performed. All post-remedial soil vapor and indoor air samples were analyzed for VOCs and compared to the NYSDOH soil vapor decision matrices as presented in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (SVI Guidance), October 2006 with May 2017 revisions. In addition, indoor air samples were compared to the NYSDOH Air Guidance Values (AGVs) as presented in the NYSDOH SVI Guidance.

The results of the first round of post-remedial soil vapor and co-located indoor air sampling indicated concentrations of PCE, TCE, and cis-1,2-DCE were detected in soil vapor and indoor air across the Site. PCE was detected in all four soil vapor samples (max. 834 ug/m^3 in PRSV-2) and all four co-located indoor air samples (max. 5.36 ug/m^3 in PRIA-1); TCE was detected in three soil vapor samples (max. 126 ug/m^3 in PRSV-3) and three co-located indoor air samples (max. 0.177 ug/m^3 in PRIA-3); and cis-1,2-DCE was detected in two soil vapor samples (max. 121 ug/m^3 in PRSV-3) but was not detected in any co-located indoor air samples. PCE is part of NYSDOH Matrix B and TCE and cis-1,2-DCE are part of NYSDOH Matrix A. The concentrations of all of the above-mentioned cVOCs at all four co-located soil vapor and indoor air sample locations were compared to their respective NYSDOH Decision Matrix. NYSDOH Matrix B resulted in a 'monitor' Matrix Decision for PCE at PRSV-1/PRIA-1 and PRSV-3/PRIA-3 and NYSDOH Matrix A resulted in a 'mitigate' Matrix Decision for TCE and cis-1,2-DCE at PRSV-3/PRIA-3. The respective NYSDOH Decision Matrices for these analytes resulted in a 'no further action' Matrix Decision at all other sampling locations. In addition, concentrations of VOCs were not detected in exceedance of NYSDOH AGVs in any of the four co-located indoor air samples.

During the first round of post-remedial soil vapor and co-located indoor air sampling, an indoor air sample was also collected in the vicinity of the sump in the basement of the Eastchester Road building. The results of the indoor air sample collected in the vicinity of the sump indicated concentrations of VOCs (inclusive of PCE, TCE, and cis-1,2-DCE) were not detected in exceedance of NYSDOH AGVs. Note that the following cVOCs were detected in this sample: PCE was detected at a concentration of 8.75 ug/m^3; TCE was detected at a concentration of 0.333 ug/m^3; and cis-1,2-DCE was detected at a concentration of 0.119 ug/m^3.

The results of the second and final round of post-remedial soil vapor and co-located indoor air sampling indicate that concentrations of PCE have decreased at all four soil vapor sampling locations and two co-located indoor air sampling locations (PRIA-1 and PRIA-4). PCE slightly increased at two co-located indoor air sampling locations (PRIA-2 and PRIA-3). PCE was detected at a maximum concentration of 112 ug/m^3 in soil vapor sample PRSV-2 and 7.46 ug/m^3 in indoor air sample PRIA-3. Concentrations of TCE have decreased at three soil vapor sampling locations (PRSV-1, PRSV-2, and PRSV-3), remained non-detect at PRSV-4, decreased at two co-located indoor air sampling locations (PRIA-1 and PRIA-4), and slightly increased at two co-located indoor air sampling locations (PRIA-2 and PRIA-3). TCE was detected at a maximum concentration of 15.7 ug/m^3 in soil vapor sample PRSV-3 and 0.226 ug/m^3 in co-located indoor air sample PRIA-3. Concentrations of cis-1,2-DCE have decreased at two soil vapor sampling locations (PRSV-2 and PRSV-3) and remained non-detect at soil vapor sampling locations PRSV-1 and PRSV-4 and all four co-located indoor air sampling locations. Cis-1,2-DCE was detected at a maximum concentration of 26.4 ug/m^3 in soil vapor sample PRSV-3.

As detailed above, PCE is part of NYSDOH Matrix B and TCE and cis-1,2-DCE are part of NYSDOH Matrix A. The concentrations of all of the above-mentioned cVOCs at all four co-located soil vapor and indoor air sample locations were compared to their respective NYSDOH Decision Matrix. NYSDOH Matrix B resulted in a ‘monitor’ Matrix Decision for PCE at PRSV-2/PRIA-2 and NYSDOH Matrix A resulted in a ‘monitor’ Matrix Decision for TCE at PRSV-3/PRIA-3 and a ‘no further action’ Matrix Decision for cis-1,2-DCE at all four sampling locations. The respective NYSDOH Decision Matrices for PCE and TCE resulted in a ‘no further action’ Matrix Decision at all other sampling locations. In addition, concentrations of VOCs were not detected in exceedance of NYSDOH AGVs in any of the four co-located indoor air samples. Previous sampling (September 2020) had resulted in a ‘mitigate’ Matrix Decision for TCE and cis-1,2-DCE at location PRSV-3/PRIA-3. Results of the most sampling indicate that concentrations of TCE at this location have decreased to a ‘monitor’ Matrix Decision and concentrations of cis-1,2-DCE have decreased a ‘no further action’ Matrix Decision. Similarly, results from the September 2020 sampling indicated a ‘monitor’ Matrix Decision for PCE at location

PRSV-1/PRIA-1. The most recent sampling indicates that the concentration of PCE at this location has decreased to a 'no further action' Matrix Decision.

Based on the installation and commissioning of an active sub-slab depressurization system, quarterly soil vapor and co-located indoor air sampling was reduced to annual indoor air sampling in the proximity of the three locations located in the Eastchester Road building (PRIA-1 through PRIA-3). The first round of post-remedial indoor air sampling was conducted approximately sixty days after active SSDS startup, as discussed in Section 2.5.4, and will occur annually thereafter. As detailed in Section 2.5.4, the indoor air concentrations of PCE were reduced to below 1 ug/m3. All indoor air sampling will be performed in accordance with this SMP.

Post-remedial soil vapor and co-located indoor air sampling results are summarized in Table 9 and Figure 6. Residual onsite contamination that requires future monitoring and annual indoor air sampling locations are depicted on Figure 9.

2.5.4 Indoor Air

As detailed above, a non-continuous soil vapor venting system was installed in the basement of the Eastchester Road building on June 17, 2020 and was converted to a permanent sub-slab depressurization system (SSDS) on October 11, 2022 (see Section 3.3.2 of this SMP for system details). On December 15, 2022, approximately 60-days after SSDS start-up, the first round of annual post-remedial indoor air sampling was performed within the basement of the Site building at sample locations PRIA-1, PRIA-2, and PRIA-3 to assess the efficacy of the Remedial Action. All post-remedial indoor air samples were analyzed for VOCs and compared to the NYSDOH AGVs as presented in the NYSDOH SVI Guidance.

The results of the first round of annual post-remedial indoor air sampling indicated the concentrations of PCE, TCE, and cis-1,2-DCE have decreased at all three sample locations since the last round of post-remedial soil vapor and co-located indoor air sampling. PCE was detected in two of three indoor air samples and TCE and cis-1,2-DCE were non-detect in all three indoor air samples. PCE was detected at concentrations of 0.19 ug/m3 in PRIA-2 and 0.149 ug/m3 in PRIA-3, well below the NYSDOH AGV of 30 ug/m3. The concentrations of PCE detected in PRIA-2 and PRIA-3 are one order of

magnitude below the concentrations detected in indoor air during the last round of post-remedial soil vapor and co-located indoor air sampling.

Based upon the results of the most recent annual indoor air sampling event, the active SSDS appears to be successful in reducing the concentrations of cVOCs in indoor air in the basement of the Site buildings. Indoor air sampling will be conducted again in 2023 to confirm the results of the 2022 sampling. If the 2023 analytical results indicate concentrations of cVOCs are below the NYSDOH AGVs and the previous co-located indoor air sampling results again, a request to discontinue annual indoor air sampling will be submitted to NYSDEC and NYSDOH.

Post-remedial indoor air sampling results are summarized in Table 10 and Figure 6. Residual onsite contamination that requires future monitoring and annual indoor air sampling locations are depicted on Figure 9.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since Remaining Contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of an Excavation Work Plan (EWP) (as provided in Appendix 5) for the proper handling of Remaining Contamination that may be disturbed during maintenance or redevelopment work on the Site; and,
- Any other provisions necessary to identify or establish methods for implementing the ICs/ECs required by the Site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the RAWP to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to Remaining Contamination; and, (3) limit the use and development of the Site to commercial and industrial uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be

discontinued without an amendment to or extinguishment of the Environmental Easement.

The IC boundaries are shown on Figure 2. These ICs are:

- The property may be used for: commercial and industrial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 1, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the Site are prohibited.

3.3 Engineering Controls

3.3.1 In-Situ Chemical Oxidation (ISCO) Groundwater Treatment

Residual PCE contamination remains in groundwater. As part of the remedy, groundwater will be treated with ISCO via an encapsulated reactant cylinder emplaced into existing wells (MW-1S, MW-5, MW-11, MW-13 and MW-14). Encapsulated reactant technology enables the oxidant, solid form potassium permanganate, to provide years of controlled oxidant release in saturated soils and groundwater. Each cylinder has a 1.35-inch diameter and is two feet long, with approximately 2.6 pounds of solid form oxidant crystalline particles of the oxidant potassium permanganate, missed with benign paraffin wax. The cylinders will remain within the wells for their life cycle, typically between two to five years depending upon the groundwater flow.

The design goal is to decrease the concentrations of PCE, associated cVOCs and Site related analytes to below the Class GA Standards. Procedures for operating and maintaining the ISCO groundwater treatment system are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP).

3.3.2 Active Sub-Slab Depressurization System

To minimize the potential for soil vapor intrusion, a non-continuous active soil vapor venting system was initially installed in the basement of the Eastchester Road Site building. The soil vapor venting system consisted of six one-inch diameter holes drilled through the existing slab. A PVC header system and blower was installed to exhaust the trapped soil vapor above the Eastchester Road building roofline on June 17, 2020. Prior to installation of the venting system, a pressure field extension test was completed on January 10, 2020 to ensure that the radius of influence extended to the parking area, Eastchester Road, and sub-slab soil vapor sample locations SV-05 and TSV-2. The pressure field was tested using a manometer; readings greater than 0.01 inches of water column (in-wc) indicated a successful pressure field application. In addition, the sump in the basement was retrofitted with a tightfitting cover to mitigate the potential for vapor intrusion into the Site building. The layout of the sump discharge treatment system is shown on Figure 11.

The soil vapor venting system installation was completed and began operation on June 17, 2020. On September 25, 2020, the first round of post-remedial soil vapor and co-

located indoor air sampling was performed within the basement of the Site building to assess the efficacy of the Remedial Action. In addition, one indoor air sample was collected in proximity to the sump in the basement to evaluate potential soil vapor migration into the building from this area. Prior to sampling the soil vapor venting system was run for two days in June, seven days in July and two days in August.

On January 14, 2021, the second round of post-remedial soil vapor and co-located indoor air sampling was performed. Prior to the second round of post-remedial soil vapor and co-located indoor air sampling, the soil vapor venting system was run for five consecutive days, beginning January 9, 2021 and ending January 13, 2021. One day later, on January 14, 2021, the second round of post-remedial sampling was performed. Based upon the results of the most recent soil vapor and co-located indoor air sampling event, NYSDEC and NYSDOH requested an active SSDS be installed at the Site to further mitigate the potential for soil vapor intrusion into the existing Site building.

Between September 26, 2022 and October 11, 2022, the existing soil vapor venting system was converted to an active SSDS. Near each existing extraction point installed for the soil vapor venting system, a four-inch diameter extraction pit was cored through the concrete basement slab with a coring machine. A four-inch vertical PVC pipe was set within each pit, after which the concrete slab was repaired. The four-inch vertical PVC pipes were then connected to the existing header system, a moisture knock-out tank and a blower. Following installation, a pressure field extension test was conducted via pressure monitoring points on October 10, 2022 to confirm the radius of influence. The pressure field was tested using a manometer; readings greater than 0.01 inches of water column (in-wc) indicated a successful pressure field application. The active SSDS layout is depicted on Figure 10. As discussed in Section 2.5.4, on December 15, 2022, approximately sixty days following system startup, indoor air sampling was conducted to confirm the efficacy of the SSDS. The results of the first round of indoor air sampling indicate the active SSDS appears to be successful in reducing the concentrations of cVOCs in indoor air in the basement of the Site buildings. Indoor air sampling will be conducted again in 2023 to confirm the results of the 2022 sampling. If the 2023 analytical results indicate concentrations of cVOCs are below the NYSDOH AGVs and the previous co-located

indoor air sampling results again, a request to discontinue annual indoor air sampling will be submitted to NYSDEC and NYSDOH.

The design goal of the active SSDS is to mitigate the potential for soil vapor intrusion into the indoor air, the performance of which will be evaluated via annual indoor air sampling as described in this SMP.

Procedures for operating and maintaining the active SSDS are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). Design drawings, signed and sealed by a professional engineer, are included as part of the Operation and Maintenance Plan in Appendix 12.

3.3.3 Sump Treatment System

Based on the distribution of dissolved PCE in groundwater, the concentrations in the area of the existing sump within the basement of the Eastchester Road building are assumed to be above the 20 micrograms per liter (ug/l) New York City Department of Environmental Protection (NYCDEP) Limitation for Effluent to Sanitary or Combined Sewers. On October 2, 2020, the sump was retrofitted with a drum of granular activated carbon (GAC) to treat the effluent prior to discharge to the sewer system. The unit is designed for low flow applications and can treat over one million gallons of water at the estimated PCE concentrations of 70 to 100 ug/l. The sump operates on-demand based on a float switch and is estimated to pump at approximately 20 gallons per minute (gpm). The intermittent flow and low flow rate does not appear to affect the groundwater flow direction and is not expected to affect the ISCO treatment. In addition, the sump was retrofitted with a tightfitting radon mitigation basin cover manufactured by Everbilt to mitigate the potential for vapor intrusion into the Site building.

A flow meter has been installed on the effluent line to track how many gallons of water have gone through the system so carbon change-outs can be made as necessary. The flow meter is a WWM Series paddle wheel flow meter for wastewater effluent manufactured by Assured Automation. If effluent sampling cannot be completed dur to the intermittent flow, the carbon will be changed every 750,000 gallons.

The sump treatment system will remain operational in conjunction with the ISCO groundwater treatment system. Effluent samples will be collected from the sump on a quarterly basis (if effluent is present) and will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. To date, effluent has not been present in the sump system during any Site visits. Future sampling events will be biased towards periods immediately following heavy rainfall events when the sump system is more likely to have effluent present, in order to further evaluate the efficacy of the sump treatment system.

Procedures for operating and maintaining the sump treatment system are documented in the Operation and Maintenance Plan (Section 5.0 of this SMP). Figure 12 shows the location of the ECs for the Site. Specifications for the FLOWSORB® GAC unit, radon mitigation basin cover, and flow meter are included in Appendix 11.

3.3.4 Criteria for Completion of Remediation/Termination of Remedial Systems

Quarterly monitoring of groundwater to assess the efficacy of the groundwater remedy and annual monitoring of indoor air to assess the efficacy of the SSDS will continue at the Site. Quarterly groundwater sampling results and annual indoor air sampling results will be provided to the NYSDEC. Monitoring results will be compared to the Remedial Action Objectives, identified in the August 2019 Decision Document, and applicable standards, criteria and guidance. Groundwater concentrations will be compared to the Class GA Standards and soil vapor and indoor air concentrations will be compared to the NYSDOH Matrices and AGVs. The monitoring results will be utilized to identify the effectiveness of the remedial systems. Prior to termination of the remedial systems, a request to terminate the system will be submitted to NYSDEC with data supporting the termination of the system. Termination of the remedial systems will be at the discretion of NYSDEC and will not occur without written approval from NYSDEC.

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the RAOs identified by the Decision Document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan provided in Appendix 6.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (groundwater, effluent and indoor air);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix 9 – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing and documenting actions taken to restore the effectiveness of the ECs.

4.3 Treatment System Monitoring and Sampling

4.3.1 Remedial System Monitoring

Monitoring of the active SSDS will be performed on a routine basis, as identified in Table 3 Remedial System Monitoring Requirements and Schedule (see below). The monitoring of remedial systems must be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed

and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the active SSDS has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Active SSDS components to be monitored include, but are not limited to, the components included in Table 3 below.

Table 3 – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
SSDS Vacuum Blowers	Pressure readings at installed vapor monitoring points	Design goal of ≤ -0.02 in-wc; ≤ -0.004 in-wc acceptable	Annually
	Alarm System Test	Pass/Fail	Annually
SSDS Piping	Visual inspection of the SSDS mechanical and above grade piping components	N/A	Annually

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Appendix 8 - Site Management Forms. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning or the system is not performing within specifications; maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

4.4 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the groundwater on a quarterly basis for a minimum of two years (inclusive of the completed eight rounds of post-remediation

sampling) and from the indoor air on an annual basis for a minimum of two years (inclusive of the completed round of post-remediation sampling in December 2022). Sampling locations, required analytical parameters and schedule are provided in Table 4 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from NYSDEC and NYSDOH.

Table 4 – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Minimum Method Detection Limit	Minimum Reporting Limit	Schedule
Monitoring Wells MW-1S, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-13 and MW-14; sump effluent*	VOCs (EPA Method 8260)	1 ug/L	Class GA Standards	Quarterly
Indoor air sample locations, PRIA-1, PRIA-2, and PRIA-3	VOCs (EPA Method TO-15)	>5 ppb; 0.2 ug/m3 for Matrix A & C, and 1.0 ug/m3 for Matrix B	NYSDOH Air Guidance Values; NYSDOH Matrices	Annually

*If effluent is present in sump.

Detailed sample collection and analytical procedures and protocols are provided in Appendix 6 – Field Activities Plan and Appendix 6 – Quality Assurance Project Plan.

4.4.1 Groundwater Sampling

To date, eight rounds of post-remedial groundwater samples have been collected. Groundwater monitoring will continue to be performed quarterly to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of nine monitoring wells will be utilized to monitor groundwater conditions on-Site and downgradient of the Site. The results of the most recent round of post-treatment groundwater sampling indicate that cVOCs are below Class GA Standards in monitoring wells MW-6, MW-7, and MW-8.

Table 5 summarizes the identification numbers, purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, three on-Site wells and six downgradient wells are sampled to evaluate the effectiveness of the remedial system.

Table 5 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/ latitude)	Well Diameter (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
MW-1S	On-Site	40.85989° N, 73.84261° W	4	60.35	60.78	4 ft	9 ft
MW-5	Downgradient	40.85956° N, 73.84281° W	2	56.85	57.07	7 ft	12 ft
MW-6	On-Site	40.85979° N, 73.84260° W	2	59.38	59.80	See Note Below	
MW-7	Downgradient	40.85978° N, 73.84291° W	2	58.54	58.80		
MW-8	Downgradient	40.85955° N, 73.84255° W	2	57.06	57.40		
MW-9	Downgradient	40.85943° N, 73.84280° W	2	55.03	55.30		
MW-11	On-Site	40.85971° N, 73.84267° W	4	50.81	49.82	0 ft	2 ft
MW-13	Downgradient	40.85955° N, 73.84272° W	4	54.86	54.86	7 ft	12 ft

MW-14	Downgradient	40.85960° N, 73.84287° W	4	54.91	54.91	6 ft	12 ft

Note: MW-6, MW-7, MW-8, and MW-9 were installed by Property Solutions during their 2017 investigation; the screen interval was not specified in their "Summary of Investigation Activities" report.

Appendix 6, Field Sampling Plan, details protocols for sampling of the groundwater monitoring wells. Monitoring well construction logs are included in Appendix 4 of this document.

If biofouling or silt accumulation occurs in the on-Site and/or off-Site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by NYSDEC.

The sampling frequency may only be modified with the approval of NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.2 Sump Effluent Sampling

Sump effluent sampling will be performed quarterly, if sump effluent is present, to assess the performance of the remedy. To date, sump effluent has not been present during any Site visits. Modification to the frequency or sampling requirements will require approval from NYSDEC.

The sampling frequency may only be modified with the approval of NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the sump effluent sampling program are specified in Section 7.0 – Reporting Requirements.

4.4.3 Indoor Air Sampling

Soil vapor and co-located indoor air sampling was performed quarterly for two quarters to assess the performance of the remedy. Following the start-up of the SSDS, NYSDEC agreed to reduce the frequency of sampling from quarterly to annually and to conduct indoor air sampling only at three locations (PRIA-1 through PRIA-3) going forward. The first round of annual post-remedial indoor air sampling was performed in December 2022 to assess the performance of the remedy. Annual indoor air sampling will continue as described in Section 2.5.4. Modification to the frequency or sampling requirements will require approval from NYSDEC.

The network of on-Site soil vapor sample locations was designed based on the following criteria:

- Figure 6 shows the co-located soil vapor and co-located indoor air sample locations;

- Soil vapor samples were collected from approximately four to six inches beneath the slab;
- All samples were analyzed for VOCs by EPA Method TO-15.

The first quarterly sampling event, performed in September 2020, resulted in a 'mitigate' Matrix Decision for TCE and cis-1,2-DCE at location PRSV-3/PRIA-3. Results of the second quarterly sampling event, performed in January 2021, indicate that concentrations of TCE at this location have decreased to a 'monitor' Matrix Decision and concentrations of cis-1,2-DCE have decreased a 'no further action' Matrix Decision. Similarly, results from the September 2020 sampling indicated a 'monitor' Matrix Decision for PCE at location PRSV-1/PRIA-1. Results of the January 2021 sampling event indicates that the concentration of PCE at this location has decreased to a 'no further action' Matrix Decision.

Based upon the results of the January 2021 soil vapor and co-located indoor air sampling event resulting in 'monitor' Matrix Decisions for locations PRSV-2/PRIA-2 and PRSV-3/PRIA-3 only, with all other Matrix Decisions being 'no further action', an active sub-slab depressurization system was installed at the Site in October 2022. Approximately 60 days after system startup, annual post-remedial indoor air sampling was conducted at the Site in December 2022. Annual indoor air sampling will be conducted again in 2023. Annual indoor air samples will be collected from three locations within the Eastchester Road Site building (PRIA-1 through PRIA-3).

The network of on-Site indoor air sample locations was designed based on the following criteria:

- Figure 9 shows the indoor air sample locations;
- Indoor air samples will be collected from breathing height (approximately three to five feet above grade); and,
- Sample locations and laboratory analysis are included in Table 4.

The sampling frequency may only be modified with the approval of NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by NYSDEC. Future

sub-slab soil vapor samples (if any) will be collected no more than two inches below the existing slab.

Deliverables for the indoor air sampling program is specified in Section 7.0 – Reporting Requirements.

4.4.4 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix 8 - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the Site-specific Field Activities Plan provided as Appendix 6 of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the Site. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the Site to operate and maintain the ISCO groundwater treatment, active SSDS and sump treatment system;

- Will be updated periodically to reflect changes in Site conditions or the manner in which the ISCO groundwater treatment, active SSDS and sump treatment systems are operated and maintained.

5.2 Engineering Control Performance Criteria

The ISCO groundwater treatment system, active SSDS and sump treatment system performance criteria are specified in Section 4.2 of this SMP.

5.3 Operation and Maintenance of ISCO

Encapsulated reactant technology enables the oxidant, solid form potassium permanganate, to provide years of controlled oxidant release in saturated soils and groundwater. The cylinders will remain within the wells for their life cycle, typically between two to five years depending upon the groundwater flow. Cylinders will be evaluated for potassium permanganate degradation during each quarterly sampling event and replaced as necessary.

Groundwater monitoring to assess the efficacy of the ISCO treatment will be performed quarterly. Groundwater monitoring will continue until the design goal of reducing cVOC concentrations below Class GA Standards has been met. Operation of the

ISCO treatment and quarterly groundwater monitoring will continue until permission to discontinue is granted in writing from NYSDEC and NYSDOH.

5.4 Operation and Maintenance of Sub-Slab Depressurization System

The following sections provide a description of the operations and maintenance of active SSDS. Cut-sheets and as-built drawings for the active SSDS are provided in Appendix 11.

5.4.1 System Start-Up and Testing

After the active SSDS was installed, the following was completed:

1. The blower was turned on.
2. Visual inspection of the building slabs for any cracks or holes. If any were identified, they were sealed using concrete.
3. Measurement of the sub-slab pressure at six monitoring points to ensure the fan and system components were intact and properly venting.

The system testing described above will be conducted if, in the course of the SSDS lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.4.2 Routine System Operation and Maintenance

The active SSDS is a permanent engineering control. The long-term maintenance program described below shall continue throughout the life cycle of the SSDS to ensure a proper working order. The long-term operation and maintenance program for the major components of the active SSDS includes manufacturer's recommendations for the reinstallation or replacement of the SSDS components if modifications to the existing system need to be made, any of the components fail, inspection procedures, an operation schedule, typical routine maintenance activities and schedules, and troubleshooting.

5.4.3 Non-Routine Operation and Maintenance

Common troubleshooting tips that can be followed if the vacuum switch/alarm will not indicate a vacuum or is sluggish include the following:

- The pressure ports (high or low) are not hooked up correctly;
- The fitting or sending lines are blocked, pinched, or leaking;
- The cover is loose;
- The pressure sensor is improperly located; and/or
- The ambient temperature is too low (below 20 degrees Celsius)

Table 3 provides a summary and schedule of routine maintenance.

5.4.4 System Monitoring Devices and Alarms

The active SSDS has warning devices to indicate that the system is not operating properly. An alarm system was installed to notify the building management if a drop in pressure indicates that the system is not operating as designed. In the event that warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the SSDS will be restarted. Operational problems will be noted in the Periodic Review Report to be prepared for that reporting period. In the event that an alarm is activated and/or actions are taken to address system deficiencies, the NYSDEC and NYSDOH will be notified.

The alarm system, described below, shall run continuously and only be disconnected for routine maintenance and inspection activities or replacement. Each riser pipe is equipped with the following:

- Obar Systems GBR25-R

The Obar Systems GBR25-R includes a scaled adjustment knob to allow changes to the switching pressure to be made without a pressure gauge; the product is a single pole double throw (SPDT) pressure switch and alarm combination. The alarm is wired to send a signal remotely to the building management system. In case there is a need to relocate a switch/alarm, the new location shall ensure that the switch/alarm remains in close proximity

to the riser pipes and is installed under the supervision of the Remedial Engineer. If the device is not indicating a vacuum while the SSDS is on, staff trained to perform inspections will make sure that the tubing connected to the riser pipe is connected to the low-pressure port. High-pressure ports on the vacuum/switch alarm are vented to the atmosphere.

The vacuum switch/alarm does not require lubrication or periodic servicing. Each vacuum switch/alarm is connected to a low voltage transformer for power, and barring a power outage, routine checkups will not be required. Repairs or alterations made to the vacuum switches by others will void the unit's warranty. The vacuum switches are factory calibrated and cannot be recalibrated in the field. The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix 11.

When testing the vacuum alarms, the tubing that connects the vacuum alarms to the riser pipe shall be disconnected and the low set point raised above the current reading. If the vacuum alarms are powered at the time of disconnecting the tubing from the riser pipe, the alarms will go off. The alarms should go back on-line when the tubing is reconnected to the riser pipe. If the system is in alarm when there is a vacuum present in the riser pipe, inspect the tubing and riser pipe tap to ensure that there are no blockages. If there is a blockage in either the tubing or the riser pipe tap, remove the blockage and retest the vacuum alarm/monitor.

The SSDS fans shall operate continuously and only be turned off for routine maintenance and inspection activities or replacement. The SSDS fans shall not be left on the system piping without electrical power for more than 48 hours due to possible fan failure that could result from the non-operational storage. The SSDS fan units do not require periodic servicing and should be returned to the manufacturer or supplied for service. Repairs or alterations made to the SSDS fan units by others will void the unit's warranty. The installation and operating instructions for the SSDS fan units have been included in Appendix 9.

Inspections of the SSDS components shall include the following:

- Observe visible components (fan, vacuum switch/alarm, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum switch/alarm tubing and riser pipe taps;

- Verify operation of vacuum switch/alarm by disconnecting tubing from riser pipe and noting if the system goes into alarm mode;
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect power to fan by operating dedicated switch; and,
- Measurement of the sub-slab pressure at six monitoring points to ensure the fan and system components are intact and properly venting.

A copy of the Operations and Maintenance (O&M) Plan specific to the system components is provided in Appendix 12, which will provide further detail on the above.

5.4.5 Fire Safety

The remedial party will conduct an annual facility walk with the local fire chief and/or fire suppression team. The site walk will allow for the addition of the facility to any local preplanning efforts. The NYSDEC project manager will be provided with the local fire chief's/fire suppression team's recommendations as soon as they become available. Following review, the NYSDEC project manager may direct the remedial party to implement the recommendations and/or revise the SMP.

5.4.6 Indoor Air Sampling

Three indoor air samples and one ambient air sample will be collected annually to assess the efficacy of the active SSDS. All sampling will be conducted in accordance with NYSDOH Soil Vapor Guidance. The first round of annual indoor sampling was conducted on December 15, 2022, approximately sixty days after SSDS start-up, as described in Section 2.5.4.

Indoor and ambient air samples will be collected from breathing height (three to five feet above the floor) from within the onsite buildings and in a secure, upwind direction. The flow rate will not exceed 0.2 liters per minute. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

All indoor air and ambient air samples will be collected in 6-liter individually-certified Summa canisters over a period of eight hours in commercial structures and analyzed for VOCs by EPA Method TO-15. In addition to the above, a product inventory and an evaluation of the sump and any cracks in the concrete slab will be performed during each indoor air sampling event. Corrective actions will be taken to seal any crack or perforations noted in the wall or concrete slab during inspections.

5.5 Operation and Maintenance of Sump Treatment System

The following sections provide a description of the operations and maintenance of the sump treatment system. Cut-sheets and as-built drawings for sump treatment system are provided in Appendix 11.

5.5.1 System Start-Up and Testing

After the sump treatment system was installed, the following was completed:

1. Visual inspection of the sump connections for any cracks or holes. If any were identified, they were sealed using caulk.
2. Visual inspection of the pump, floats, carbon drum and connections to ensure all connections are intact and components are operating properly.

The system testing described above will be conducted if, in the course of the sump treatment system lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.5.2 Routine System Operation and Maintenance

The sump treatment system is a temporary engineering control to remain in operation in conjunction with ISCO groundwater treatment. The short-term operation and maintenance program for the major components of the sump treatment system includes manufacturer's recommendations for the reinstallation of the sump treatment system components if modifications to the existing system need to be made, inspection procedures, an operation schedule and troubleshooting.

Inspections of the sump treatment system shall include the following:

- Observe any visible components (pump, floats, pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in tubing or pipes;
- Inspect sump connections for proper seal;
- Inspect tubing and connections for leaks and tightness; and,
- Inspect carbon drum.

The carbon drum will be replaced as needed as determined during inspections. The carbon drum is designed to operate at a flow rate of five to 20 gpm and can treat over 1 million gallons of water at the estimated PCE concentrations of 70 to 100 ug/l. A flow meter has been installed on the effluent line to track how many gallons of water have gone through the system so carbon change-outs can be made as necessary. If effluent sampling cannot be completed due to the intermittent flow, the carbon will be changed every 750,000 gallons. When the carbon drum is ready to be replaced, the spent carbon will be sampled and returned to Calgon Carbon, where the carbon will be reactivated and the contaminants thermally destroyed.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given Site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section of the Periodic Review Report (PRR) provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including Site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the Site during Site management, and as reported in the Periodic Review Report (PRR).

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System

Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g., during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2 Remedial Systems

Remedial systems will be operated properly considering the current site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. Spent materials will be sent for recycling, as appropriate.

6.2.3 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.2.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix 9 – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits. A set of metrics has been developed.

6.3 Remedial System Optimization

A Remedial System Optimization (RSO) study will be conducted any time that NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the Site management to another remedial party or agency; and,
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a Site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the Site's cleanup goals, gather additional performance or media specific data and

information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focuses on overall Site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to Site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection, maintenance and monitoring events will be recorded on the appropriate Site management forms provided in Appendix 9. These forms are subject to NYSDEC revision. All Site management inspections, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State (depending on the need to evaluate engineering controls).

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to NYSDEC in accordance with the requirements of Table 6 and summarized in the Periodic Review Report.

Table 6: Schedule of Interim Monitoring/Inspection Reports

Task/Report	**Reporting Frequency***
Sampling Reports	Quarterly for a one year period for post-remedial groundwater and annually for a one year period for post-remedial indoor air, or as otherwise determined by the Department
SSDS pressure monitoring (to be provided with Periodic Review Report)	Annually
Periodic Review Report	16 months after issuance of COC, then annually thereafter

Task/Report	Reporting Frequency*
Inspection Reports (to be provided with Periodic Review Report)	Annually

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (groundwater);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;

- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to NYSDEC beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to NYSDEC or at another frequency as may be required by NYSDEC. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in Appendix 3-Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30

days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required annual Site inspections and severe condition inspections, if applicable.
- Description of any change of use, import of materials, or excavation that occurred during the certifying period.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
- The overall performance and effectiveness of the remedy.

- A performance summary for all treatment systems at the Site during the calendar year, including information such as:
  - The number of days the system operated for the reporting period;
  - The average, high, and low flows per day;
  - The contaminant mass removed and the cost per pound of mass removed during the certification period and during the life of the treatment system;
  - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
  - A description of the resolution of performance problems;
  - Alarm conditions;
  - Trends in equipment failure;
  - A summary of the performance, effluent and/or effectiveness monitoring; and
  - Comments, conclusions, and recommendations based on data evaluation. Recommendations must address how receptors would be impacted. Recommendations can include:
    - Proposals to address efficiency and costs such as: instituting remote operation, system changes to decrease maintenance costs and downtime, and system changes to decrease energy use; and
    - Proposals to modify or shut down a treatment system due to remediation completion, system performance or changed conditions. System shutdowns are addressed in Section 6.4 of DER-10.

7.2.1 Certification of Institutional Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional control identified for the Site, I certify that all of the following statements are true:*

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional controls employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the Site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program;*
- *No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-Site contamination are no longer valid;*

- *The information presented in this report is accurate and complete; and,*
- *Every five years, that the assumptions made in the qualitative exposure assessment remain valid.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Matthew M Carroll, of 1085 Sackett Avenue, Bronx, NY 10461, am certifying as Owner's Designated Site Representative for the Site."

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the Site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by NYSDEC.

7.4 Remedial System Optimization Report

If an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the NYSDEC project manager for approval. A general outline for the RSO report is provided in Appendix 10. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts

obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager.

8.0 REFERENCES

Remedial Investigation Report, 1500 Astor Avenue, Bronx, New York. Tenen Environmental. July 2018.

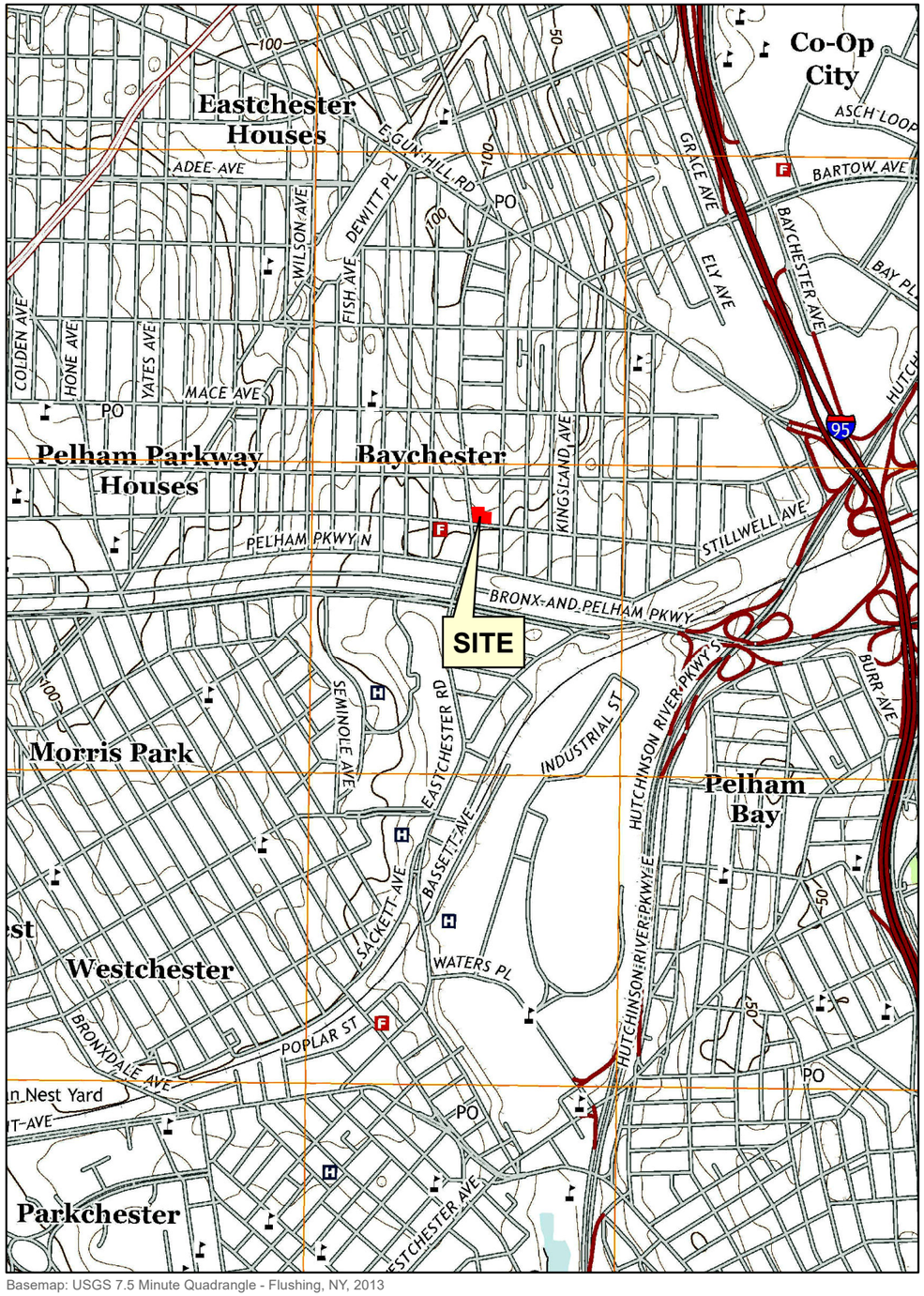
6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

New York State Department of Environmental Conservation, Division of Environmental Remediation. DER Technical Guidance for Site Investigation and Remediation (DER-10). NYSDEC 2010.

New York State Department of Environmental Conservation, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

New York State Department of Health, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. NYSDOH 2006.

FIGURES



Basemap: USGS 7.5 Minute Quadrangle - Flushing, NY, 2013

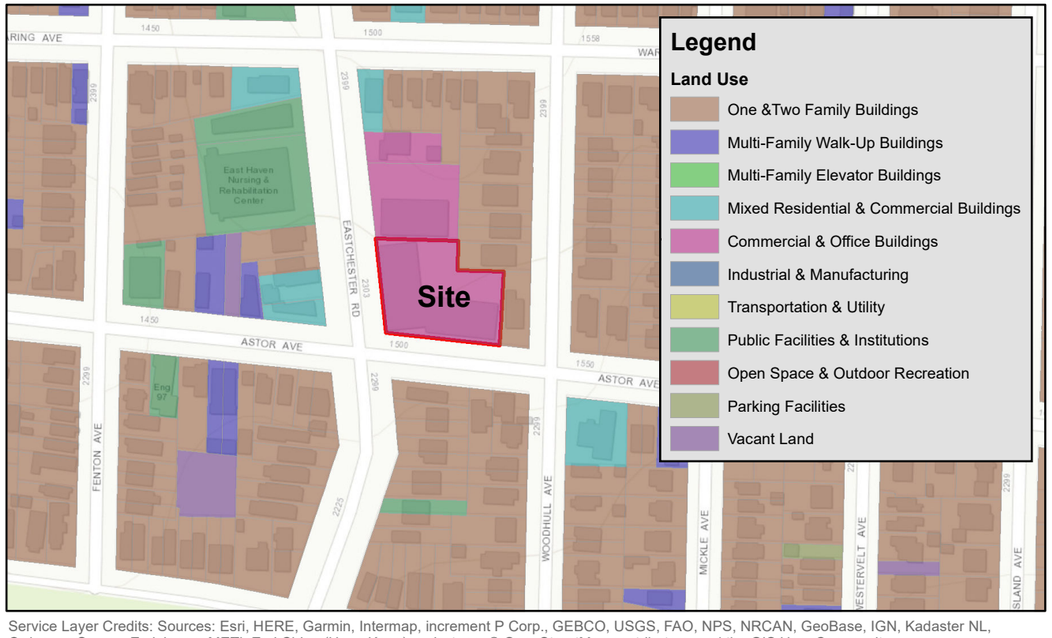
Site Location

0 750 1,500 3,000 Feet

http://gis.nyc.gov/taxmap/map.htm

Department of Finance Digital Tax Map

0 125 250 500 Feet



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2018 v1

0 125 250 500 Feet

Revised 11/21/2017 Per NYSDEC Comments

Site

Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	MC	July 2018	As Noted

Drawing Title: **Site Location Map**

Drawing No: **Figure 1**

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

0 15 30 60 Feet

Legend

Site Boundary

Drawing Title: **Site Layout**	Drawn By: LM	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	Site: **Site Management Plan 1500 Astor Avenue Bronx, New York Block 4393, Lot 1 BCP Site No. C203105**
Drawing No: **Figure 2**	Checked By: MC		
	Date: July 2018		
	Scale: As Noted		

Legend

- Monitoring Well Location
- Groundwater Elevation Contour
- Groundwater Flow Direction

0 15 30 60 Feet

Basemap: Donald R. Stedge, P.L.S., Goshen, NY,
Well Survey for Property Located at 1500 Astor Avenue,
Bronx County, New York, Job #1678, 11/3/2017

Groundwater contours interpolated
with the aid of ESRI ArgGIS Spatial Analyst

Site

Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
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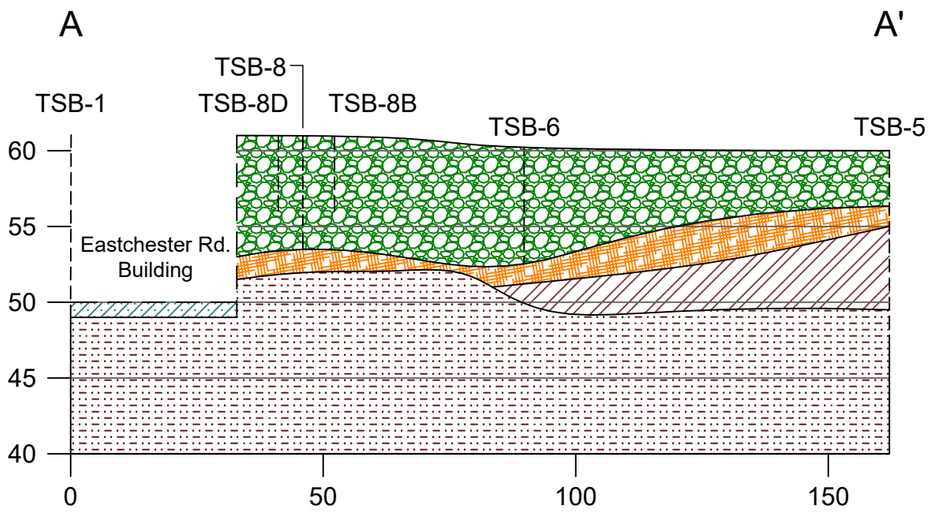
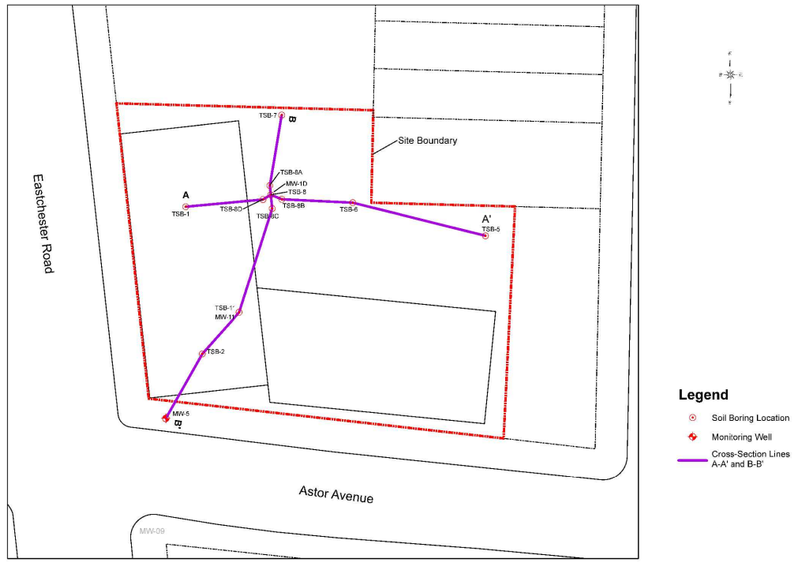
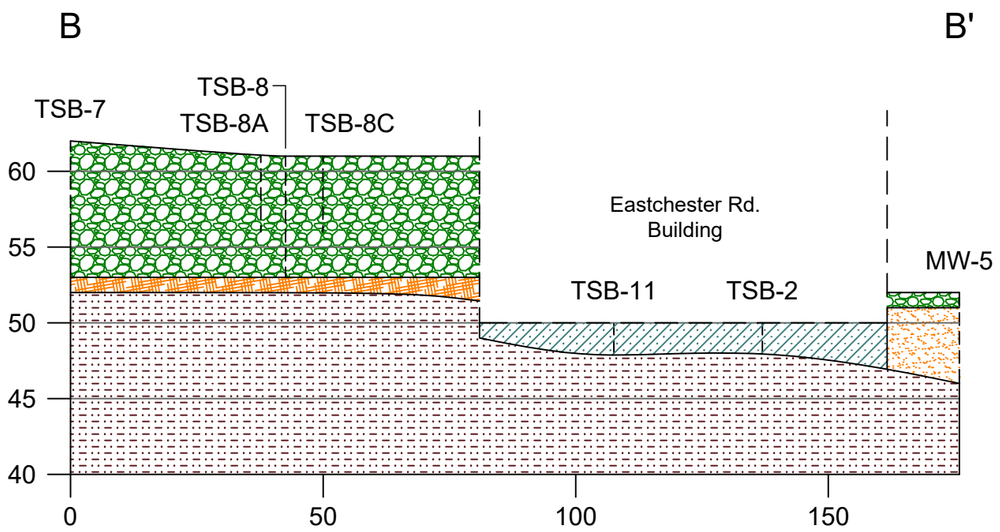
Drawn By	Checked By	Date	Scale
LM	MC	April 2018	As Noted

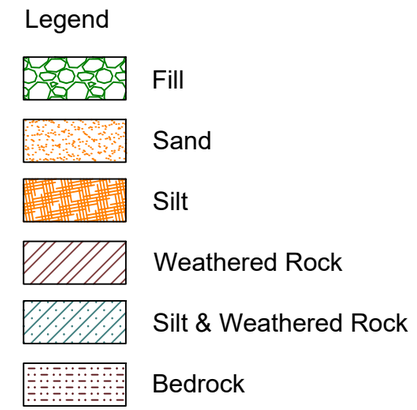
Drawing Title
Groundwater Flow Direction (11/3/2017 GW Elevations)

Drawing No
Figure 3









SITE

Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

CONSULTANT

TENEN ENVIRONMENTAL

TENEN ENVIRONMENTAL, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: 646-606-2332
F: 646-606-2379

DRAWN BY	CHECKED BY	DATE	SCALE:
LM	AP	October 2020	As Noted

DRAWING TITLE: Geologic Cross-Sections

DRAWING NO.: Figure 4

SAMPLE ID:	1494-GW-07	MW-7					MW-7_DUP	MW-7	
LAB SAMPLE ID:	L1708247-11	L2054777-05	L2216966-09	L2233455-03	L2252276-09	L2270825-04	L2270825-05	L2315415-05	L2337157-05
SAMPLING DATE:	3/17/2017	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l								
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.41 J	0.2 J	0.5	0.24 J	0.24 J	ND	ND	0.24 J	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	MW-1S		MW-1S_DUP	MW-1S	MW-1S_DUP	MW-1S	MW-1S_DUP	MW-1S	MW-1S_DUP	MW-1S	MW-1S	MW-1S_DUP	MW-1S	MW-1S_DUP
LAB SAMPLE ID:	L2004091-01	2008007-003	L2054777-01	L2054777-02	L2216966-01	L2216966-02	L2233455-01	L2233455-10	L2252276-01	L2252276-02	L2270825-01	L2315415-01	L2315415-02	L2337157-08	L2337157-09
SAMPLING DATE:	1/29/2020	7/30/2020	12/8/2020		4/1/2022		6/23/2022		9/22/2022		12/15/2022	3/23/2023		6/28/2023	
Chlorinated VOCs	ug/l														
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	40	55	71	59	68	67	32	31	26	71	70	38	44	36	43
Trichloroethene	1.1	1.1 J	2.6	2.2	1.7	1.7	0.6	0.62	0.92	1.8	1.7 J	1.1	1.1	1.1	1.1
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	MW-11	MW-11_DUP	MW-11							
LAB SAMPLE ID:	L201244-01	L201244-02	2008007-004	L2054777-08	L2216966-07	L2233455-06	L2252276-08	L2270825-08	L2315415-08	L2337157-06
SAMPLING DATE:	1/10/2020		7/30/2020	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l									
cis-1,2-Dichloroethene	2.2 J	2.2 J	5.3	3.2	1.7 J	2.2 J	2.9	1.1 J	1.7 J	1.8 J
Tetrachloroethene	28	28	57	38	46	14	49	8.2	45	45
Trichloroethene	1.2	1.2	ND	1.8	1.3	0.61	1.8	0.55	1.4	1.3
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	1494-GW-06	MW-6						
LAB SAMPLE ID:	L1708247-06	L2054777-04	L2216966-03	L2233455-02	L2252276-03	L2270825-03	L2315415-04	L2337157-10
SAMPLING DATE:	3/16/2017	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l							
cis-1,2-Dichloroethene	11	1.4 J	1.8 J	2 J	ND	1.2 J	1.5 J	1.8 J
Tetrachloroethene	11	5.8	5.1	2.7	5.7	6.3	5	1.5
Trichloroethene	1.1	0.41 J	0.22 J	ND	0.28 J	0.5	0.26 J	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	MW-5							
LAB SAMPLE ID:	L201244-04	L2054777-03	L2216966-05	L2233455-09	L2252276-06	L2270825-02	L2315415-03	L2337157-04
SAMPLING DATE:	1/10/2020	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l							
cis-1,2-Dichloroethene	1.6 J	ND	6.8	9.4	33	13	3.4	11
Tetrachloroethene	26	2.2	3.3	0.6	14	0.81	2	3.5
Trichloroethene	2	0.27 J	1.9	0.82	4.8	1.6	0.77	1.8
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	1494-GW-08	MW-8						
LAB SAMPLE ID:	L1708247-09	L2054777-06	L2216966-06	L2233455-04	L2252276-07	L2270825-06	L2315415-06	L2337157-01
SAMPLING DATE:	3/17/2017	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l							
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.68	0.42 J	0.24 J	ND	0.77	5.7	0.45 J	0.6
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	MW-14		MW-14_DUP	MW-14						
LAB SAMPLE ID:	L201244-03	2008007-006	2008007-007	L2054777-10	L2216966-04	L2233455-08	L2252276-04	L2270825-10	L2315415-10	L2337157-03
SAMPLING DATE:	1/10/2020	7/30/2020	7/30/2020	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l									
cis-1,2-Dichloroethene	1.8 J	1.7 J	1.5 J	ND	0.94 J	3.1	ND	ND	0.9 J	1.8 J
Tetrachloroethene	80	21	19	11	25	41	2.3	1.4	20	27
Trichloroethene	2.5	2.3	ND	0.62	0.93	1.6	0.24 J	ND	0.87	1.8
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID:	1494-GW-09	MW-9						
LAB SAMPLE ID:	L1708247-08	L2054777-07	L2216966-08	L2233455-05	L2252276-10	L2270825-07	L2315415-07	L2337157-07
SAMPLING DATE:	3/17/2017	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l							
cis-1,2-Dichloroethene	80	4.5	14	23	8.4	2.1 J	9.2	2.5
Tetrachloroethene	130	7.2	44	29	130	1.8	15	16
Trichloroethene	34	2.1	18	5.6	9.2	0.37 J	2.7	1.2
Vinyl Chloride	5.9	0.28 J	1.6	5.8	ND	0.62 J	2.4	0.51 J

SAMPLE ID:	MW-13								
LAB SAMPLE ID:	L201244-05	2008007-005	L2054777-09	L2216966-10	L2233455-07	L2252276-05	L2270825-09	L2315415-09	L2337157-02
SAMPLING DATE:	1/10/2020	7/30/2020	12/8/2020	4/1/2022	6/23/2022	9/22/2022	12/15/2022	3/23/2023	6/28/2023
Chlorinated VOCs	ug/l								
cis-1,2-Dichloroethene	3.1	ND	ND	2.3 J	3	ND	8.4 J	3.3	3.6
Tetrachloroethene	160	780 D	100	100	41	1300	750	55	46
Trichloroethene	3	ND	ND	3	1.6	3.5 J	11	3.1	3
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

Analyte	NY-AWQS
Chlorinated VOCs	ug/l
cis-1,2-Dichloroethene	5
Tetrachloroethene	5
Trichloroethene	5
Vinyl Chloride	2

Notes:

1. Bold and shaded yellow value indicates concentration exceeds NY-AWQS

2. NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values

Note: Data from 2017 is from Property Solutions Inc. Additional Investigation Activities Report dated May 5, 2017

Legend

- ISCO Treatment Well & Post-Remedial Groundwater Sample Location
- Post-Remedial Groundwater Sampling Location

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site: Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By: LM
Checked By: AP
Date: July 2023
Scale: As Noted

Title: Phase II ESI, Baseline, and Post-Remedial Groundwater Analytical Results

Drawing No: Figure 5

LOCATION	TSV-2	TIA-2	NYSDOH Matrix Determination
SAMPLING DATE	3/29/2018		
UNITS	ug/m³		
VOCs			
Tetrachloroethene	33.4	2.15	No further action
Trichloroethene	ND	ND	No further action
cis-1,2-Dichloroethene	ND	ND	No further action

LOCATION	SUMP-IA
SAMPLING DATE	9/25/2020
UNITS	ug/m³
VOCs	
Tetrachloroethene	8.75
Trichloroethene	0.333
cis-1,2-Dichloroethene	0.119

LOCATION	PRSV-1	PRIA-1	PRSV-1_ 20210114	PRIA-1_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	9/25/2020		1/14/2021		
UNITS	ug/m³				
VOCs					
Tetrachloroethene	**362**	**5.36**	78.7	5	Monitor (Sept 2020); No further action (Jan 2021)
Trichloroethene	11.2	0.14	4.63	0.113	No further action
cis-1,2-Dichloroethene	ND	ND	ND	ND	No further action

LOCATION	PRIA-1
SAMPLING DATE	12/15/2022
UNITS	ug/m³
VOCs	
Tetrachloroethene	ND
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

LOCATION	PRIA-2
SAMPLING DATE	12/15/2022
UNITS	ug/m³
VOCs	
Tetrachloroethene	0.19
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

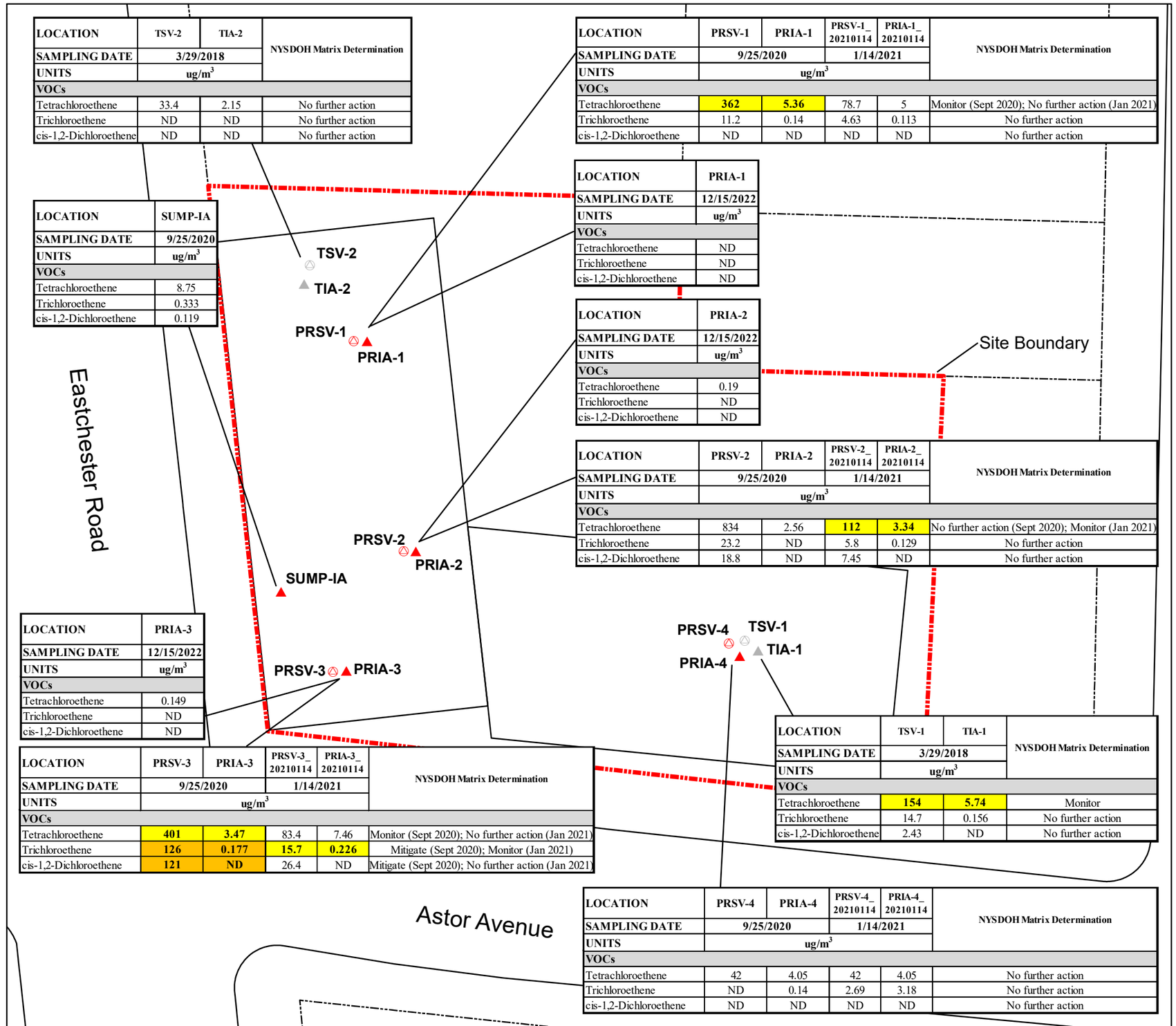
LOCATION	PRSV-2	PRIA-2	PRSV-2_ 20210114	PRIA-2_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	9/25/2020		1/14/2021		
UNITS	ug/m³				
VOCs					
Tetrachloroethene	834	2.56	**112**	**3.34**	No further action (Sept 2020); Monitor (Jan 2021)
Trichloroethene	23.2	ND	5.8	0.129	No further action
cis-1,2-Dichloroethene	18.8	ND	7.45	ND	No further action

LOCATION	PRIA-3
SAMPLING DATE	12/15/2022
UNITS	ug/m³
VOCs	
Tetrachloroethene	0.149
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

LOCATION	PRSV-3	PRIA-3	PRSV-3_ 20210114	PRIA-3_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	9/25/2020		1/14/2021		
UNITS	ug/m³				
VOCs					
Tetrachloroethene	**401**	**3.47**	83.4	7.46	Monitor (Sept 2020); No further action (Jan 2021)
Trichloroethene	**126**	**0.177**	**15.7**	**0.226**	Mitigate (Sept 2020); Monitor (Jan 2021)
cis-1,2-Dichloroethene	**121**	**ND**	26.4	ND	Mitigate (Sept 2020); No further action (Jan 2021)

LOCATION	TSV-1	TIA-1	NYSDOH Matrix Determination
SAMPLING DATE	3/29/2018		
UNITS	ug/m³		
VOCs			
Tetrachloroethene	**154**	**5.74**	Monitor
Trichloroethene	14.7	0.156	No further action
cis-1,2-Dichloroethene	2.43	ND	No further action

LOCATION	PRSV-4	PRIA-4	PRSV-4_ 20210114	PRIA-4_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	9/25/2020		1/14/2021		
UNITS	ug/m³				
VOCs					
Tetrachloroethene	42	4.05	42	4.05	No further action
Trichloroethene	ND	0.14	2.69	3.18	No further action
cis-1,2-Dichloroethene	ND	ND	ND	ND	No further action



Notes:

1. **Bold and shaded yellow value indicates "Monitor" matrix decision**
2. **Bold and shaded orange value indicates "Mitigate" matrix decision**
3. NYSDOH matrix determinations are described in the report narrative and the NYSDOH Soil Vapor Guidance, with May 2017 updates
4. ND = Not detected
5. SUMP-IA and the annual post-remedial indoor air samples collected in December 2022 (PRIA-1 through PRIA-3) are not co-located with a sub-slab soil vapor sample. As such, the concentrations detected in these samples are not compared to the NYSDOH Matrices.

Legend

- Post Remedial Indoor Air Sample
- Post Remedial Sub-Slab Soil Vapor Sample
- Pre-Remedy Indoor Air Sample Collected by Tenen during the 2018 Remedial Investigation
- Pre-Remedy Sub-Slab Soil Vapor Sample Collected by Tenen during the 2018 Remedial Investigation

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site
Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
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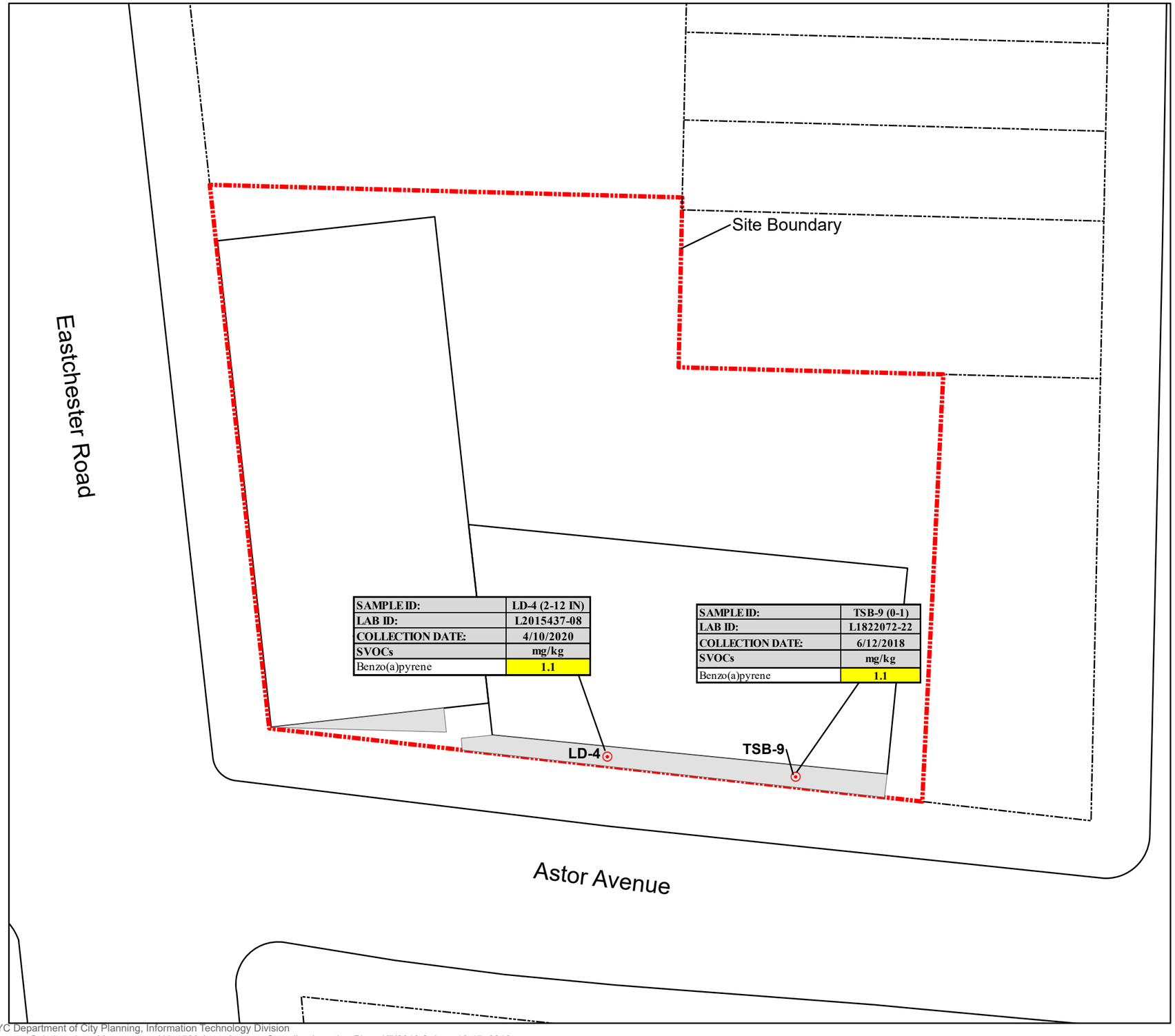
O: (646) 606-2332
F: (646) 606-2379

Drawn By: LM
Checked By: AP
Date: September 2023
Scale: As Noted

Title: Pre-Remedy and Post Remedial Soil Vapor and Indoor Air Analytical Results

Drawing No: Figure 6



Analyte	NY-RESC
SVOCs	mg/kg
Benzo(a)pyrene	1

Notes:

1. **Bold and shaded yellow value indicates concentration exceeds NY-RESC SCOs**
2. NY-RESC = 6 NYCRR Part 375 Restricted Commercial Use Soil Cleanup Objectives

Legend

- Pre-Remedy Delineation/ Endpoint Sample
- Landscaped Area

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site

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1500 Astor Avenue
Bronx, New York
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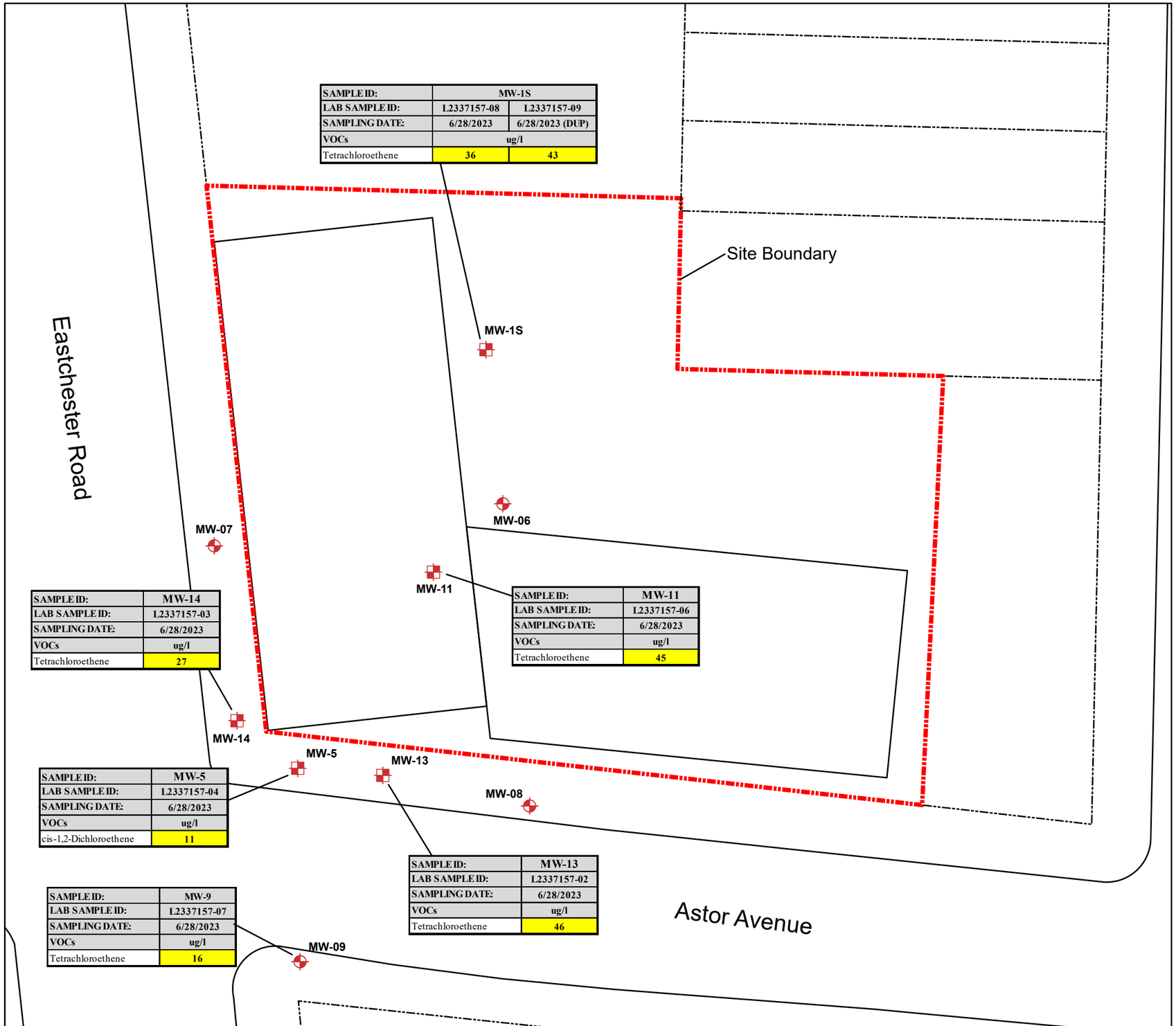
Drawn By: LM
Checked By: AP
Date: October 2020
Scale: As Noted

Drawing Title: **Remaining Contamination in Soil**

Drawing No: **Figure 7**



Analyte	NY-AWQS
VOCs	ug/l
cis-1,2-Dichloroethene	5
Tetrachloroethene	5

Notes:

1. **Bold and shaded yellow value indicates concentration exceeds NY-AWQS**
2. NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
3. All VOCs were detected at concentrations below NY-AWQS in monitoring wells MW-6, MW-7, and MW-8.

Legend

- ISCO Treatment Well & Post-Remedial Groundwater Sampling Location
- Post-Remedial Groundwater Sampling Location

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site: **Site Management Plan**
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

TENEN ENVIRONMENTAL
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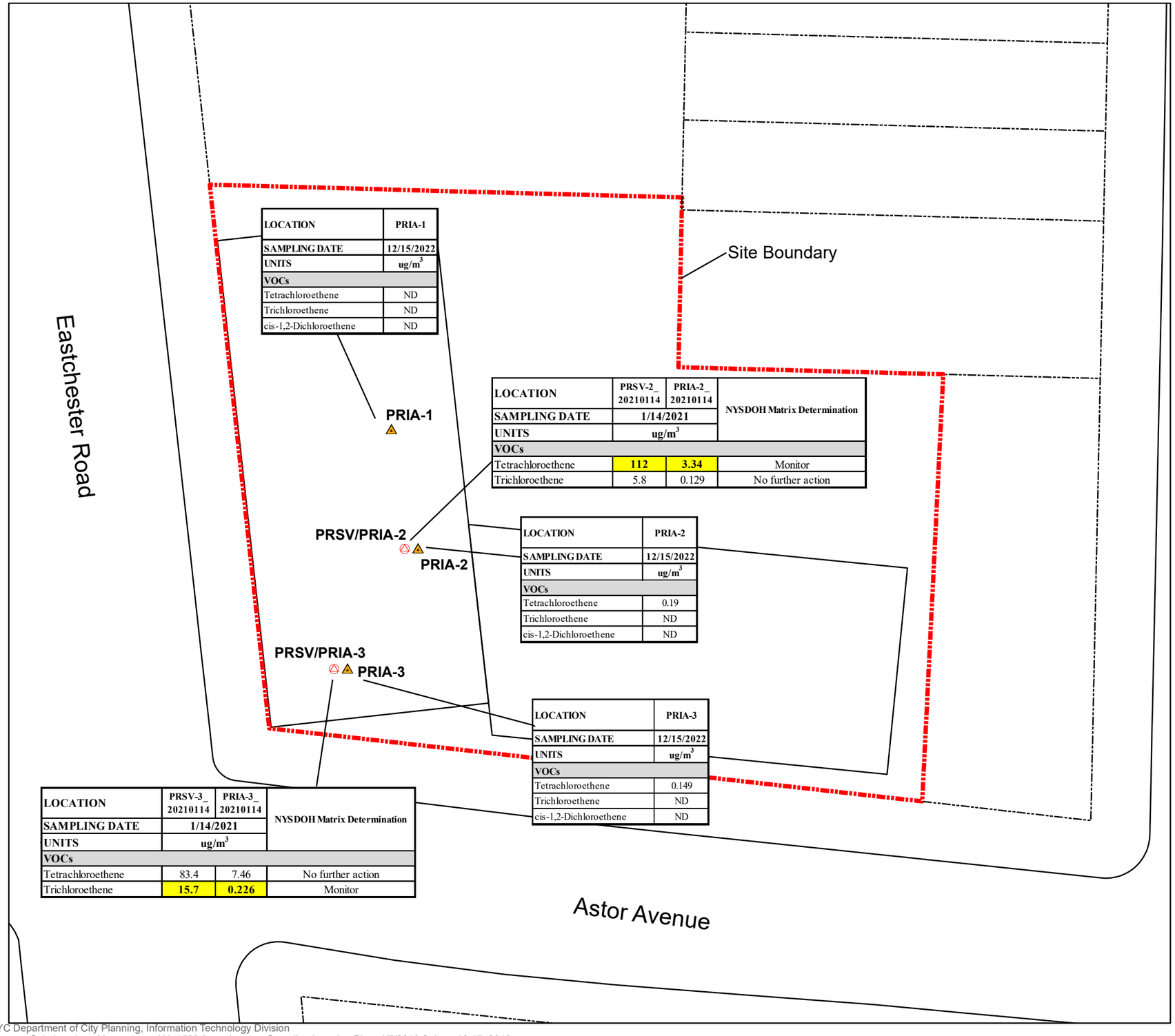
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	AP	July 2023	As Noted

Title: **Remaining Contamination in Groundwater Above AWQS and Post-Remedial Groundwater Sampling Locations**

Drawing No: **Figure 8**



LOCATION	PRIA-1
SAMPLING DATE	12/15/2022
UNITS	ug/m^3
VOCs	
Tetrachloroethene	ND
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

LOCATION	PRSV-2_ 20210114	PRIA-2_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	1/14/2021		
UNITS	ug/m^3		
VOCs			
Tetrachloroethene	**112**	**3.34**	Monitor
Trichloroethene	5.8	0.129	No further action

LOCATION	PRIA-2
SAMPLING DATE	12/15/2022
UNITS	ug/m^3
VOCs	
Tetrachloroethene	0.19
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

LOCATION	PRIA-3
SAMPLING DATE	12/15/2022
UNITS	ug/m^3
VOCs	
Tetrachloroethene	0.149
Trichloroethene	ND
cis-1,2-Dichloroethene	ND

LOCATION	PRSV-3_ 20210114	PRIA-3_ 20210114	NYSDOH Matrix Determination
SAMPLING DATE	1/14/2021		
UNITS	ug/m^3		
VOCs			
Tetrachloroethene	83.4	7.46	No further action
Trichloroethene	**15.7**	**0.226**	Monitor

Notes:
1. Bold and shaded yellow value indicates "Monitor" matrix decision
2. NYSDOH matrix determinations are described in the report narrative and the NYSDOH Soil Vapor Guidance, with May 2017 updates
3. ND = Not detected

Legend

- Annual Post-Remedial Indoor Air Sample
- January 2021 Post Remedial Sub-Slab Soil Vapor and Co-Located Indoor Air Sample

Note:
Annual post remedial indoor air sampling will begin 2022

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site
Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

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Drawn By: LM
Checked By: AC
Date: July 2023
Scale: As Noted

Title: **Remaining cVOC Concentrations in Soil Vapor and Co-Located Indoor Air Requiring Action and Annual Post Remedial Sample Locations**

Drawing No: **Figure 9**

N
W
E
S

Legend

- Riser to First Floor
- Moisture Knock-out Tank
- Soil Vapor Venting Location
- Previous Soil Vapor Sample Location
- Extraction Pit
- Pressure Monitoring Point
- Permanent PVC Header

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

Site

TENEN ENVIRONMENTAL
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Drawn By	Checked By	Date	Scale
LM	MC	December 2021	As Noted

Drawing Title: **SSDS Layout - Cellar**

Drawing No: **Figure 10**

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

0 15 30 60 Feet

LICENSED PROFESSIONAL ENGINEER
STATE OF NEW YORK
MATTHEW M. CARROLL
091629

Drawing Title: **Sump Discharge Treatment Layout**	Drawn By: LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	Site: **Site Management Plan 1500 Astor Avenue Bronx, New York Block 4393, Lot 1 BCP Site No. C203105**
	Checked By: AP		
Drawing No: **Figure 11**	Date: October 2020		
	Scale: As Noted		

SAMPLE ID:	LD-4 (2-12 IN)
LAB ID:	L2015437-08
COLLECTION DATE:	4/10/2020
SVOCs	mg/kg
Benzo(a)pyrene	1.1

SAMPLE ID:	TSB-9 (0-1)
LAB ID:	L1822072-22
COLLECTION DATE:	6/12/2018
SVOCs	mg/kg
Benzo(a)pyrene	1.1

Analyte	NY-RESC
SVOCs	mg/kg
Benzo(a)pyrene	1

Notes:

1. **Bold and shaded yellow value indicates concentration exceeds NY-RESC SCOs**
2. NY-RESC = 6 NYCRR Part 375 Restricted Commercial Use Soil Cleanup Objectives

Legend

- Pressure Monitoring Point
- Riser to First Floor
- Moisture Knock-out Tank
- Soil Vapor Venting Location
- Pre-Remedy Delineation/ Endpoint Sample
- Previous Soil Vapor Sample Location
- ISCO Treatment Location
- Extraction Pit
- Permanent PVC Header
- Remedial Excavation Area

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site Management Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1
BCP Site No. C203105

TENEN ENVIRONMENTAL
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F: (646) 606-2379

Drawn By: LM
Checked By: AP
Date: September 2023
Scale: As Noted

Drawing Title: **Location of Engineering Controls**

Drawing No: **Figure 12**

TABLES

Table 2.
Groundwater Elevation Measurements
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

Location	Measuring Point Elevation - feet (NAVD)	Depth to Water (ft)	Water Elevation - feet (MVD)
MW-1S	60.35	8	52.35
MW-2	60.29	9.15	51.14
MW-3	60.5	6.99	53.51
MW-4	59.22	8.02	51.2
MW-5	56.85	8.89	47.96
MW-6	59.38	8.91	50.47
MW-7	58.54	9.27	49.27
MW-8	57.06	9.29	47.77
MW-9	55.03	8.79	46.24
MW-10	61.4	7.7	53.7

Notes:
1. Data collected by Tenen on November 3, 2017.
2. All elevations shown are in NAVD 1988 (NAVD) vertical datum.
3. Depth to water measurements are in feet below measuring point (top of casing).

Table 7. Soil Results Above Unrestricted Use and/or Commercial Use SCOs
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

Phase	Sample	Date	Parameter	Unrestricted SCOs	Commerical SCOs	Concentration (mg/kg)
Pre-BCP	2110-SB8-(4.0-4.5)	6/15/2016	cis-1,2-dichloroethene	0.25	500	4.7
RI	TSB-1 (0-1)	6/12/2018	4,4'-DDD	0.0033	92	0.0699
			4,4'-DDE	0.0033	62	0.0169
	TSB-2 (0-2)	6/12/2018	Lead	63	1000	66.7
			4,4'-DDD	0.0033	92	0.0072
			4,4'-DDE	0.0033	62	0.00685
			4,4'-DDT	0.0033	47	0.0468
	TSB-3 (5-7)	6/12/2018	Benzo(b)fluoranthene	1	5.6	1.1
			Indeno(1,2,3-cd)pyrene	0.5	5.6	0.54
	TSB-3 (8-10)	6/12/2018	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	TSB-4 (0-2)	6/12/2018	Chromium, Trivalent	30	1500	31
			Chromium, Hexavalent	1	400	1.2
	TSB-4 (7-9)	6/12/2018	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	TSB-5 (0-3.5)	6/12/2018	Chromium, Trivalent	30	1500	36
			Lead	63	1000	66.3
			4,4'-DDD	0.0033	92	0.062
			4,4'-DDE	0.0033	62	0.0664
			4,4'-DDT	0.0033	47	0.0861
			Dieldrin	0.005	1.4	0.00741
	TSB-5 (8-9)	6/12/2018	Chromium, Trivalent	30	1500	32
	TSB-6 (0-2)	6/12/2018	4,4'-DDD	0.0033	92	0.0402
			4,4'-DDE	0.0033	62	0.0126
			4,4'-DDT	0.0033	47	0.0094
			Dieldrin	0.005	1.4	0.00851
	TSB-6 (5-7.5)	6/12/2018	4,4'-DDD	0.0033	92	0.0112
	TSB-7 (0-2)	6/12/2018	4,4'-DDD	0.0033	92	0.019
			4,4'-DDE	0.0033	62	0.0164
	TSB-8D (0-0.5)	6/12/2018	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	TSB-8C (0-0.5)	6/12/2018	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	TSB-9 (0-1)	6/12/2018	Chromium, Trivalent	30	1500	36
			Benzo(a)anthracene	1	5.6	1.5
			Benzo(a)pyrene	1	1	**1.1**
			Benzo(b)fluoranthene	1	5.6	1.6
			Chrysene	1	56	1.5
			Indeno(1,2,3-cd)pyrene	0.5	5.6	0.76
			4,4'-DDE	0.0033	62	0.00889
			4,4'-DDT	0.0033	47	0.0274
	TSB-10 (4-6)	6/12/2018	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	TSB-11 (0-2)	6/12/2018	Chromium, Trivalent	30	1500	35
End-Point	FEP-B	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	FEP-1	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	FEP-2	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	FEP-3	8/27/2019	Tetrachloroethene	1.3	150	1.7
	FEP-4	8/27/2019	Tetrachloroethene	1.3	150	1.5
	EP-B	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	EP-1	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	EP-4	8/27/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	EP-2	8/28/2019	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
Cap	LD-1 (0-2 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-1 (2-12 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-2 (0-2 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-2 (2-12 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-3 (0-2 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-3 (2-12 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-4 (0-2 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-4 (2-12 IN)	4/10/2020	Benzo(a)pyrene	1	1	**1.1**
	LD-5 (0-2 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-5 (2-12 IN)	4/10/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-6 (0-2 IN)	7/30/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			
	LD-6 (2-12 IN)	7/30/2020	No Compounds dectected above Unrestricted SCOs or Commercial SCOs			

For additional discussion of these results, see Section 2.5.1 of the Site Management Plan (SMP)
SCOs = Part 375 soil cleanup objectives
All results are in milligrams per kilogram (mg/kg)
Listed compounds exceed the Unrestricted Use SCOs
Bolded compounds also exceed the Commercial Use SCOs

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		**MS-1S**		**MS-1S**		**MW-1S**		**MW-1S_DUP**		**MW-1S**		**MW-1S DUP**		**MW-1S**	
LAB ID:		**L2004091-01**		**2008007-003**		**L2054777-01**		**L2054777-02**		**L2216966-01**		**L2216966-02**		**L2233455-01**	
COLLECTION DATE:	**NY-AWQS**	**1/29/2020**		**7/30/2020**		**12/8/2020**		**12/8/2020**		**4/1/2022**		**4/1/2022**		**6/23/2022**	
Volatle Organic Compounds Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acetone	50	NA		NA		NA		NA		1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.5	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	0.7	U	0.5	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	1	U	0.5	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	40		55		71		59		68		67		32	
Trichloroethene	5	1.1		1.1		2.6		2.2		1.7		1.7		0.6	
Vinyl chloride	2	0.07	U	0.5	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1
Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:	NY-AWQS	MW-1S_DUP		MW-1S		MW-1S DUP		MW-1S		MW-1S		MW-1S_DUP		MW-1S		MW-1S_DUP	
LAB ID:		L2233455-10		L2252276-01		L2252276-02		L2270825-01		L2315415-01		L2315415-02		L2337157-08		L2337157-09	
COLLECTION DATE:		6/23/2022		9/22/2022		9/22/2022		12/15/2022		3/23/2023		3/23/2023		6/28/2023		6/28/2023	
Volatle Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acetone	50	2	J	20		20		850						1.8	J	1.5	U
Chloroform	7	0.7	U	0.7	U	0.7	U	66		1.8	J	2.1	J	1.2	J	1.3	J
cis-1,2-Dichloroethene	5	0.7	U	0.7	U	0.7	U	3.5	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	1	U	1	U	1	U	5	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	31		26		71		70		38		44		36		43	
Trichloroethene	5	0.62		0.92		1.8		1.7	J	1.1		1.1		1.1		1.1	
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.36	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Tech
Class GA Ambient Water Quality Standards and
Cells hghlighted in yellow indicate a concentrati
Cells shaded in grey indiate an MDL value abov
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		**MW-5**		**MW-5**		**MW-5**		**MW-5**		**MW-5**		**MW-5**		**MW-5**	
LAB ID:		**L2054777-03**		**L2216966-05**		**L2233455-09**		**L2270825-02**		**L2252276-06**		**L2315415-03**		**L2337157-04**	
COLLECTION DATE:	**NY-AWQS**	**12/8/2020**		**4/1/2022**		**6/23/2022**		**12/15/2022**		**9/22/2022**		**3/23/2023**		**6/28/2023**	
Volatle Organic Compounds Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acetone	50	NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	0.7	U	6.8		9.4		13		33		3.4		11	
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	2.2		3.3		0.6		0.81		14		2		3.5	
Trichloroethene	5	0.27	J	1.9		0.82		1.6		4.8		0.77		1.8	
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.07	U	0.09	J	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series
1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		**MW-6**		**MW-06**		**MW-6**		**MW-6**		**MW-6**		**MW-6**		**MW-6**	
LAB ID:		**L2054777-04**		**L2216966-03**		**L2233455-02**		**L2252276-03**		**L2270825-03**		**L2315415-04**		**L2337157-10**	
COLLECTION DATE:	**NY-AWQS**	**12/8/2020**		**4/1/2022**		**6/23/2022**		**9/22/2022**		**12/15/2022**		**3/23/2023**		**6/28/2023**	
Volatle Organic Compounds		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acetone	50	NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	1.4	J	1.8	J	2	J	0.7	U	1.2	J	1.5	J	1.8	J
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	5.3		1	U	1	U
Tetrachloroethene	5	5.8		5.1		2.7		5.7		6.3		5		1.5	
Trichloroethene	5	0.41	J	0.22	J	0.18	U	0.28	J	0.5		0.26	J	0.18	U
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1
Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		MW-7		MW-7		MW-7		MW-7		MW-7		MW-7-DUP		MW-7		MW-7	
LAB ID:		L2054777-05		L2216966-09		L2233455-03		L2252276-09		L2270825-04		L2270825-05		L2315415-05		L2337157-05	
COLLECTION DATE:	NY-AWQS	12/8/2020		4/1/2022		6/23/2022		9/22/2022		12/15/2022		12/15/2022		3/23/2023		6/28/2023	
Volatle Organic Compounds		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acetone	50	NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	0.2	J	0.5		0.24	J	0.24	J	0.18	U	0.18	U	0.24	J	0.18	U
Trichloroethene	5	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series
1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		**MW-8**		**MW-08**		**MW-8**		**MW-8**		**MW-8**		**MW-8**		**MW-8**	
LAB ID:		**L2054777-06**		**L2216966-06**		**L2233455-04**		**L2252276-07**		**L2270825-06**		**L2315415-06**		**L2337157-01**	
COLLECTION DATE:	**NY-AWQS**	**12/8/2020**		**4/1/2022**		**6/23/2022**		**9/22/2022**		**12/15/2022**		**3/23/2023**		**6/28/2023**	
Volatle Organic Compounds Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acetone	50	NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	0.42	J	0.24	J	0.18	U	0.77		5.7		0.45	J	0.6	
Trichloroethene	5	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series
1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:		**MW-9**		**MW-09**		**MW-9**		**MW-9**		**MW-9**		**MW-9**		**MW-9**	
LAB ID:		**L2054777-07**		**L2216966-08**		**L2233455-05**		**L2252276-10**		**L2270825-07**		**L2315415-07**		**L2337157-07**	
COLLECTION DATE:	**NY-AWQS**	**12/8/2020**		**4/1/2022**		**6/23/2022**		**9/22/2022**		**12/15/2022**		**3/23/2023**		**6/28/2023**	
Volatle Organic Compounds Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acetone	50	NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	3.5	J
Chloroform	7	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	4.5		14		23		8.4		2.1	J	9.2		2.5	
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	7.2		44		29		130		1.8		15		16	
Trichloroethene	5	2.1		18		5.6		9.2		0.37	J	2.7		1.2	
Vinyl chloride	2	0.28	J	1.6		5.8		0.15	J	0.62	J	2.4		0.51	J

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1
Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:	NY-AWQS	MW-11		MW-11-DUP		MW-11		MW-11		MW-11		MW-11		MW-11		MW-11		MW-11		MW-11	
LAB ID:		L2001244-01		L2001244-02		2008007-004		L2054777-08		L2216966-07		L2233455-06		L2252276-08		L2270825-08		L2315415-08		L2337157-06	
COLLECTION DATE:		1/10/2020		1/10/2020		7/30/2020		12/8/2020		4/1/2022		6/23/2022		9/22/2022		12/15/2022		3/23/2023		6/28/2023	
Volatle Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acetone	50	NA		NA		NA		1.5	U	2.1	J	1.5	U	3.2	J	1.5	U	1.5	U	1.9	J
Chloroform	7	0.7	U	0.7	U	0.5	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	J	0.7	U
cis-1,2-Dichloroethene	5	2.2	J	2.2	J	5.3		3.2		1.7	J	2.2	J	2.9		1.1	J	1.7	J	1.8	J
Dichlorodifluoromethane	5	1	U	1	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	28		28		53		38		46		14		49		8.2		45		45	
Trichloroethene	5	1.2		1.2		0.5	U	1.8		1.3		0.61		1.8		0.55		1.4		1.3	
Vinyl chloride	2	0.07	U	0.07	U	0.5	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1
Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:	NY-AWQS	MW-13		MW-13		MW-13		MW-13		MW-13		MW-13		MW-13		MW-13		MW-13	
LAB ID:		L2001244-05		L2054777-09		2008007-005		L2216966-10		L2252276-05		L2233455-07		L2270825-09		L2315415-09		L2337157-02	
COLLECTION DATE:		1/10/2020		12/8/2020		7/30/2020		4/1/2022		9/22/2022		6/23/2022		12/15/2022		3/23/2023		6/28/2023	
Volatle Organic Compounds		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acetone	50	NA		NA		NA		1.5	U	29	U	1.5	U	1.5	U	1.5	U	1.7	J
Chloroform	7	0.7	U	0.7	U	0.5	U	0.7	U	14	U	0.7	U	3.5	U	1.2	J	0.73	J
cis-1,2-Dichloroethene	5	3.1		0.7	U	0.5	U	2.3	J	14	U	3		8.4	J	3.3		3.6	
Dichlorodifluoromethane	5	1	U	1	U	0.5	U	1	U	20	U	1	U	5	U	1	U	1	U
Tetrachloroethene	5	160		100		780	D	100		1300		41		750		55		46	
Trichloroethene	5	3		0.18	U	0.5	U	3		3.5	J	1.6		11		3.1		3	
Vinyl chloride	2	0.07	U	0.07	U	0.5	U	0.07	U	1.4	U	0.07	U	0.36	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series
1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
D = diluted
NA = Not Analyzed

Table 8. Summary of Baseline and Post-Remedial Groundwater Analytical Data
1500 Astor Avenue - Bronx, NY
Site Management Plan
BCP #C203105

SAMPLE ID:	NY-AWQS	MW-14		MW-14		MW-14_DUP		MW-14		MW-14		MW-14		MW-14		MW-14		MW-14		MW-14	
LAB ID:		L2001244-03		2008007-006		2008007-007		L2054777-10		L2216966-04		L2233455-08		L2252276-04		L2270825-10		L2315415-10		L2337157-03	
COLLECTION DATE:		1/10/2020		7/30/2020		7/30/2020		12/8/2020		4/1/2022		6/23/2022		9/22/2022		12/15/2022		3/23/2023		6/28/2023	
Volatle Organic Compounds		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acetone	50	NA		NA		NA		NA		1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Chloroform	7	0.7	U	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	J	0.7	U
cis-1,2-Dichloroethene	5	1.8	J	1.7	J	1.5	J	0.7	U	0.94	J	3.1		0.7	U	0.7	U	0.9	J	1.8	J
Dichlorodifluoromethane	5	1	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	80		21		19		11		25		41		2.3		1.4		20		27	
Trichloroethene	5	2.5		2.3		0.5	U	0.62		0.93		1.6		0.24	J	0.18	U	0.87		1.8	
Vinyl chloride	2	0.07	U	0.5	U	0.5	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U

Notes:
NY-AWQS = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1
Class GA Ambient Water Quality Standards and Guidance Values
Cells hghlighted in yellow indicate a concentration above the NY-AWQS
Cells shaded in grey indiate an MDL value above the NY-AWQS
MDL = Method of Detection Limit
U = the MDL is shown
J = Estimated Concentration
NA = Not Analyzed

Table 8. Summary of Pre-Remedy and Post-Remedial Sub-Slab Soil Vapor and Indoor Air Analytical Results
1500 Astor Avenue
Site Management Plan
BCP #C203105

SAMPLE ID:	NYSDOH Matrix	NYSDOH AGV*	Units	TSV-1		TIA-1		TSV-2		TIA-2		PRSV-1		PRIA-1		PRSV-1_ 20210114		PRIA-1_ 20210114		PRSV-2		PRIA-2		PRSV-2_ 20210114		PRIA-2_ 20210114		PRSV-3		PRIA-3		PRSV-3_ 20210114		PRIA-3_ 20210114		PRSV-4		PRIA-4		PRSV-4_ 20210114		PRIA-4_ 20210114		SUMP-IA		Matrix Action (March 2018 Sampling Event)	Matrix Action (September 2020 Sampling Event)	Matrix Action (January 2021 Sampling Event)
LAB ID:				L1811080-01		L1811080-02		L1811080-03		L1811080-04		L2040691-01		L2040691-02		L2102178-01		L2102178-02		L2040691-03		L2040691-05		L2102178-03		L2102178-04		L2040691-06		L2040691-07		L2102178-05		L2102178-06		L2040691-08		L2040691-09		L2102178-07		L2102178-08		L2040691-04				
COLLECTION DATE:				3/29/2018		3/29/2018		3/29/2018		3/29/2018		9/25/2020		9/25/2020		1/14/2021		1/14/2021		9/25/2020		9/25/2020		1/14/2021		1/14/2021		9/25/2020		9/25/2020		1/14/2021		1/14/2021		9/25/2020		9/25/2020		1/14/2021		1/14/2021		9/25/2020				
					Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual		Qual				
Volatile Organic Compounds																																															
cis-1,2-Dichloroethene	A	NS	ug/m^3	2.43		0.079	U	0.793	U	0.079	U	0.793	U	0.079	U	0.793	U	0.079	U	18.8		0.079	U	7.45		0.079	U	121		0.079	U	26.4		0.079	U	0.793	U	0.079	U	0.793	U	0.079	U	0.119		No Further Action	Mitigate (PRSV-3/PRIA-3)	No Further Action
Trichloroethene	A	2	ug/m^3	14.7		0.156		1.07	U	0.107	U	11.2		0.14		4.63		0.113		23.2		0.107	U	5.8		0.129		126		0.177		15.7		0.226		107	U	0.14		1.07	U	0.113		0.333		No Further Action	Mitigate (PRSV-3/PRIA-3)	Monitor (PRSV-3/PRIA-3)
Tetrachloroethene	B	30	ug/m^3	154		5.74		33.4		2.15		362		5.36		78.7		5		834		2.56		112		3.34		401		3.47		83.4		7.46		42		4.05		2.69		3.18		8.75		Monitor (TSV-1/TIA-1)	Monitor (PRSV-1/PRIA-1 & PRSV-3/PRIA-3)	Monitor (PRSV-2/PRIA-2)

Notes:

Shaded yellow value indicates "Monitor" matrix decision

Shaded orange value indicates "Mitigate" matrix decision

Bold value indicates indoor air concentration exceeds NYSDOH AGVs

NYSDOH AGV = New York State Department of Health Air Guidance Values, Table 3.1 in NYSDOH Soil Vapor Guidance with May 2017 Updates

* = Only indoor air values are compared to NYSDOH AGVs

U = The reporting limit is shown; analyte not detcted at or above the reporting limit

Table 9. Summary of Post-Remedial Indoor Air Analytical Results
1500 Astor Avenue
Site Management Plan
BCP #C203105

SAMPLE ID:	NYSDOH AGV*	Units	PRIA-1		PRIA-2		PRIA-3		AA-1	
LAB ID:			L2270840-01		L2270840-02		L2270840-03		L2270840-04	
COLLECTION DATE:			12/15/2022		12/15/2022		12/15/2022		12/15/2022	
			Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Volatile Organic Compounds										
cis-1,2-Dichloroethene	NS	ug/m^3	0.079	U	0.079	U	0.079	U	0.079	U
Trichloroethene	2	ug/m^3	0.107	U	0.107	U	0.107	U	0.107	U
Tetrachloroethene	30	ug/m^3	0.136	U	0.19		0.149		0.136	U

Notes:

Bold and shaded yellow value indicates indoor air concentration exceeds NYSDOH AGVs

NYSDOH AGV = New York State Department of Health Air Guidance Values, Table 3.1 in NYSDOH Soil Vapor Guidance with May 2017 Updates

Qual = Laboratory qualifier

APPENDIX 1 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Jamal Hadi, Eastchester-Astor LLC	(914) 713-3279, jamal@kw.com
Matthew Carroll, P.E.; Remedial Engineer	(646) 606-2332, mcarroll@tenen-env.com
Bryan Wong; NYSDEC DER Project Manager	(718) 482-4905, yukyin.wong@dec.ny.gov
Jane O'Connell; Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov
Mark Chertok, Sive, Paget & Riesel, P.C.	(646) 378-7228, mchertok@sprlaw.com

APPENDIX 2 – SURVEY MAP

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ENVIRONMENTAL EASEMENT LEGAL DESCRIPTION

All that certain plot, piece, or parcel of land, situate, lying and being in the Borough and County of the Bronx, City and State of New York, known and designated as Lot Numbers 15, 16, 17, 18, 19, 20, 21, 22 and 23 and the westerly 2.50 feet part of lot 24 on a certain map entitled, "Map of 821 Lots being the property of the Five Boroughs Realty Corporation, Edwin Gould, President, located in the Bronx and Pelham Parkway Eastchester Road adjoining Streets and Avenues, Borough of the Bronx, New York City including the unsold portion of the restricted development known as the Pelham Parkway Gardens", made by George C. Hollerith, 176 Broadway, New York, dated April 23, 1924 and filed in the Office of the Register of the County of Bronx, May 29, 1924, as Map No. 797, and which Lots and part of Lot when taken together as one parcel, is more particularly bounded and described as follows:

BEGINNING at the corner formed by the intersection of the northerly side of Astor Avenue and the easterly side of Eastchester Road:

RUNNING THENCE Northerly along the easterly side of Eastchester Road, 156.90 feet;

RUNNING THENCE Easterly on a line forming an interior angle of 82 degrees, 32 minutes, 10 seconds with the easterly side of Eastchester Road, 133.78 feet:

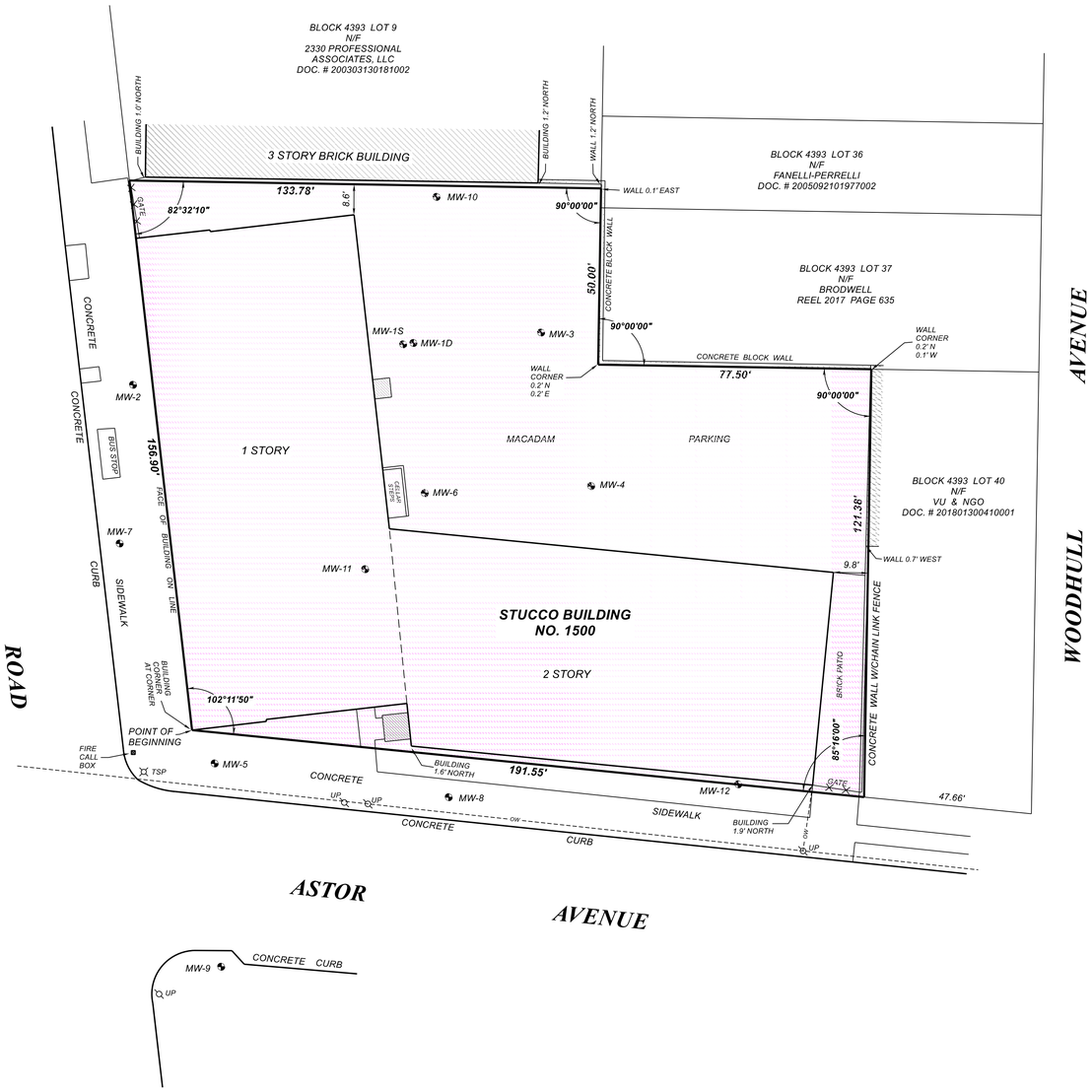
RUNNING THENCE Southerly at right angles to the last mentioned course, 50 feet;

RUNNING THENCE Easterly at right angles to the last mentioned course, 77.50 feet;

RUNNING THENCE Southerly at right angles to the last mentioned course, 121.38 feet to the northerly side of Astor Avenue;

RUNNING THENCE Westerly along the northerly side of Astor Avenue, 191.55 feet to the place or point of BEGINNING.

Containing 28,918 squarer feet or 0.644 acre of land, more or less.



WELL ELEVATION TABLE

WELL I.D.	TOP OF CASING	TOP OF PVC
MW-1D	60.79	60.39
MW-1S	60.78	60.35
MW-2	60.70	60.29
MW-3	60.85	60.50
MW-4	59.65	59.22
MW-5	57.07	56.85
MW-6	59.80	59.38
MW-7	58.80	58.54
MW-8	57.40	57.06
MW-9	55.30	55.03
MW-10	61.78	61.40
WELLS MW-1 THROUGH MW-10 ARE FLUSH MOUNT WELLS		
MW-11	49.82*	50.81
MW-12	57.71 (GROUND)	59.03

*BASEMENT FLOOR SLAB
NO CASING FOR MW-11 AND MW-12

20' 0 20' 40'

SCALE: 1" = 20'

0 20 Ft/In 80'
Centimeters Meters = CM/100

SCALE: 1 CM = 2.40 METERS

NOTES:

-TAX LOT: BLOCK 4393 LOT 1

-DATES OF FIELD SURVEY: NOVEMBER 3, 2017 AND JUNE 26, 2018

REFERENCE DEED: DOCUMENT NUMBER 2016101800865001

-AREA: 28,918 S.F. = 0.664 ACRE

-HORIZONTAL & VERTICAL DATUM: ASSUMED

-MW-11 AND MW-12 SURVEYED ON JUNE 26, 2018

-UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S EMBOSSED SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW

-ONLY COPIES OF THIS MAP BEARING THE LICENSED LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID, TRUE COPIES

-UNDERGROUND UTILITIES SUCH AS SEWERAGE DISPOSAL SYSTEMS, DRAINAGE, WATER, GAS, AND/OR ELECTRIC LINES, ETC..., ARE NOT SHOWN AND ARE NOT CERTIFIED TO

-THERE ARE NO PONDS, LAKES, SPRINGS, RIVERS OR NATURAL WATER BOUDARIES BORDEREING ON OR RUNNING THROUGH THE SURVEYED PROPERTY

Legend

- Utility Pole
- Fire Call Box
- Traffic Signal Pole
- Monitoring Well
- Site Boundary Line
- Easement Area

I HEREBY CERTIFY TO THE PARTIES LISTED BELOW THAT THIS MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED ON NOVEMBER 3, 2017 AND WAS PREPARED IN ACCORDANCE WITH THE CURRENT EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC.

-NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DONALD R. STEDGE, L.S., NYS LIC. NO. 49759

"This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth in more detail in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov".

REVISIONS	ENVIRONMENTAL EASEMENT PREPARED FOR
9/10/20- EASEMENT AREA, DESCRIPTION TITLE, LEGEND	**1500 ASTOR AVENUE**
	BRONX COUNTY NEW YORK
	SCALE: 1" = 20' SEPTEMBER 2, 2020
	DONALD R. STEDGE, P.L.S. 112 MURRAY AVENUE GOSHEN, NY 10924 (845) 325-9734 — JOB NO. 1678

Traverse PC

APPENDIX 3 - ENVIRONMENTAL EASEMENT

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2020101600292001002EBF65

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 10**

Document ID: 2020101600292001 Document Date: 10-06-2020 Preparation Date: 10-16-2020
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
ROYAL REGISTERED PROPERTY REPORTS
(183229)MB
125 PARK AVENUE, SUITE 1610
NEW YORK, NY 10017
212-376-0900
MBASALATAN@ROYALABSTRACT.COM

RETURN TO:
ROYAL REGISTERED PROPERTY REPORTS
(183229)MB
125 PARK AVENUE, SUITE 1610
NEW YORK, NY 10017
212-376-0900
MBASALATAN@ROYALABSTRACT.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BRONX	4393	1	Entire Lot	2300 EASTCHESTER ROAD

Property Type: COMMERCIAL REAL ESTATE Easement

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year_____ Reel____ Page_____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
EASTCHESTER-ASTOR, LLC
760 WHITE PLAINS ROAD
SCARSDALE, NY 10583

GRANTEE/BUYER:
THE PEOPLE OF THE STATE OF NEW YORK
625 BROADWAY
ALBANY, NY 12233

FEES AND TAXES

Mortgage :

Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	82.00
Affidavit Fee:	$	0.00

Filing Fee: $ 0.00

NYC Real Property Transfer Tax: $ 0.00

NYS Real Estate Transfer Tax: $ 0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 10-21-2020 15:17
City Register File No.(CRFN): **2020000292076**

City Register Official Signature

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made as of this 6th day of October, 2020 between Owner, Eastchester-Astor, LLC, having an office at 760 White Plains Road, Scarsdale, New York 10583, County of Westchester, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1500 Astor Avenue (a/k/a 2300-2314 Eastchester Road) in the City of New York, County of Bronx and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 4393 Lot 1, being the same as that property conveyed to Grantor by deed dated October 12, 2016 and recorded in the City Register of the City of New York as CRFN # 2016000368330. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.644 +/- acres, and is hereinafter more fully described in the Land Title Survey dated September 2, 2020 last revised September 10, 2020 prepared by Donald R. Stedge, P.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is

extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C203105-01-18, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining

contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation

pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C203105
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and

communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Eastchester-Astor, LLC:

By: _____

Print Name: Jamal Hack

Title: Managing Member Date: 9/21/2020

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Westchester)

On the 21 day of September in the year 2020, before me, the undersigned, personally appeared Jamal Hack, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Lea Rothschild
Notary Public - State of New York

LEA ANNE ROTHSCHILD
Notary Public, State of New York
No. 01RO6404020
Qualified in Westchester County
Commission Expires February 10, 2024

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 6th day of October, in the year 2020 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

MONICA KRESHIK, ESQ.
Notary Public, State of New York
No. 02KR6314859
Qualified in Rensselaer County
Commission Expires 11/17/2022

SCHEDULE "A" PROPERTY DESCRIPTION

1500 ASTOR – BLOCK 4393, LOT 1

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF THE BRONX, CITY AND STATE OF NEW YORK, KNOWN AND DESIGNATED AS LOT NUMBERS 15, 16, 17, 18, 19, 20, 21, 22 AND 23 AND THE WESTERLY 2.50 FEET PART OF LOT 24 ON A CERTAIN MAP ENTITLED, "MAP OF 821 LOTS BEING THE PROPERTY OF THE FIVE BOROUGHS REALTY CORPORATION, EDWIN GOULD, PRESIDENT, LOCATED IN THE BRONX AND PELHAM PARKWAY EASTCHESTER ROAD ADJOINING STREETS AND AVENUES, BOROUGH OF THE BRONX, NEW YORK CITY INCLUDING THE UNSOLD PORTION OF THE RESTRICTED DEVELOPMENT KNOWN AS THE PELHAM PARKWAY GARDENS," MADE BY GEORGE C. HOLLERITH, 176 BROADWAY, NEW YORK, DATED APRIL 23, 1924 AND FILED IN THE OFFICE OF THE REGISTER OF THE COUNTY OF BRONX, MAY 29, 1924, AS MAP NO. 979, AND WHICH LOTS AND PART OF LOT WHEN TAKEN TOGETHER AS ONE PARCEL, IS MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE CORNER FORMED BY THE INTERSECTION OF THE NORTHERLY SIDE OF ASTOR AVENUE AND THE EASTERLY SIDE OF EASTCHESTER ROAD;

RUNNING THENCE NORTHERLY ALONG THE EASTERLY SIDE OF EASTCHESTER ROAD, 156.90 FEET;

RUNNING THENCE EASTERLY ON A LINE FORMING AN INTERIOR ANGLE OF 82 DEGREES, 32 MINUTES, 10 SECONDS WITH THE EASTERLY SIDE OF EASTCHESTER ROAD, 133.78 FEET;

RUNNING THENCE SOUTHERLY AT RIGHT ANGLES TO THE LAST MENTIONED COURSE, 50 FEET;

RUNNING THENCE EASTERLY AT RIGHT ANGLES TO THE LAST MENTIONED COURSE, 77.50 FEET;

RUNNING THENCE SOUTHERLY AT RIGHT ANGLES TO THE LAST MENTIONED COURSE, 121.38 FEET TO THE NORTHERLY SIDE OF ASTOR AVENUE;

RUNNING THENCE WESTERLY ALONG THE NORTHERLY SIDE OF ASTOR AVENUE, 191.55 FEET TO THE PLACE OR POINT OF BEGINNING.

CONTAINING 28,918 SQUARER FEET OR 0.644 ACRE OF LAND, MORE OR LESS.

APPENDIX 4 – SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS

Property Solutions INC.
Environmental & Engineering Consulting
323 New Albany Road, Moorestown, NJ 08057
Phone: 856-813-3000 & Fax: 856-813-1068

FIELD BOREHOLE LOG

BORING NO.: **SB-01**
TOTAL DEPTH: **9 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118.201
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, east of building unit 2312

DATE STARTED: 4/7/2016 **COMPLETED:** 4/7/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Charles Green
RIG TYPE: Geoprobe 6620 DT
DRILLING METHOD: Direct-push
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0		GP	Asphalt pavement		0.0		
			Stone base		0.0		
1			Silt, varying fractions f-m Sand, grading coarser with depth	2118-SB-01 (1.0-1.5)	0.4		
2					0.2		
3					0.0		
					0.0		
4		ML			0.0		
					0.0		
5					0.0		
					0.0		
6					0.0		
					0.0		
7					0.0		
					0.0		
8			Decomposed Schist Bedrock	2118-SB-01 (7.5-8.0)	0.0		
					0.0		
9					0.0		

NOTES: Encountered refusal at 9 feet bgs

Property Solutions INC.
Environmental & Engineering Consulting
323 New Albany Road, Moorestown, NJ 08057
Phone: 856-813-3000 & Fax: 856-813-1068

FIELD BOREHOLE LOG

BORING NO.: **SB-02**
TOTAL DEPTH: **5.5 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118.201
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, east of building unit 2312

DATE STARTED: 4/7/2016 **COMPLETED:** 4/7/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Charles Green
RIG TYPE: Geoprobe 6620 DT
DRILLING METHOD: Direct-push
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0		GP	Asphalt pavement		0.0		
			Stone base	2118-SB-02 (0.5-1.0)	1.0		
1			Silt, varying fractions f-m Sand		1.5		
2					0.5		
					0.1		
3		ML			0.0		
					0.0		
4				2118-SB-02 (4.0-4.5)	0.0		
					0.0		
5			Refusal on concrete		0.0		

NOTES: Encountered refusal at 5.5 feet bgs

Property Solutions INC.
Environmental & Engineering Consulting
323 New Albany Road, Moorestown, NJ 08057
Phone: 856-813-3000 & Fax: 856-813-1068

FIELD BOREHOLE LOG

BORING NO.: **SB-03 / MW-1S**
TOTAL DEPTH: **12 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118.201
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, east of building unit 2312

DATE STARTED: 4/7/2016 **COMPLETED:** 6/15/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Charles Green / Evan Moraitia
RIG TYPE: Geoprobe 6620 DT / Geoprobe 7822 DT
DRILLING METHOD: Direct-push / Hollow Stem Auger
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0		GP	Asphalt pavement		0		
			Stone base	2118-SB-03 (0.5-1.0)	91		
1			Silt, varying fractions f-m Sand, grading coarser with depth		39		
2					1.2		2" dia. PVC riser
3					1.0		
4					0.2		
5					0.1		
					0.2		
		ML			0.2		
6					0		
					0		2" dia. PVC screen
				2118-SB-03 (6.5-7.0)	0		
7					0		
▼					0		
8					0		
					0		
▽ 9					0.1		
					1.5		
10					0		
					0		
11					0		
		SM	Decomposed Schist Bedrock		0		
12							

NOTES: Boring encountered refusal at 12 feet bgs; augered wellbore refusal at 9 feet bgs

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FIELD BOREHOLE LOG

BORING NO.: **SB-03 / MW-1D**
TOTAL DEPTH: **29.5 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118.201
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, east of building unit 2312

DATE STARTED: 4/7/2016 **COMPLETED:** 6/16/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Charles Green / Evan Moraitia
RIG TYPE: Geoprobe 6620 DT / 7822 DT
DRILLING METHOD: Direct-push, hollow-stem auger, & down-hole air hammer
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0			Asphalt pavement	2118-SB-03 (0.5-1.0)	0.0		
1			Stone base		91		
2			Silt, varying fractions f-m Sand, grading coarser with depth		39		
3					1.2		
4					1.0		
5					0.2		
6		ML			0.1		
7				2118-SB-03 (6.5-7.0)	0.2		
8					0.2		
▽ 9					0.0		
10					0.0		
11		SM	Decomposed Schist Bedrock		0.0		2" dia. PVC riser
12					0.0		
13					0.0		
14					0.0		
15					0.0		
16					0.0		
17					0.1		
18					1.5		
19					0.0		
20					0.0		
21					0.0		
22					0.0		
23							
24							
25							
▼ 26							
27							2" dia. PVC screen
28							
29							

NOTES: Coring encountered refusal at 12 feet bgs; air hammer for deep well advanced to 29.5 feet bgs

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FIELD BOREHOLE LOG

BORING NO.: **SB-04 / MW-2**
TOTAL DEPTH: **17 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118.201
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Sidewalk, west of building unit 2312

DATE STARTED: 4/7/2016 **COMPLETED:** 6/17/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Charles Green / Evan Moraitia
RIG TYPE: Geoprobe 6620 DT / 7822 DT
DRILLING METHOD: Direct-push / Hollow stem auger
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0		GP	Asphalt pavement		0.0		
1			Stone base	2118-SB-04 (1.0-1.5)	0.0		
2			Silt, varying fractions f-m Sand, grading coarser with depth		0.0		2" dia. PVC riser
3					0.0		
4					0.0		
5					0.0		
6		ML			0.0		
7				2118-SB-04 (7.0-7.5)	0.0		
8					0.0		
▽ 9					0.0		
10					0.0		2" dia. PVC screen
11		SM	Decomposed Schist Bedrock		0.0		
12					0.0		
▼ 13							
14							
15							
16							
17							

NOTES: Coring encountered refusal at 12 feet bgs; auger refusal at 17 feet bgs

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FIELD BOREHOLE LOG

BORING NO.: **SB-08 / MW-3**
TOTAL DEPTH: **11 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, east of building unit 2312; location of MW-3
DATE STARTED: 6/15/2016 **COMPLETED:** 6/15/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Evan Moraitia
RIG TYPE: Geoprobe 7822 DT
DRILLING METHOD: Direct-push / Hollow Stem Auger
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

Water level during drilling ▽ Water level in completed well ▼

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0			Asphalt pavement		-		
1			Fill soils, silty sand		-		
2					0.0		
3					0.0		2" dia. PVC riser
4		SM (Fill)		2118-SB-08 (4.0-4.5)	0.0		
5					0.4		
6 ▽▼					2.0		
7					1.5		
8				2118-SB-08 (8.0-8.5)	2.4		
9		SM	F-m Sand, some silt, grading to decomposed schist		0.8		2" dia. PVC screen
10					-		
11		SM	Decomposed Schist Bedrock		-		
					-		
					1.2		
					0.4		
					0.5		
					0.0		
					0.0		
					0.0		
					0.0		
					0.0		

NOTES: Coring and augered wellbore encountered refusal at 11 feet bgs

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FIELD BOREHOLE LOG

BORING NO.: **SB-09 / MW-4**
TOTAL DEPTH: **13.5 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Parking lot, north of 1500 Astor Avenue building portion; location of MW-4
DATE STARTED: 6/15/2016 **COMPLETED:** 6/15/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Evan Moraitia
RIG TYPE: Geoprobe 7822 DT
DRILLING METHOD: Direct-push / Hollow stem auger
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0			Asphalt pavement		-		
0.5		GP	Stone base		-		
1			F-m Sand, some to and silt		-		
2					-		2" dia. PVC riser
3					-		
4				2118-SB-09 (4.0-4.5)	0.0		
5					0.0		2" dia. PVC screen
6		SM			0.0		
7					-		
8				2118-SB-09 (8.0-8.5)	0.0		
9					0.0		
10					0.0		
11		SM	Decomposed Schist Bedrock		0.0		
12					0.0		
13					-		
					-		
					0.0		

NOTES: Coring encountered refusal at 11.5 feet bgs; wellbore auger refusal at 13.5 feet bgs

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Phone: 856-813-3000 & Fax: 856-813-1068

FIELD BOREHOLE LOG

BORING NO.: **SB-10 / MW-5**
TOTAL DEPTH: **11.5 ft**

PROJECT INFORMATION

PROJECT NO.: 20152118
CLIENT: KMCL
PROJECT NAME: 1500 Astor Avenue Property
SITE LOCATION: 1500 Astor Ave & 2302-2314 Eastchester Rd, Bronx, NY
BORING LOCATION: Sidewalk, at corner of Astor Avenue and Eastchester Road
DATE STARTED: 6/16/2016 **COMPLETED:** 6/16/2016

DRILLING INFORMATION

DRILLING CO.: Zebra Technical Services
DRILLER: Evan Moraitia
RIG TYPE: Geoprobe 7822 DT
DRILLING METHOD: Direct-push / Hollow stem auger
SAMPLING METHOD: Macro-core
FIELD PERSONNEL: B. Turner
HAMMER WT./DROP: N/A

▽ Water level during drilling ▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMPLE No.	PID ppm	WELL CONSTRUCTION	WELL DESCRIPTION
0			Asphalt pavement		-		
1		GP	Fill soils, silty sand		-		
			F-m Sand and silt		-		
2					0.0		2" dia. PVC riser
3					0.0		
4					0.0		
					0.0		
5				2118-SB-10 (4.5-5.0)	0.0		
					0.0		2" dia. PVC screen
6		SM			-		
7					-		
					-		
8					-		
					-		
9					-		
					-		
10				2118-SB-10 (10.0-10.5)	-		
					0.0		
11		SM	Decomposed Schist Bedrock		0.0		

NOTES: Coring and augered wellbore encountered refusal at 11.5 feet bgs

TENEN ENVIRONMENTAL

		Boring No.	**TSB-6**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1 2 3 4 5	0.0	TSB-6 (0-2)	0-5: FILL (brick, silt, weathered rock, pebbles)
6 7 8 9 10	0.0	TSB-6 (5-7.5)	5-7.5: FILL (silt, some asphalt) 7.5: EOB

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-5**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.0	TSB-5 (0-3.5)	0-3.5: FILL (weathered rock, fine grain sand, silt)
2			
3			
4	0.0		3.5-5: Silt
5			
6	0.0		
7		TSB-5 (6-8)	5-9: Weathered rock
8			8: GW
9			9: EOB
10			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-7**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1 2 3 4 5	0.0	TSB-7 (0-2)	0-5: FILL (concrete, asphalt, silt, sand, weathered rock)
6 7 8 9 10	0.4		5.25: EOB (weathered rock)

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-8**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	297.0	TSB-8 (0-2)	
2			
3		TSB-8 (2-4)	0-5: FILL (silt, asphalt, concrete)
4	4.8		
5			
6	12.4	TSB-8 (5-6)	
7			5-7.5: SAA with silt
8			7.5: EOB
9			
10			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-8A**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	7.8	TSB-8A (0.5)	
2	4.0		
3			0-5: FILL (silt, sand)
4	0.5		
5			5: EOB

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-8B**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	1.2		
2	8.5		
3	8.8	TSB-8B (2-3)	0-5: FILL (silt, sand)
4	0.6		
5			5: EOB

Notes:

PID - Photoionization Detector | EOB - End of Boring | SAA - Same as above | GW = Groundwater

N/A - Not Applicable | ft-bg - Feet Below Grade | | DTW = Depth to Water

TENEN ENVIRONMENTAL		Boring No.	TSB-8C
		Sheet:	1 OF 1
Site:	1500 Astor Ave, NY, NY	Drilling Method:	Geoprobe
Weather:	70°F, sunny	Driller:	Cascade
Date:	6/12/18	Soil Sampling Method:	Acetate Liner
Observers:	C. Zaccheo, A. Kuhn		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	1.4	TSB-8C (0-0.5)	
2	0.6		
3	0.2		0-5: FILL (silt, sand)
4	0.2		
5			5: EOB

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL		Boring No.	TSB-8D
		Sheet:	1 OF 1
Site:	1500 Astor Ave, NY, NY	Drilling Method:	Geoprobe
Weather:	70°F, sunny	Driller:	Cascade
Date:	6/12/18	Soil Sampling Method:	Acetate Liner
Observers:	C. Zaccheo, A. Kuhn		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.0	TSB-8D	
2			
3	0.0		0-5: FILL (silt, sand)
4			
5	0.0		5: EOB

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-3**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1 – 5	0.1		0-5: FILL (dark brown top soil)
6 – 10	20.2	TSB-3 (5-7)	5-10: Silt, some weathered bedrock
	0.5	TSB-3 (8-10)	
11 – 15	2.2		10-14: SAA
	0.2		14: EOB

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-4**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.0	TSB-4 (0-2)	0-5: FILL (silt, brick fragments) medium brown color
2			
3			
4			
5			
6	0.0		5-9: Silt and weathered bedrock
7			
8		TSB-4 (7-9)	
9			9: EOB
10			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-10**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1			0-3: FILL (silt, sand, concrete, rocks)
2			
3			
4			3-6: FILL (silt, sand)
5		TSB-10 (4-6)	
6			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-1**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.8	TSB-1 (0-1)	0-1: Dark gray-black silt and weathered rock, wet
2			1: EOB
3			
4			
5			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-11**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	GW Monitoring Well Construction	Soil Description
1	0.1	TSB-11 (0-2)	Screen (0-2')	0-2: Weathered rock, moist
2				
3				2: EOB
4				
5				

Notes: Well construction for MW-11

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-2**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.1	TSB-2 (0-2)	0-2: Silt and weathered rock
2			
3			2: EOB
4			
5			

Notes:

PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

		Boring No.	**TSB-9**
		Sheet:	**1 OF 1**
Site:	**1500 Astor Ave, NY, NY**	**Drilling Method:**	Geoprobe
Weather:	**70°F, sunny**	**Driller:**	Cascade
Date:	**6/12/18**	**Soil Sampling Method:**	Acetate Liner
Observers:	**C. Zaccheo, A. Kuhn**		

Depth (feet)	PID Reading (ppm)	Soil Samples	GW Monitoring Well Construction	Soil Description
1	0.0	TSB-9 (0-1)	Riser (0-1')	0-1: Fill (topsoil, dark brown silt)
2			Screen (1-6')	1: EOB
3				
4				
5				
6				

Notes: Well construction for MW-12

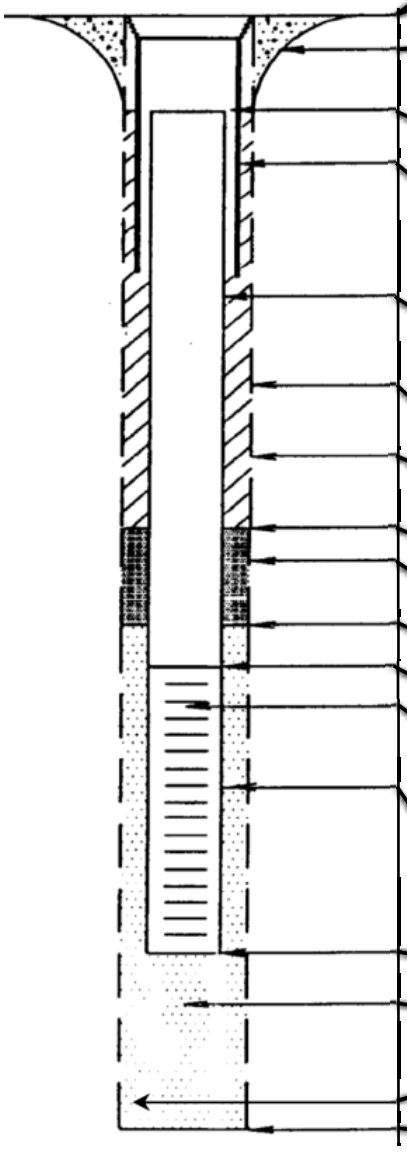
PID - Photoionization Detector
N/A - Not Applicable
EOB - End of Boring
ft-bg - Feet Below Grade
SAA - Same as above
GW = Groundwater
DTW = Depth to Water

TENEN ENVIRONMENTAL

MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)

Project:	1500 Astor Avenue, Bronx, NY	**Well Number:**	**MW-13**
Field Geologist:	Ashley Platt	Date Started:	8/12/2019
Driller:	Cascade	Date Completed:	8/12/2019
Drilling Method:	Geoprobe	Elevation Datum:	
Development Method:	Peristaltic Pump	Weather:	Sunny, 80s
Sump Installed? (Y/N)	N	Boring Number:	MW-13
Sump Length (Ft):			



Ground Surface	Concrete
Elevation of Top of Surface Casing	NA
Type of Surface Plug	Concrete
Depth of Surface Plug (ft-bgs)	1
Diameter of Surface Plug (ft)	NA
Riser Pipe	
Depth of Top of Riser Pipe (ft-bg)	0.5
Elevation of Top of Riser Pipe	NA
I.D. of Surface Casing (in)	12
Type of Surface Casing	Manhole cover
Depth of Surface Casing (ft-bg)	1
I.D. of Riser (in)	4
Type of Riser	Schedule 40 PVC
Borehole Diameter (in)	6
Type of Backfill	Clean Soil Cuttings
Backfill - Tremied? (Y/N)	N
Depth of Top of Seal (ft-bg)	5
Elevation of Top of Seal	NA
Type of Seal	Bentonite Pellets
Seal - Tremied? (Y/N)	N
Depth of Top of Filter Pack (ft-bg)	7
Depth of Top of Screen (ft-bg)	7
Elevation of Top of Screen	NA
Type of Screen	Schedule 40 PVC
I.D. of Screen (in)	4
Slot Size of Screen (in)	0.02
Length of Screen (ft)	5
Type of Filter Pack	Sand
Filter Pack - Tremied? (Y/N)	N
Depth of Bottom of Screen (ft-bg)	12
Depth of Bottom of Filter Pack (ft-bg)	12
Elevation of Bottom of Filter Pack	
Type of Backfill Below Filter Pack	NA (Bedrock)
Depth of Bottom of Hole (ft-bg)	12
Elevation of Bottom of Hole	

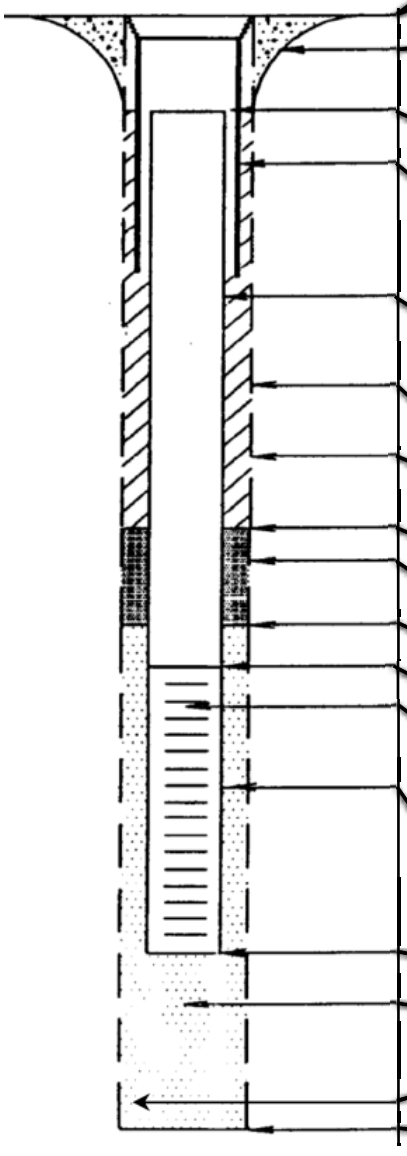
Comments:

TENEN ENVIRONMENTAL

MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)

Project:	1500 Astor Avenue, Bronx, NY	**Well Number:**	**MW-14**
Field Geologist:	Ashley Platt	Date Started:	8/12/2019
Driller:	Cascade	Date Completed:	8/12/2019
Drilling Method:	Geoprobe	Elevation Datum:	
Development Method:	Peristaltic Pump	Weather:	Sunny, 80s
Sump Installed? (Y/N)	N Sump Length (Ft):	Boring Number:	MW-14



Ground Surface	Concrete
Elevation of Top of Surface Casing	NA
Type of Surface Plug	Concrete
Depth of Surface Plug (ft-bgs)	1
Diameter of Surface Plug (ft)	NA
Riser Pipe	
Depth of Top of Riser Pipe (ft-bg)	0.5
Elevation of Top of Riser Pipe	NA
I.D. of Surface Casing (in)	12
Type of Surface Casing	Manhole cover
Depth of Surface Casing (ft-bg)	1
I.D. of Riser (in)	4
Type of Riser	Schedule 40 PVC
Borehole Diameter (in)	6
Type of Backfill	Clean Soil Cuttings
Backfill - Tremied? (Y/N)	N
Depth of Top of Seal (ft-bg)	4
Elevation of Top of Seal	NA
Type of Seal	Bentonite Pellets
Seal - Tremied? (Y/N)	N
Depth of Top of Filter Pack (ft-bg)	6
Depth of Top of Screen (ft-bg)	6
Elevation of Top of Screen	NA
Type of Screen	Schedule 40 PVC
I.D. of Screen (in)	4
Slot Size of Screen (in)	0.02
Length of Screen (ft)	5
Type of Filter Pack	Sand
Filter Pack - Tremied? (Y/N)	N
Depth of Bottom of Screen (ft-bg)	11
Depth of Bottom of Filter Pack (ft-bg)	11
Elevation of Bottom of Filter Pack	
Type of Backfill Below Filter Pack	NA (Bedrock)
Depth of Bottom of Hole (ft-bg)	11
Elevation of Bottom of Hole	

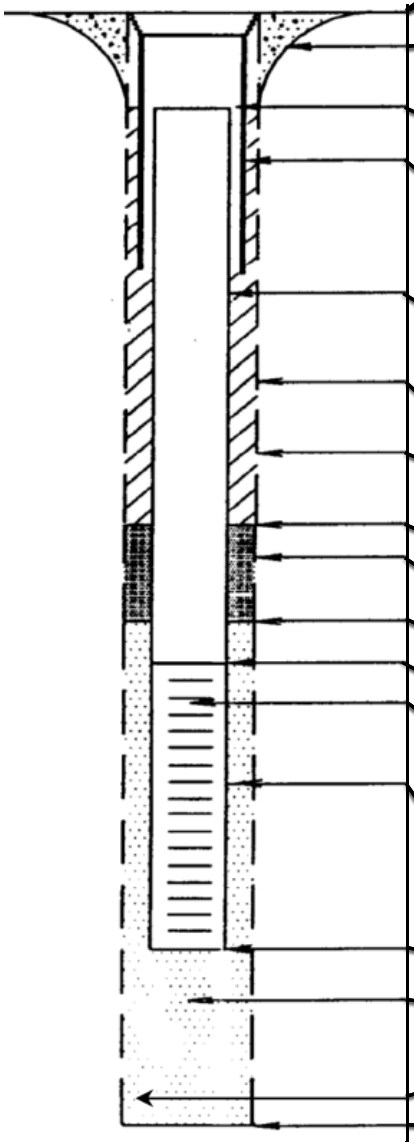
Comments:

TENEN ENVIRONMENTAL

MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)

Project:	1500 Astor Avenue, Bronx, NY	**Well Number:**	**MW-1S**
Field Geologist:	Honpong Lau	Date Started:	1/22/20
Driller:	Cascade	Date Completed:	1/22/20
Drilling Method:	Geoprobe	Elevation Datum:	
Development Method:	Peristaltic Pump	Weather:	Sunny, 35F
Sump Installed? (Y/N)	N	Boring Number:	MW-1S
Sump Length (Ft):			



Ground Surface	Asphalt
Elevation of Top of Surface Casing	NA
Type of Surface Plug	Concrete
Depth of Surface Plug (ft-bgs)	NA
Diameter of Surface Plug (ft)	NA
Riser Pipe	
Depth of Top of Riser Pipe (ft-bg)	1
Elevation of Top of Riser Pipe	NA
I.D. of Surface Casing (in)	12
Type of Surface Casing	Manhole cover
Depth of Surface Casing (ft-bg)	0.5
I.D. of Riser (in)	4
Type of Riser	Schedule 40 PVC
Borehole Diameter (in)	4
Type of Backfill	Backfill
Backfill - Tremied? (Y/N)	N
Depth of Top of Seal (ft-bg)	NA
Elevation of Top of Seal	NA
Type of Seal	NA
Seal - Tremied? (Y/N)	
Depth of Top of Filter Pack (ft-bg)	4
Depth of Top of Screen (ft-bg)	4
Elevation of Top of Screen	NA
Type of Screen	Schedule 40 PVC
I.D. of Screen (in)	4
Slot Size of Screen (in)	0.02
Length of Screen (ft)	5
Type of Filter Pack	Sand
Filter Pack - Tremied? (Y/N)	N
Depth of Bottom of Screen (ft-bg)	9
Depth of Bottom of Filter Pack (ft-bg)	9
Elevation of Bottom of Filter Pack	
Type of Backfill Below Filter Pack	NA
Depth of Bottom of Hole (ft-bg)	9
Elevation of Bottom of Hole	

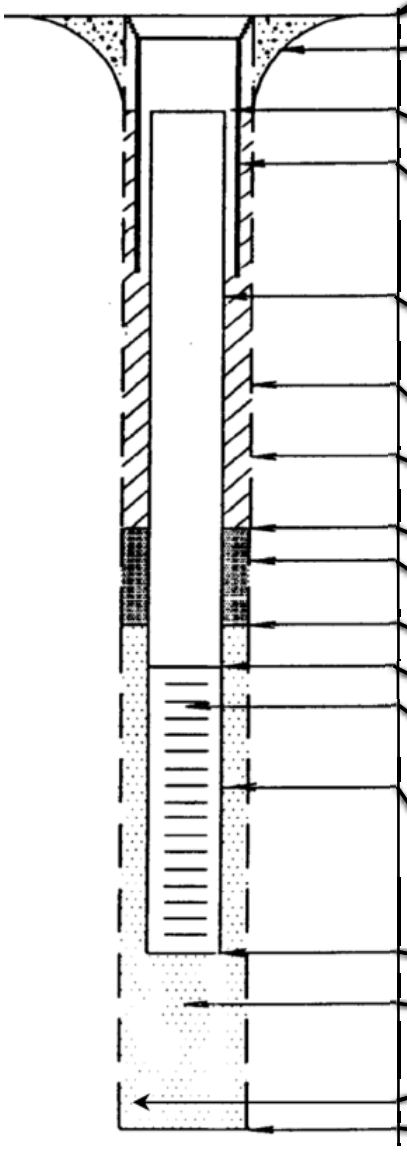
Comments:

TENEN ENVIRONMENTAL

MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)

Project:	1500 Astor Avenue, Bronx, NY	**Well Number:**	**MW-5**
Field Geologist:	Claire Zaccheo	Date Started:	11/20/2020
Driller:	AARCO	Date Completed:	11/20/2020
Drilling Method:	Geoprobe	Elevation Datum:	
Development Method:	Peristaltic Pump	Weather:	Sunny, 50s
Sump Installed? (Y/N)	N	Boring Number:	MW-5
Sump Length (Ft):			



Ground Surface	Concrete
Elevation of Top of Surface Casing	NA
Type of Surface Plug	Concrete
Depth of Surface Plug (ft-bgs)	1
Diameter of Surface Plug (ft)	NA
Riser Pipe	
Depth of Top of Riser Pipe (ft-bg)	0.5
Elevation of Top of Riser Pipe	NA
I.D. of Surface Casing (in)	12
Type of Surface Casing	Manhole cover
Depth of Surface Casing (ft-bg)	1
I.D. of Riser (in)	2
Type of Riser	Schedule 40 PVC
Borehole Diameter (in)	4
Type of Backfill	Clean Soil Cuttings
Backfill - Tremied? (Y/N)	N
Depth of Top of Seal (ft-bg)	5
Elevation of Top of Seal	NA
Type of Seal	Bentonite Pellets
Seal - Tremied? (Y/N)	N
Depth of Top of Filter Pack (ft-bg)	7
Depth of Top of Screen (ft-bg)	7
Elevation of Top of Screen	NA
Type of Screen	Schedule 40 PVC
I.D. of Screen (in)	2
Slot Size of Screen (in)	0.02
Length of Screen (ft)	5
Type of Filter Pack	Sand
Filter Pack - Tremied? (Y/N)	N
Depth of Bottom of Screen (ft-bg)	12
Depth of Bottom of Filter Pack (ft-bg)	12
Elevation of Bottom of Filter Pack	NA
Type of Backfill Below Filter Pack	NA (Bedrock)
Depth of Bottom of Hole (ft-bg)	12
Elevation of Bottom of Hole	NA

Comments:

APPENDIX 5 – EXCAVATION WORK PLAN

APPENDIX 5 – EXCAVATION WORK PLAN (EWP)

1.0 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix 1 of the Site Management Plan (SMP).

Table 1: Notifications*

Jane O'Connell, Regional Remediation Engineer	(718) 482-4599 Jane.oconnell@dec.ny.gov
Bryan Wong, NYSDEC DER Project Manager	(718) 482-4905 Yukyin.wong@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief Site Control Section	(518) 402-9543 Kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;

- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 7 of the SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.0 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections 6 and 7, respectively, of this Work Plan.

3.0 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

4.0 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Decontamination derived waste will be collected and containerized appropriately and stored on-Site. Characterization shall be completed for appropriate off-site disposal.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived

from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

5.0 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: all trucks will exit the Site on Eastchester Road and head south towards Astor Avenue. Trucks will continue south on Eastchester Road for one block and will then turn right onto Pelham Parkway North. Trucks will continue east on Pelham Parkway North until the road ends and becomes East Fordham Road (US Route 1), after which State highways and interstate roadways will predominantly be utilized thereafter to the final destination. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting 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.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

6.0 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6NYCRR Subpart 361-5 registered or permitted facility).

7.0 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site.

Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

8.0 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

9.0 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the RAWP. The existing cover system is comprised of a concrete building foundation, an asphalt parking lot, and landscaping. A demarcation layer, consisting of orange snow fencing material, white geotextile or equivalent material will be installed to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover

element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

10.0 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 6NYCRR 375-6.8(b): Restricted Use Soil Cleanup Objectives.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

11.0 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

12.0 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification

to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

13.0 COMMUNITY AIR MONITORING PLAN

The Community Air Monitoring Plan (CAMP) will comply with the NYSDOH Generic CAMP and OSHA standards for construction (29 CFR 1926). Continuous monitoring on the perimeter of the work zones for odor, VOCs, and dust will be required for all ground intrusive activities within the Site. Locations of air monitoring stations will be adjusted on a daily or more frequent bases based on actual wind directions to provide an upwind and at least one downwind monitoring station. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers. Appendix 10 includes the NYSDOH Generic CAMP.

14.0 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors on- and off-site. Specific odor control methods to be used on a routine basis will include monitoring open excavations with a photoionization detector. If nuisance odors are identified at the site boundary, or if odor complaints are received, 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. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of

chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

15.0 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

16.0 OTHER NUISANCES

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX 6 – FIELD SAMPLING PLAN

Groundwater

The monitoring wells will be sampled on a quarterly basis for a minimum of two years. All sampling equipment will be decontaminated prior to use. Prior to sampling, water levels will be measured using an electronic product-water level indicator. Samples will be collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedure0 for the Collection of Groundwater Samples from Monitoring Wells. (EQASOP_GW 001 Revision 3 dated July 30, 1996 Revised: January 19, 2010). Low flow purging and sampling procedures will be as follows:

Low flow purging (200 to 500 milliliters per minute) of the monitoring wells will include collection of water quality indicator parameters. Water quality indicator parameters will be recorded at 10-minute intervals during the purging of the well. Groundwater sampling will commence once quality indicator parameters have stabilized for at least three consecutive readings. These water quality indicator parameters will include:

- Water level drawdown <0.3 feet
- Temperature +/- 3%
- pH +/- 3%
- Dissolved Oxygen +/- 10%
- Specific Conductance +/- 3%
- Oxidation Reduction Potential +/- 10 millivolts
- Turbidity +/- 10% for values greater than 1 NTU

All groundwater samples will be placed in laboratory provided containers (40 milliliter vials). All sample containers will be appropriately labeled and closed. Chain-of-custody documents will be completed before shipment. The samples will be placed on ice and secured in a cooler during shipment to the laboratory.

Long-term monitoring (quarterly events) of the groundwater will be conducted to determine the efficiency of the Remedial Action. All groundwater samples will be analyzed for cVOCs by EPA Method 8260 and sent to an ELAP certified laboratory.

Indoor Air

Indoor air and ambient air samples will be collected on an annual basis in accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion In the State of New York*, dated October 2006.

The indoor air and ambient air samples will be collected from breathing height (three to five feet above the floor) from within the Site building. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for eight-hours in commercial structures.

Indoor air and ambient air samples will be collected in laboratory-supplied 6-liter Summa canisters using eight-hour regulators in commercial structures. All indoor air samples will be collected ambient air sample collection and sample containers will be appropriately labeled and closed. Chain-of-custody documents will be completed before shipment.

Long-term monitoring (annual events) of the indoor air will be conducted to determine the efficacy of the Remedial Action. All indoor air and ambient air samples will be analyzed for VOCs by EPA Method TO-15 and sent to an ELAP certified laboratory.

APPENDIX 7 – QUALITY ASSURANCE PROJECT PLAN

Quality Assurance Project Plan

for
1500 Astor Avenue
Site Management Plan

1500 Astor Avenue – Bronx, NY
Block 4393, Lot 1
BCP # C203105

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B, Section A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Eastchester-Astor LLC
760 White Plains Road
Scarsdale, NY 10583

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

November 2023

TABLE OF CONTENTS

Appendices

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the implementation of the Site Management Plan (SMP) prepared for the 1500 Astor Avenue project in the borough of the Bronx, New York city, New York (the "Site").

The Site, located at 1500 Astor Avenue and 2300-2314 Eastchester Road (Block 4393, Lot 1), Bronx, New York City, New York. The Site location is identified on Figure 1 of the SMP. The SMP has been designed to outline the management of the Site following completion of the Remedial Action. The scope of work includes collection of quarterly post-remedial groundwater samples to assess the efficacy of the Remedial Action. This SMP has been prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10, May 3, 2010).

1.1 Project Scope and QAPP Objective

The proposed scope of work includes the following:

- Collection of post-remedial groundwater samples; and,
- Collection of post-remedial indoor air samples.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of the Remedial Action Work Plan. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP address the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

2.0 PROJECT ORGANIZATION

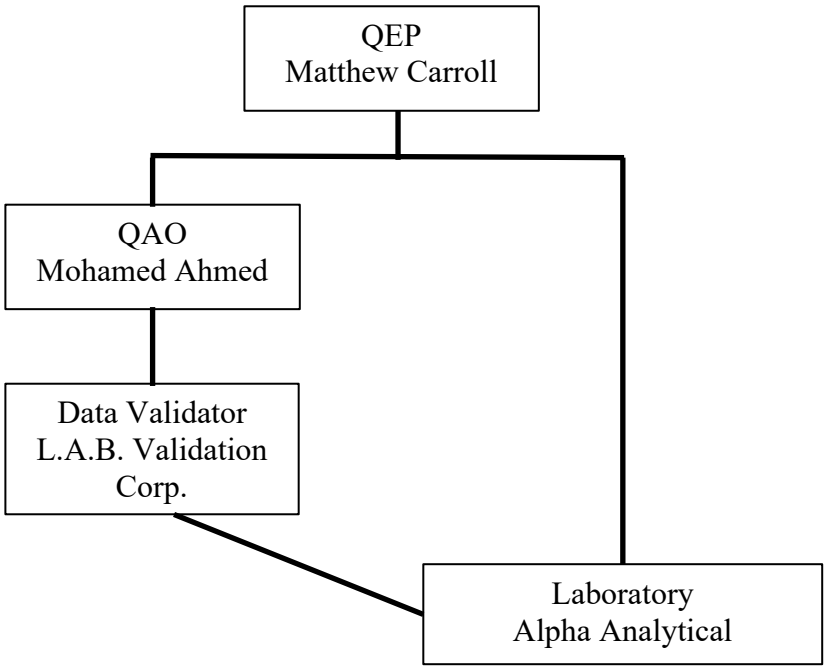
The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the SMP on behalf of Eastchester-Astor LLC (Volunteer) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

The Project Manager and Qualified Environmental Professional (QEP) will be Mr. Matthew Carroll, P.E., principal at Tenen. Mr. Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. His experience involves projects from inception through investigation, remediation and closure. His expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mr. Carroll received his Bachelor of Engineering from Stevens Institute of Technology and Bachelor of Science in Chemistry from New York University and is a New York State professional engineer; his resume is included in Appendix A.

The Quality Assurance Officer will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

In addition, Tenen will utilize subcontractors for laboratory services (Alpha Analytical of Westborough, MA) and data validation (L.A.B. Validation Corp. of East Northport, New York). The resume for the DUSR preparer, Ms. Lori Beyer is included in Appendix A.

An organization chart for the implementation of the SMP and QAPP is below.



3.0 SAMPLING AND DECONTAMINATION PROCEDURES

A detailed description of the procedures to be used during this program for collection of post-remedial groundwater, soil vapor, and indoor air samples is provided below. Proposed sample locations are shown on Figures 6 and 7 of the SMP. An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

3.1 Level of Effort for QC Samples

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.

- Duplicate samples are analyzed to check for sampling and analytical reproducibility.

- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples.

The analytical laboratory will be certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP). NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

3.2 Sample Handling

Samples will be handled by any of the following methods: picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State Analytical Services Protocol (ASP).

3.3 Custody Procedures

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

3.4 Sample Storage

Samples will be stored in secure limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, +/- 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

3.5 Sample Custody

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;

- Sample storage log (same as the laboratory chain of custody); and,
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

3.6 Sample Tracking

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

3.7 Post-Remedial Groundwater Sampling

Groundwater samples will be collected using dedicated sample equipment from the wells shown on Figure 5 of the SMP.

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (peristaltic pump). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump will be decontaminated between samples.

Groundwater samples will be collected through dedicated tubing. Prior to the collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field observations will be

recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

All groundwater samples will be analyzed for the following with a Category B deliverable data package:

- TCL cVOCs by EPA Method 8260C

3.8 Post-Remedial Indoor Air Sampling Methodology

All indoor air samples will be collected in accordance with the NYSDOH Soil Vapor Guidance at locations shown on Figure 9 of the SMP.

The indoor air samples will be collected from breathing height (three to five feet above the floor) from within the Site building. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for eight-hours in commercial structures. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

Indoor air samples will be collected in laboratory-supplied 6-liter canisters using eight-hour regulators in commercial structures. Indoor air samples will be analyzed for VOCs using EPA Method TO-15.

3.9 Analytical Methods/Quality Assurance Summary Table

A summary of the analytical methods and quality assurance methods are included in Table 1, below.

Table 1
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples				Total # Samples	Analytical Parameter	Method	Preservative	Holding Time	Container
		TB	FB	DUP	MS/MSD						
Groundwater	9	1	1	1	1	13	cVOCs	8260C	Cool to 4°C HCL	14 days to analysis	(3) 40 mL clear glass vials
Indoor Air	3	No QA/QC Samples				3	VOCs	TO-15	None	30 days	(1) 6 L Summa
Ambient Air	1					1					

TB – Trip Blank FB – Field Blank DUP – Duplicate MS – Matrix Spike MSD – Matrix Spike Duplicate
°C – degrees Celsius mL – milliliter L - liter

3.10 Decontamination

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox) and/or a steam cleaner. All non-dedicated sampling equipment will also have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

3.11 Data Review and Reporting

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

- *Groundwater* – Class GA groundwater standards and guidance values for groundwater as listed in NYSDEC Technical and Operations Guidance Series (TOGS) 1.1.1; and,
- *Indoor Air* – NYSDOH Air Guidance Values (AGVs).

Reports documenting the quarterly groundwater monitoring and soil vapor sampling will be prepared, and will describe Site conditions and document applicable observations made during the sample collection. In addition, the reports will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, and field notes will be included in the reports as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EqUIS format.

Appendix A

Resumes

Matthew Carroll, P.E.
Environmental Engineer/Principal

Experience Summary

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

Selected Project Experience

470 Kent Avenue, Brooklyn
As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

500 Exterior Street, Bronx
Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

Gateway Elton I and II, Brooklyn
Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

Affordable Housing Development, Rye, NY
Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

Queens West Development BCP Site, Long Island City, New York
Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

Brownfield Cleanup Program Redevelopment Sites – West Side, New York City
Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

BCP Site, Downtown Brooklyn, New York
Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

West Chelsea Brownfield Cleanup Program Site
Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program
Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

NYSDEC Spill Site– Far West Side, Manhattan
Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

Affordable Housing Site, Brooklyn, New York
Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

New York City School Construction Authority Hazardous Materials Contract
Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

Former Manufacturing Facility, Hoboken, New Jersey
Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

F**ormer Varnish Manufacturer – Newark, New Jersey**
Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

Education and Certifications

Professional Engineer, New York
Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002
Bachelor of Science, Chemistry, New York University, 2002
Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

Mohamed Ahmed, Ph.D., C.P.G.
Sr. Geologist/Principal

Experience Summary

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City "e" designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation.

Selected Project Experience

Willoughby Square, Downtown Brooklyn
As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor's Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

School Facility, Borough Park, Brooklyn
Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

LGA Hotel Site, East Elmhurst, Queens
Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

436 10th Avenue, Manhattan
As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

Brownfield Cleanup Program Site, Downtown Brooklyn
Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

Queens West Development, Long Island City
Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

Former Creosote Site, Long Island City
Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

NYSDEC Spill Site – Far West Side, Manhattan
Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

Active Industrial Facility, Newburgh, New York
Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

Former Dry Cleaning Facility, New York City
Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

Waterfront Redevelopment, Yonkers, NY
Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

Prince's Point, Staten Island, New York
Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

Apartment Complex, New York City, New York
Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.

Publications

"Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight". Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

"Water and Organic Waste Near Dumping Ground in the New York Bight". International Journal of Coal Geology, volume 43. (With G. Friedman)

Education and Certifications

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)
M.Ph., Earth and Environmental Sciences, City University of New York (1998)
M.A. Geology, Brooklyn College (1993)
B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY: General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President
- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director
- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager
- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager
- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and Implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer
- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager
- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist
- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

APPENDIX 8 – HEALTH AND SAFETY PLAN

Health and Safety Plan

For
1500 Astor Avenue – Bronx, NY
Site Management Plan

1500 Astor Avenue - Bronx, NY
Block 4393, Lot 1
BCP Site # C203105

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Eastchester-Astor LLC
760 White Plains Road
Scarsdale, NY 10583

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

November 2023

TABLE OF CONTENTS

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental LLC (Tenen) health and safety policies and procedures. The purpose of this HASP is the protection of Tenen field personnel and others during the implementation of the Site Management Plan.

The Site, located at 1500 Astor Avenue and 2300-2314 Eastchester Road (Block 4393, Lot 1), Bronx, New York City, New York. The Site location is identified on Figure 1 of the SMP. The SMP has been designed to outline the management of the Site following completion of the Remedial Action. The scope of work includes collection of quarterly post-remedial groundwater samples to assess the efficacy of the Remedial Action. This SMP has been prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10, May 3, 2010).

1.1 Scope of HASP

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Collection of post-remedial groundwater samples from permanent monitoring wells; and,
- Collection of post-remedial indoor air samples.

2.0 PROJECT SAFETY AUTHORITY

The following personnel are responsible for project health and safety under this CHASP.

- Project Manager – Matthew Carroll, P.E.
- Health and Safety Officer (HSO) – Alana Carroll, P.G.

In addition, each individual working at the Site will be responsible for compliance with this HASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

2.1 Designated Personnel

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

Known previous uses of the site include dry cleaning operations from as early as 1954 through at least 1981. The soil remediation at the Site resulted in a Track 2 Restricted Use cleanup. Chlorinated solvents, including tetrachloroethene (PCE) and petroleum-related compounds remain in groundwater.

3.1 Human Exposure Pathways

The media of concern at the Site include impacted groundwater. Potential exposure pathways include dermal contact and incidental ingestion. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE.

3.2 Chemical Hazards

Based on post-remedial sampling data, the following contaminants of concern are present at the Site:

Chlorinated Solvents

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- cis-1,2-Dichloroethene (cis-1,2-DCE)

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this CHASP.

3.3 Physical Hazards

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

Head Trauma

To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of protection provided.

Foot Trauma

To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

Eye Trauma
Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

Noise Exposure
Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

Buried Utilities and Overhead Power Lines
Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

Thermal Stress
The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.
The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind. Conditions of sleet, snow or freezing are extremely unlikely.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Great care should be taken by all Site workers to avoid slip, trip and fall hazards. Workers shall not enter areas that not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the Site.

It is the responsibility of any worker or oversight personnel with a medical condition that may require attention should inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants, and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered, and care should be taken to avoid contact.

4.0 COVID-19 HEALTH AND SAFETY

The following requirements apply to all Tenen employees working on project sites for the duration of the COVID-19 pandemic. These guidelines are based on information provided by the Centers for Disease Control, the Occupational Safety and Health Administration and the New York State "New York Forward" Covid-19 management plans. Information regarding the health status of Tenen employees will be kept confidential, with the exception of required notifications to health authorities. The following are guidelines. **As with any potential workplace hazard, employees should report any concerns related to potential Covid-19 exposure to the Project Manager.**

Communication/Reporting:

Employees should not report to work and should notify the Project Manager immediately in the event of the following:

- You are exhibiting flu-like symptoms (fever, body aches, cough, difficulty breathing). Contact your health care provider and follow their instructions.
- You do not exhibit symptoms but have a sick (i.e., diagnosed with Covid-19 or exhibiting flu-like symptoms) family member at home. Remember that the virus can be spread by asymptomatic individuals.
- You have been exposed to someone who has been diagnosed with Covid-19.

In each of the above cases, inform your Project Manager regarding others who may have been exposed in order to facilitate any necessary notification or contact tracing efforts.

Hygiene

- Wash hands frequently with soap and water for at least 20 seconds or use hand sanitizer with at least 60% alcohol if soap and water are not available. Key times for employees to clean their hands include:
    - Before and after work shifts
    - Before and after work breaks
    - After blowing the nose, coughing, or sneezing
    - After using the restroom
    - Before eating or preparing food
    - After putting on, touching, or removing face coverings
- Avoid touching the eyes, nose, and mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- To the extent possible, avoid sharing tools and sampling equipment. Shared tools and equipment should be regularly disinfected.

Physical Distancing

- Minimize contact with others, maintaining a distance of at least six feet to the extent possible
- Employees should wear masks over their nose and mouth to prevent spread of the virus; this is especially important when a minimum 6-foot distance cannot be maintained.
- Maintain the 6-foot distance to the extent possible during sampling efforts and pickup and delivery of sampling equipment and containers.
- Keep job site meetings to a minimum and of short duration; limit the number of people involved and maintain social distance.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear" and the Centers for CDC COVID-19 "Guidelines on How to Protect Yourselves and Others".

Tenen field personnel and other site personnel will wear Level D-1 personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, modified Level D-2 equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A six-foot minimum distance between individuals (both workers and non-workers) will be maintained at all times. A description of the personnel protective equipment for Levels D and C is provided below.

Level D-1
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D-2
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C
Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.
Protective Clothing: Same as modified Level D-2

6.0 EXPOSURE MONITORING

6.1 COVID-19

For any employee that may have come into contact with a person who has COVID-19, a 14-day quarantine will be imposed for that individual and any employee that individual was in contact with.

7.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the Site.

8.0 DECONTAMINATION PROCEDURES

Personnel Decontamination
Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan. Because site soil is considered essentially non-hazardous, there is no need to decontaminate vehicles used for transporting equipment and personnel over the Site.

Disposal of Materials
Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

9.0 GENERAL SAFE WORK PRACTICES

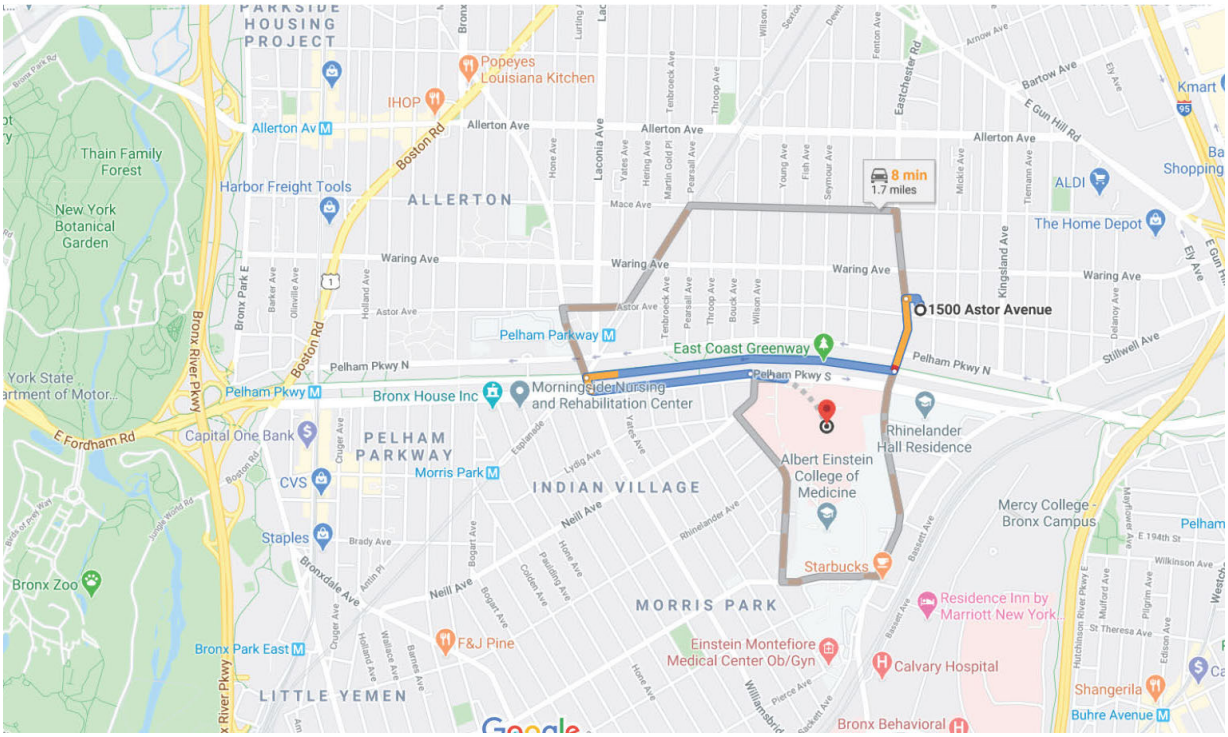
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

10.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—on-site personnel should drive him to a hospital. **The nearest emergency room is at NYC Health + Hospitals/Jacobi, located at 1400 Pelham Pkwy S.** The route to the hospital is shown and detailed on the next page.

10.1 Route to Hospital



1. Head northwest toward Eastchester Rd.
2. Turn left onto Eastchester Rd.
3. Turn right onto Bronx and Pelham Pkwy.
4. Turn left onto Williamsbridge Rd.
5. Turn left onto Pelham Pkwy S.
6. Slight right to stay on Pelham Pkwy S.
7. Keep left to stay on Pelham Pkwy S.

Emergency Room: (718) 918-5000.

10.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 918-5000
NYSDEC Spill Hotline	(800) 457-7362
Tenen HSO, Alana Carroll	(646) 606-2332

11.0 TRAINING

All personnel performing the field activities described in this CHASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

12.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the CHASP must be on-site at all times and will be kept by the HSO.

AFFIDAVIT

I have read the Construction Health and Safety Plan (CHASP) for the 1500 Astor Avenue site. I agree to conduct all on-site work in accordance with the requirements set forth in this CHASP and understand that failure to comply with this CHASP could lead to my removal from the site.

Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____

Appendix B

Injury Reporting Form (OSHA Form 300)

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__ __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name _____

City _____ State _____

Identify the person			Describe the case			Classify the case (CHECK ONLY ONE box for each case based on the most serious outcome for that case:)				Enter the number of days the injured or ill worker was:		Check the "Injury" column or choose one type of illness:					
								Remained at Work				(M)					
(A) Case no.	(B) Employee's name	(C) Job title (*e.g., Welder*)	(D) Date of injury or onset of illness	(E) Where the event occurred (*e.g., Loading dock north end*)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (*e.g., Second degree burns on right forearm from acetylene torch*)	Death (G)	Days away from work (H)	Job transfer or restriction (I)	Other record-able cases (J)	Away from work (K)	On job transfer or restriction (L)	Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)
			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
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			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
Page totals ➤						___	___	___	___	___	___	___	___	___	___	___	___

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Injury (1) | Skin disorder (2) | Respiratory condition (3) | Poisoning (4) | Hearing loss (5) | All other illnesses (6)

Appendix C

Material Safety Data Sheets (MSDS)

SAFETY DATA SHEET

Version 4.4
Revision Date 12/01/2015
Print Date 04/22/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : cis-Dichloroethylene

Product Number : 48597
Brand : Supelco
Index-No. : 602-026-00-3

CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C2H2Cl2
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

Hazardous components

Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-80.0 °C (-112.0 °F)
f)	Initial boiling point and boiling range	60.0 - 61.0 °C (140.0 - 141.8 °F)
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.28 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 13700 ppm
Remarks: Behavioral:Somnolence (general depressed activity). Liver:Fatty liver degeneration.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KV9420000

narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	1

NFPA Rating

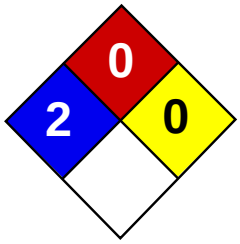
Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.4 Revision Date: 12/01/2015 Print Date: 04/22/2018



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:29 PM

Last Updated: 05/21/2013 12:00 PM

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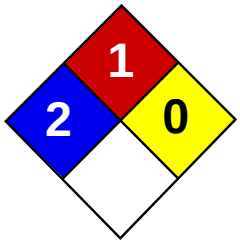


Material Safety Data Sheet
Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C2HCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:
Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:
Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36/38- Irritating to eyes and skin. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:54 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

APPENDIX 9
SITE MANAGEMENT FORMS

1500 Astor Avenue - Bronx, NY
BCP Site No. C203105
Site Management - Annual Inspection Checklist

Engineering Control	Condition	Field Notes/Observations:
Sub-slab Depressurization System (SSDS)	Observe visible components (fan, vacuum alarm/monitor, vacuum gauge,tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary	
	Remove any blockages in vacuum monitor and gauge tubing and riser pipe taps	
	Verify operation of vacuum monitor by disconnecting tubing from riser pipe and noting if the building notification system goes into alarm mode	
	Verify operation of vacuum gauge by disconnecting tubing from riser pipe and noting if the indicator moves to zero (check high and low pressure ports to see if they are plugged correctly)	
	Inspect riser pipe penetrations in concrete slab for proper seal	
	Inspect riser pipe connections at fan for leaks and tightness	
	Inspect power to fan by operating dedicated switch	
	Measure the sub-slab pressure at six monitoring points	

Comments/Notes: _____

Name of inspector: _____

Signature of inspector: _____

Date of inspection: _____

1500 Astor Avenue - Bronx, NY
BCP Site No. C203105
Site Management - Site-Wide Inspection Checklist

Condition	Field Notes/Observations:
Is the Site compliant with all ICs?	
List the current Site usage and general Site conditions at the time of inspection.	
Are ECs operational and operating as designed?	
Indicate locations where Site management activities are being conducted (i.e., inspections, sampling, etc.)	
Are Site records up to date?	

Comments/Notes: _____

Name of inspector: _____

Signature of inspector: _____

Date of inspection: _____

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
Address: _____ City: _____
State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: _____

Current Reporting Period
Reporting Period From: _____ To: _____

Contact Information
Preparer's Name: _____ Phone No.: _____
Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-Site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the Site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-Site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-Site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-Site to landfills		
Transported off-Site to other disposal facilities		
Transported off-Site for recycling/reuse		
Reused on-Site		

Provide a description of any implemented waste reduction programs for the Site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the Site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the Site.

IV. Water Usage: Quantify the volume of water used on-Site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-Site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-Site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the Site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the Site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application. _____ **Date** **Contractor**

APPENDIX 10
NYSDOH COMMUNITY AIR MONITORING PROGRAM

New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required 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 might reasonably 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. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required 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.

VOC Monitoring, Response Levels, and Actions

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

1. 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 must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. 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 must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can 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.

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

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should 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 must 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

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

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

APPENDIX 11
ENGINEERING CONTROL DESIGN DOCUMENTS

Legend

- Riser to First Floor
- Soil Vapor Venting Location
- Previous Soil Vapor Sample Location
- Extraction Pit
- Pressure Monitoring Point
- Permanent PVC Header

STATE OF NEW YORK
MATTHEW M. CARROLL
091629
LICENSED PROFESSIONAL ENGINEER

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

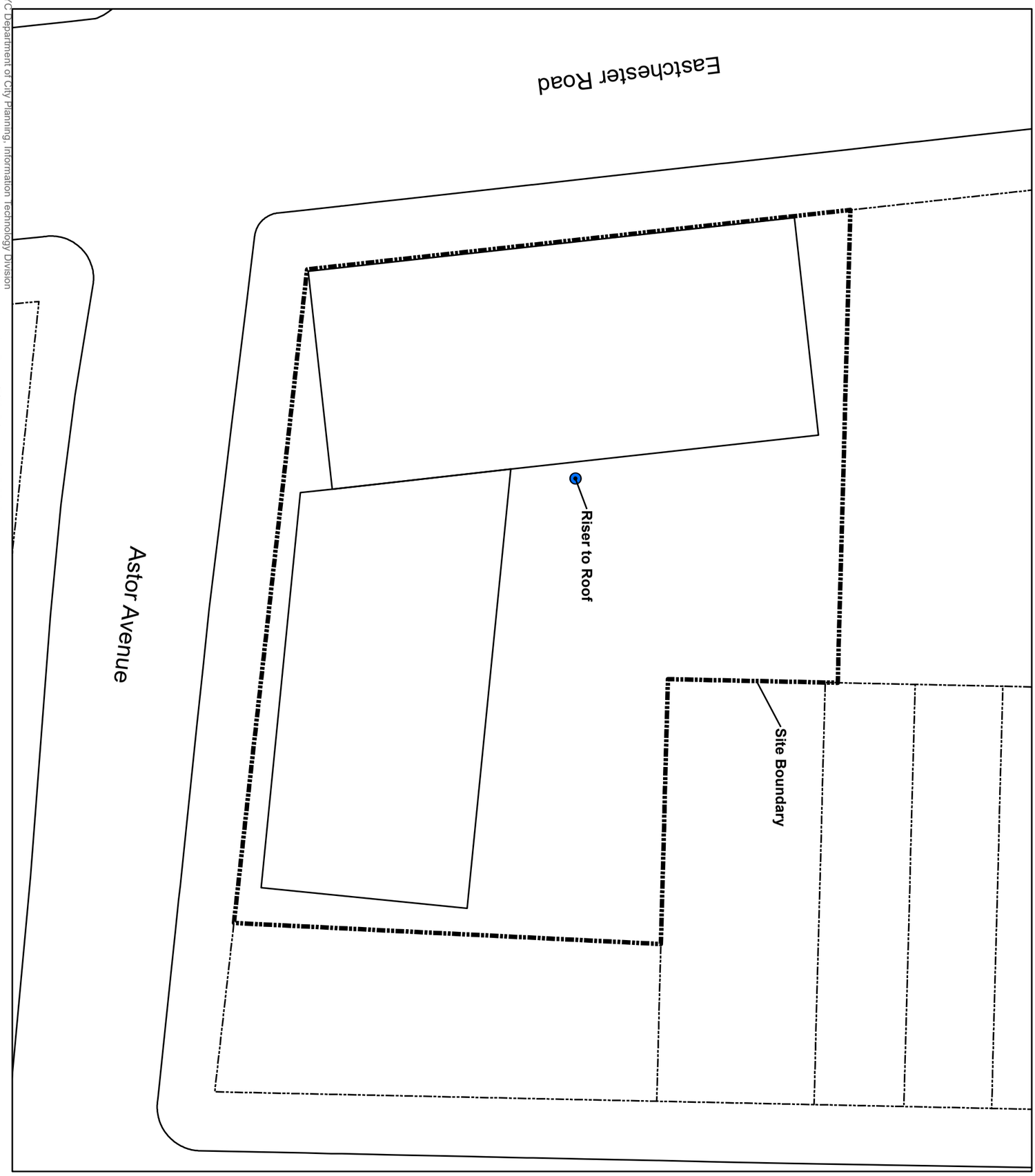
Site
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	MC	December 2021	As Noted

Drawing Title: **Proposed SSDS Layout - Cellar**

Drawing No: **Figure X-000.0**



NYC Department of City Planning, Information technology Division
Property Solutions Inc., Moorestown, NJ. 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

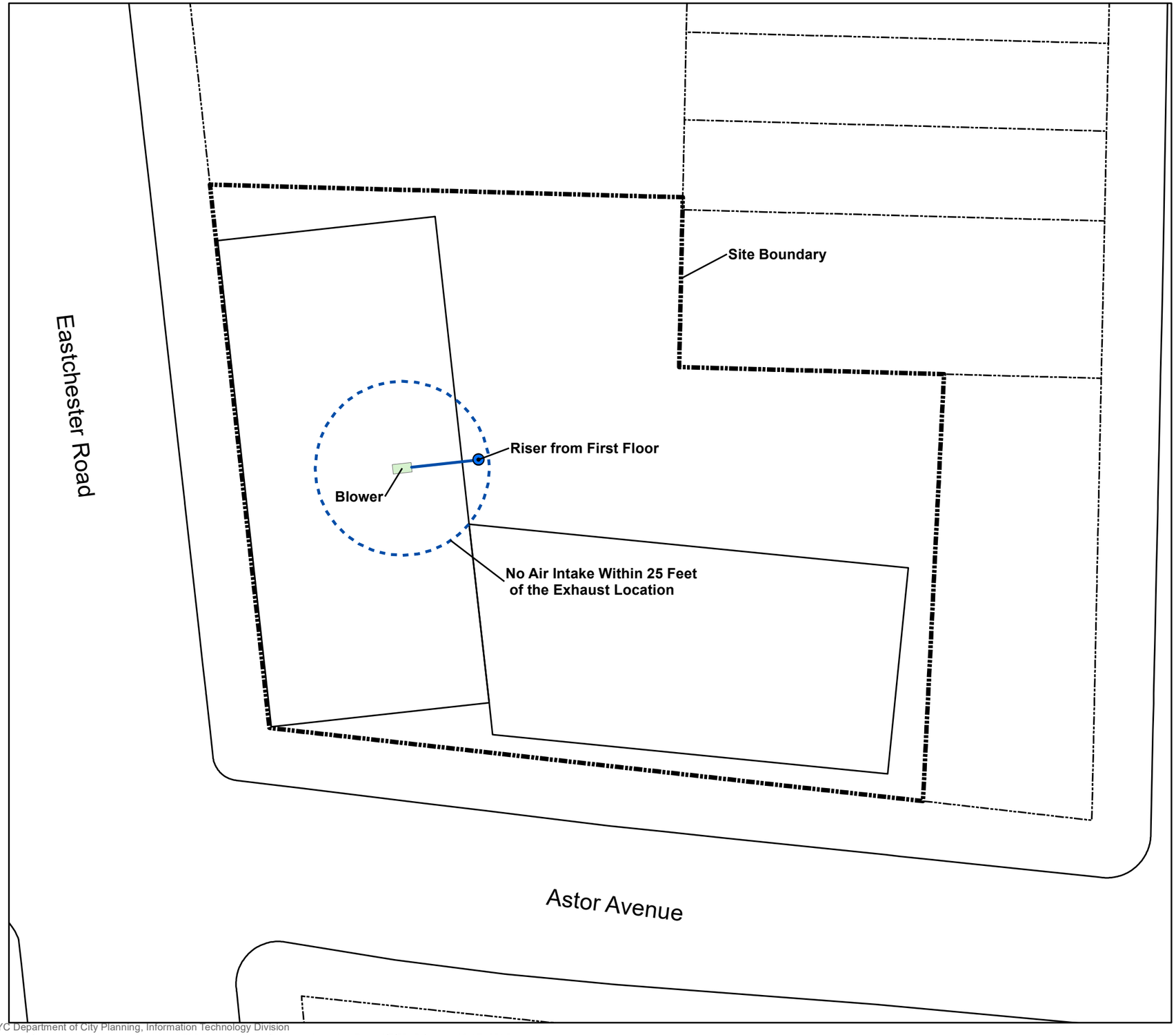
0 15 30 60 Feet

LICENSED PROFESSIONAL ENGINEER
STATE OF NEW YORK
MATTHEW M. CARROLL
091629

Legend

Riser to Roof

Drawing Title: **Proposed SSDS Layout - First Floor**	Drawn By: LM	TENEN ENVIRONMENTAL	Site: **1500 Astor Avenue Bronx, New York Block 4393, Lot 1**
	Checked By: MC		
Drawing No: **Figure X-001.0**	Date: December 2021	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Scale: As Noted		



NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

N
W
E
S

Legend

- Riser from First Floor
- Permanent PVC Header
- Blower

STATE OF NEW YORK
MATTHEW M. CARROLL
091629
LICENSED PROFESSIONAL ENGINEER

0 15 30 60 Feet

Site
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

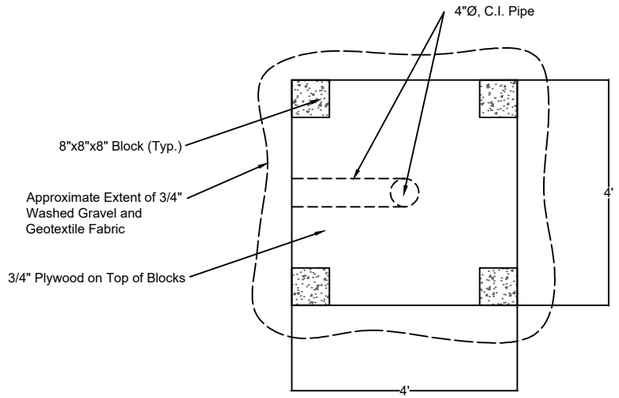
TENEN ENVIRONMENTAL
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	MC	December 2021	As Noted

Drawing Title
Proposed SSDS Layout - Roof

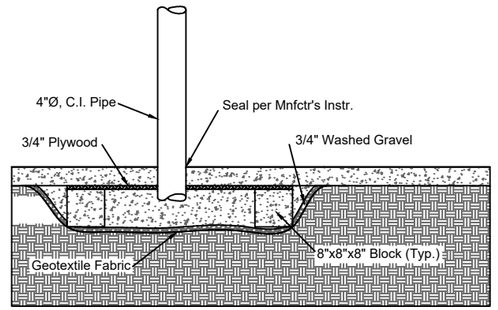
Drawing No
Figure X-002.0

1



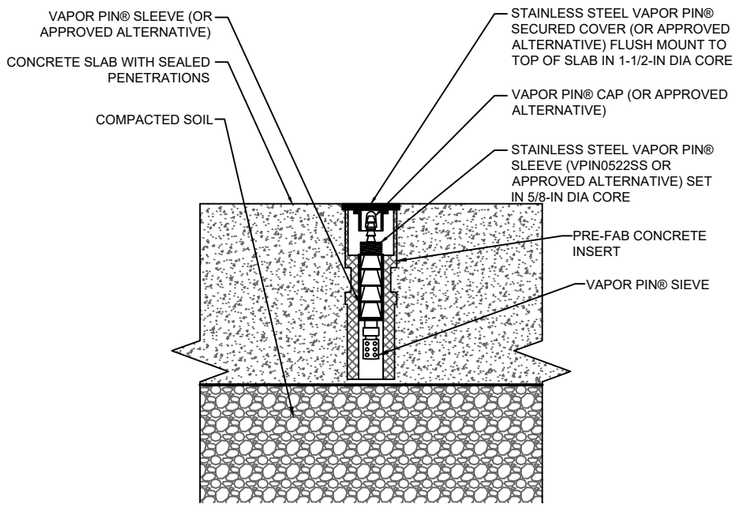
Suction Pit - Plan View

2



Suction Pit - Section View

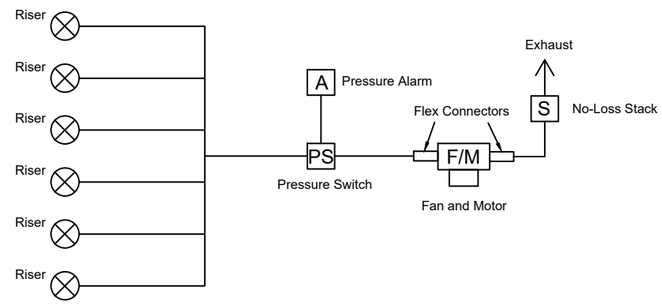
3



NOTE: TYPICAL CONSTRUCTION SHOWN IN THE DETAIL. CONTRACTOR MUST FOLLOW MANUFACTURER INSTRUCTIONS/MANUALS FOR ACTUAL CONSTRUCTION. USE VAPOR PIN ® EXTENSION 1.5 AS NECESSARY TO EXTEND SIEVE TO WITHIN ONE INCH BELOW SLAB

TYPICAL VACUUM MONITORING POINT (SECTION VIEW)
NOT TO SCALE

4



Sub-Slab Depressurization System - Schematic from Riser to Exhaust Location

STATE OF NEW YORK
MATTHEW M. CARROLL
LICENSED PROFESSIONAL ENGINEER
091629

SITE
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

CONSULTANT
TENEN ENVIRONMENTAL
TENEN ENVIRONMENTAL, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: 646-606-2332
F: 646-606-2379

DRAWN BY	CHECKED BY	DATE	SCALE:
LM	MC	December 2021	As Noted

DRAWING TITLE: SSDS Details

DRAWING NO.: X-003.00

FLOWSORB®

Liquid Phase Adsorption Canister

Description

Designed for low-flow water treatment applications, prefabricated 55-gallon FLOWSORB canisters contain all the operating elements found in a full-scale adsorption system. These small, economical treatment systems hold 180 pounds of granular activated carbon for applications including:

- Small wastewater streams
- Groundwater remediation
- Underground storage tank leaks
- Well pump tests
- Product purification or de-colorization
- Tank cleaning water treatment
- Batch water or product treatment
- Carbon adsorption pilot testing
- Emergency spill treatment
- Monitoring well water treatment

Features / Benefits

FLOWSORB offers several features and benefits to industrial, commercial, and municipal users including:

- Low cost per unit makes carbon treatment economical
- Simple installation and operation
- Space above carbon bed facilitates flow distribution or back-flushing
- Flexibility to be used in series or parallel operation
- Supplied with virgin or reactivated carbon
- Practical disposal option: pre-approved spent carbon canisters may be returned to Calgon Carbon Corporation for safe carbon reactivation
- Continuous treatment at various flow rates and concentrations

System Specifications	FLOWSORB
Vessel	Open head steel canister
Cover	Removable steel cover, 12 gauge bolt ring
Internal Coating	Heat-cured phenolic epoxy
External Coating	Baked enamel (white)
Temperature Limit	120°F (max)
Inlet	2" FNPT
Outlet	2" FNPT
Carbon	180 lbs. granular activated carbon: Specify FILTRASORB 300 or reactivated grade
Ship Weight	219 lbs. (99.4 kg)
Identification	Sequentially numbered for traceability

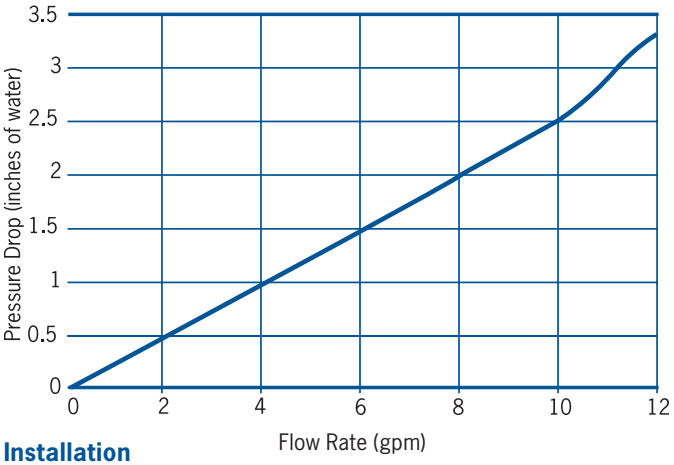
Typical Operating Parameters	FLOWSORB
Flow Rate	10 gpm (37.8 l/m)
Contact Time	4.5 minutes
Pressure Drop	< 1 psi (clean water and carbon)
Operating Pressures	3 psig maximum no vacuum

Pressure Drop

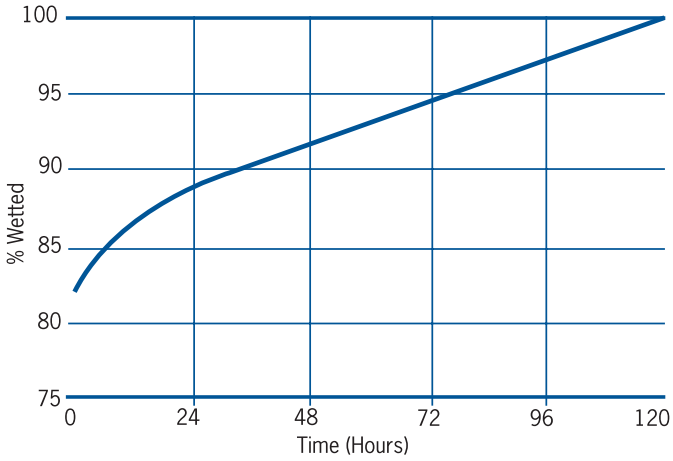
Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

1.800.4CARBON calgoncarbon.com



Typical Installation



Installation

FLOWSORB canisters should be set on a flat, level surface and piped as recommended in the installation illustration. The influent pipe connection should be attached to the unit by using a flexible connection. Some minor deflection of the lid may occur if pressure builds due to filtration or other flow blockage downstream.

FLOWSORB discharge piping should include a piping loop elevated above the top of the canister to ensure that the canister remains flooded with water at all times. In addition to the piping loop, a drain connection is recommended on the discharge piping; this allows drainage of the unit prior to disconnection or temporary shutdown.

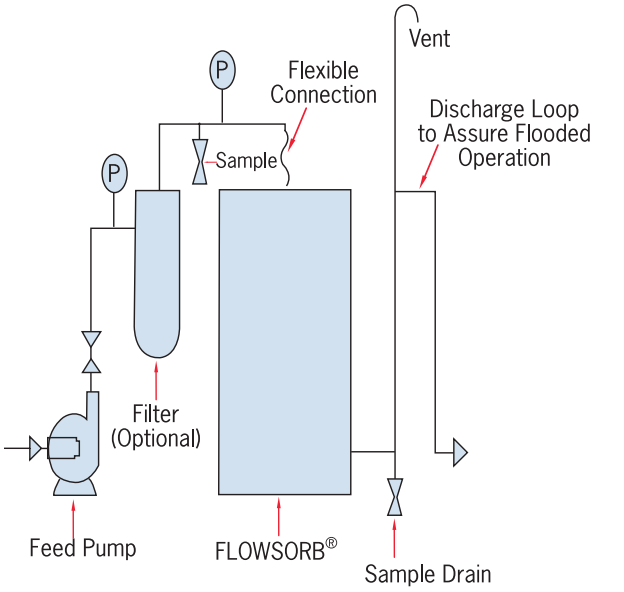
Pipe connections to the canister are the responsibility of the customer. It is recommended that influent and discharge pipe connections be made using fittings that are of good quality and have un-damaged threads. Application of sealant tape to the pipe thread ensures better contact with the limited depth of the fittings on the canister. Over tightening of the pipe fitting will damage the canister fittings and cause leaks.

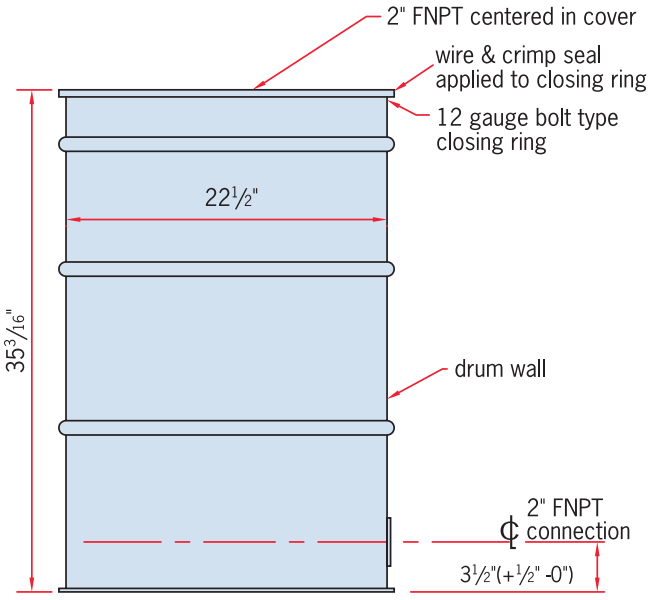
FLOWSORB canisters are shipped with dry activated carbon; the carbon must be wetted and de-aerated prior to use. This procedure displaces air from the internal structure of the carbon granule, thus assuring that the liquid to be treated is in contact with the carbon surface.

Prior to operation each canister must be filled with clean water; the water should be introduced into the bottom outlet connection. The unit should sit for approximately 48 hours to allow most of the carbon's internal surface to become wetted as shown on the wetting curve. After wetting, the carbon bed can be de-aerated by draining the canister and refilling the canister upflow with clean water. This procedure will eliminate any air pockets which may have formed between the carbon granules. The FLOWSORB is now ready for operation. A filter should be installed if the liquid to be treated contains substantial amounts of suspended solids. A simple cartridge or screen filter helps prevent pressure buildup in the carbon bed.

Wetting Curve for GAC (77°F/25°C)

Operation





Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

1.800.4CARBON calgoncarbon.com

FLOWSORB canisters should be full of clean water before treatment begins. Flow rate to the canister should be determined based on required contact time between the liquid and the carbon media. In groundwater treatment applications, the recommended contact time is typically 8-10 minutes with a resultant flow of approximately 5 gpm. Consult your Calgon Carbon Corporation Technical Sales Representative for advice about proper contact time for your application.

FLOWSORBS can be manifolded in parallel operation for higher flow rates. For series operation, two FLOWSORBS can be piped together sequentially, as normal pressure drop will not exceed the recommended operating pressure.

These canisters have space for bed expansion and can be back flushed by introducing clean water or liquid at approximately 20-25 gpm to the outlet and taking backflush water from the inlet.

How to Estimate FLOWSORB Life

The treatment table on this page lists the volume of water that can be purified by the FLOWSORB for typical contamination situations. Most applications, however, involve a unique mixture of organic chemical contaminants including some chemicals that adsorb at different capacities or strengths. Please consult with your Calgon Carbon Technical Sales Representative for more information about carbon usage rates.

Calgon Carbon Liquid Purification System

FLOWSORB is a unit specifically designed for a variety of small flow applications. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for a greater range of flow rates and carbon usages to meet specific applications.

Return of FLOWSORB

Arrangements should be made at the time of purchase to return canisters containing spent carbon. Calgon Carbon will provide instructions on how to sample the spent carbon and arrange for carbon acceptance testing. The spent carbon is reactivated by Calgon Carbon and all of the contaminants are thermally destroyed. The company will not accept FLOWSORB for landfill, incineration, or other means of disposal.

FLOWSORB cannot be returned to Calgon Carbon unless the carbon acceptance procedure has been completed, an acceptance number provided, and the return labels (included with the unit at the time of purchase) are attached. FLOWSORB must be drained and inlet/outlet connections must be plugged prior to return to Calgon Carbon.

Theoretical Treatment Capacity for Typical Cases

	Case 1 1,600,000 gal	**Case 2 400,000 gal**	**Case 3 85,000 gal**
Benzene	20 ppb	200 ppb	2 ppm
Toluene	40 ppb	400 ppb	4 ppm
Xylene	40 ppb	400 ppb	4 ppm
	Case 4 1,900,000 gal	**Case 5 550,000 gal**	**Case 6 125,000 gal**
TCE	50 ppb	500 ppb	5 ppm
PCE	50 ppb	500 ppb	4 ppm
	Case 7 230,000 gal	**Case 8 50,000 gal**	**Case 9 10,000 gal**
Phenol	1 ppm	10 ppm	100 ppm
Total SOC	10 ppm	100 ppm	1,000 ppm

Each case represents a groundwater or wastewater stream that contains the combination of contaminants listed. The treatment capacity indicates the total gallons of that particular water that may be treated before any of the specific contaminants are present in the treated water as noted. Theoretical capacity based on 5 gpm water at 70°F or less and 180 lbs. of FILTRASORB 300. Background TOC is < 1 ppm except phenol cases as noted. Contaminants reduced to < 5 ppb except phenol case which is for 95% phenol reduction.

Safety Message

It is unlikely that a worker would be able to physically enter a FLOWSORB canister; however, the following information and precautions apply to partially closed canisters or situations where carbon is to be removed from the canister and stored elsewhere. Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed including all applicable federal and state requirements. Please refer to the SDS for all up to date product safety information.

Should the canister need to be opened, first vent the drum by slowly opening the inlet or outlet connection before removing the drum ring.

Radon Mitigation Basin Cover

Store SKU #1002162762

The Everbilt Radon Mitigation Basin Cover serves two pressing needs; the need for a universal gas-tight cover to serve the radon mitigation market and the need for a cover to retrofit failing sump and sewage basin covers.

The Everbilt Radon Mitigation Basin Cover is designed to cover an existing basin, providing a new heavy duty cover to properly contain and vent radon gas and odors. There is no reason to dig up your basement or garage floor to remove the existing sump or sewage basin. Simply remove old cover and install the Everbilt Radon Mitigation Basin Cover over the opening, to create a new, sealed system.

The Everbilt Radon Mitigation Basin Cover is adaptable with a variety of spaces for different connections and comes with a full range of flanges that fit every size pipe. The removable cover allows for easy access to the pump and has a clear view removable inspection plate.

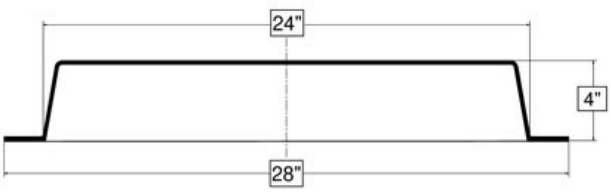
Specifications

- **Cover Material:** Injection molded high density structural foam
- **Seal:** Dynaflex
- **Fittings:** Acrylonitrile butadiene styrene (ABS) and Flexible Polyvinyl chloride (PVC) thermoplastic
- **Washers and Bolts:** 301 Stainless Steel
- **Fasteners:** 301 Stainless Steel

Features and Benefits

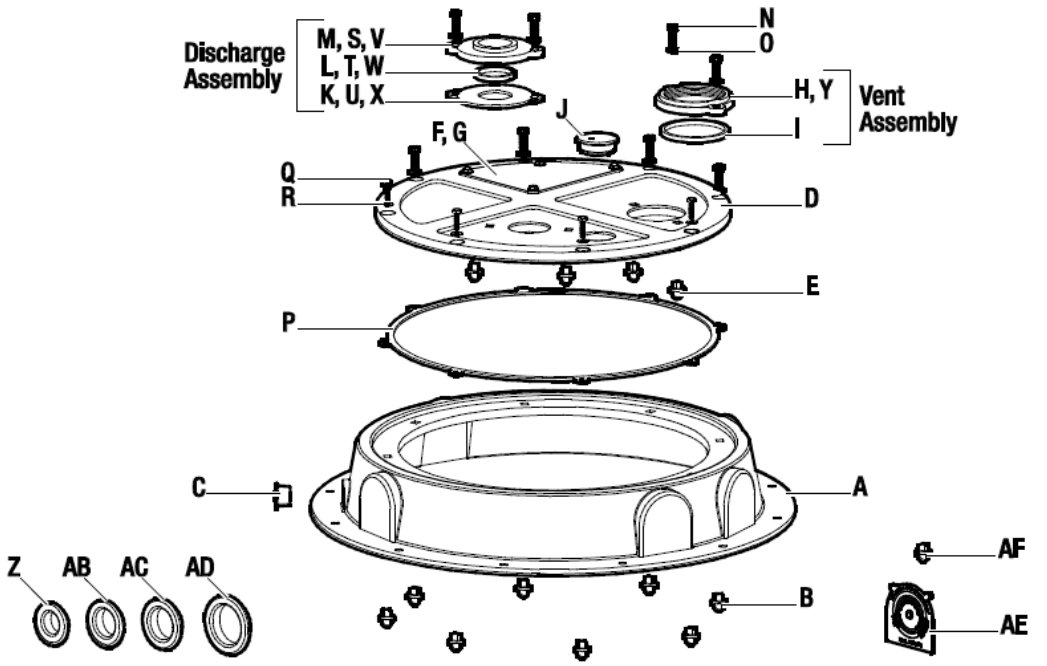
- Passive radon mitigation
- Retro fit/repair old, failing sump or sewage basin covers
- Universal, fits over all installed basins
- Improve safety; children and pets
- Property transfers and rentals
- Eliminates odors, gas-tight seal
- Easy to install
- Top discharge and vent
- Easily supports 1,000 lbs.
- Heavy duty injection molded structural foam construction
- Comes with the Jackel SF16101-CVDT structural foam solid cover, 8-bolt
- Clear view removable inspection plate
- 1-1/2” pump discharge flange, slip connection, ABS
- 3” vent flange, threaded connection, ABS
- Weight: 15 lbs.

Dimensions



Radon Mitigation Basin Cover

Parts List



Part	Description	Quantity
A	Cover riser	1
B	1/4-20 Nylon enclosed nut (Preassembled to cover (A))	8
C	Drain plug	1
D	SF16314 2x3 Lid	1
E	1/4-20 Nylon enclosed nut (Preassembled to lid (D))	8
F	INSP314-C Clean inspection plate (Preassembled to lid (D))	1
G	SEAL314 Inspection plate seal (Preassembled to lid (D))	1
H	3 in. Plastic vent threaded flange (Preassembled to lid (D))	1
I	3 in. Discharge and vent O-ring (Preassembled to lid (D))	1
J	2 in. One-hole cord grommet (Preassembled to lid (D))	1
K	1.5 in. Reducer plate (Preassembled to lid (D))	1
L	1.5 in. Discharge O-ring (Preassembled to lid (D))	1
M	1.5 in. Plastic discharge flange (Preassembled to lid (D))	1
N	1/4-20 x 1 HHC-SS (Preassembled to lid (D))	8
O	1/4 in. Flat washer SS (Preassembled to lid (D))	8
P	SEAL 18-8 Cover seal	1
Q	1/4-20 x 1 HHC-SS	8
R	1/4 in. Flat washer	8
S	1.25 in. Plastic discharge flange	1
T	1.25 in. Discharge O-ring	1
U	1.25 in. Reducer plate	1
V	2 in. Discharge flange	1
W	2 in. Discharge O-ring	1
X	Reducer plate blank	1
Y	2 in. Plastic threaded vent flange	1
Z	E100H Rubber hub for 1 in. pipe	1
AB	E125H Rubber hub for 1-1/4 in. pipe	1
AC	E150H Rubber hub for 1-1/2 in. pipe	1
AD	E200H Rubber for 2 in. pipe	1
AE	Drill locator	1
AF	Extra 1/4-20 Nylon enclosed nuts	4

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WWM Series

Paddle Wheel Flow Meters for Wastewater Effluent

This paddle wheel flowmeter, can monitor flows in pipes ranging in size from ½" to 8". Paddle wheel flow meters are universally accepted as a means of measuring flow electronically. They offer a wide range in flow rates, negligible headloss and good accuracy at a reasonable price.

Easy removal for cleaning and repair permit the meters to be mounted in lines with moderate particulate levels. A plug is included that can replace the meter so that the system can be used while the meter is removed.

This flow meter has a 21-digit liquid crystal display (LCD). Sturdy, compact, and water resistant design allows these meters to be mounted outdoors when shielded from direct sunlight. Remote displays are also available to allow easy reading for locations where the meter is difficult to get to. Isolated monitoring locations are also viable since power is supplied by a long, seven year, life battery.

The paddle wheel, spinning at a rate linearly proportional to the velocity of the flow, activates a switch once per revolution. The time it takes the paddle to rotate, divided into the diameter of the pipe, results in the flow rate. Flow rate variations are minimized by a microprocessor averaging process. The flow rate, a resettable and a non-resettable totalizer are simultaneously displayed.

FEATURES

- Corrosion resistant to the caustic nature of wastewater effluent
- Displays current flow rate, lifetime total, and a resettable total
- Displays **Gallons** or Liters
- Negligible head loss (pressure drop)
- Easily identifiable as wastewater due to purple display face
- Can be field calibrated
- Choice of mounting styles:
  - pre-mounted on a 13" length of pipe
  - insertion mount using a saddle and clamps
- Choice of display location
  - local, on the meter
  - remote, connected to meter by wire
- Display can be rotated 360˚ for best reading orientation
- Easily removed with no tools for cleaning
- Plug included to allow system use when meter is removed

SIZES AND FLOW RATE RANGES

Unit of Measure	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"
GPM	0.6 - 15	1.5 - 30	5 - 55	10 - 125	15 - 200	40 - 450	60 - 800	120 - 1800	250 - 3200
l/min.	2.27 - 57	6 - 114	19 - 208	38 - 473	57 - 757	1512 - 1703	227 - 3028	454 - 6814	946 - 12113

WWM

Paddle Wheel Flow Meters for Wastewater Effluent

MOUNTING OPTIONS

There are 2 different meter installation options.

Pipe Mount: the meter comes installed centered on a 13" section of pipe. This style is simply inserted into your pipe using straight couplings.

Saddle Mount: the meter comes with a "saddle" and 2 hose clamps that are used to attach the meter to an existing pipe. Once the saddle is attached to the pipe, a hole must be drilled in it for the paddle wheel to enter the pipe through.

REPLACEMENT PLUG

All WWM meters come with a plug that can be used in place of the meter so that the system can be used while the meter is being cleaned, repaired, or out for any reason. The plug is held in place by the same pin that is used to hold the meter in.

DISPLAY OPTIONS

There are 2 different display options. Both display types come with either a saddle or pipe mount.

Local: the display is attached directly to the meter where the meter is installed.

Remote: the display is separate from the meter, and is connected to it with a wire.

PROGRAMMING

Programming is accomplished using embossed buttons on the face. Programming consists of selecting the pipe size and schedule from a list; the default units are gallons/minute and gallons. For sizes not listed, the user can calibrate the meter using a factor derived from the inside diameter of the pipe. The meter can also be calibrated in Liters.

See the **WWM Installation, Operation, and Maintenance Manual** for complete programming instructions.

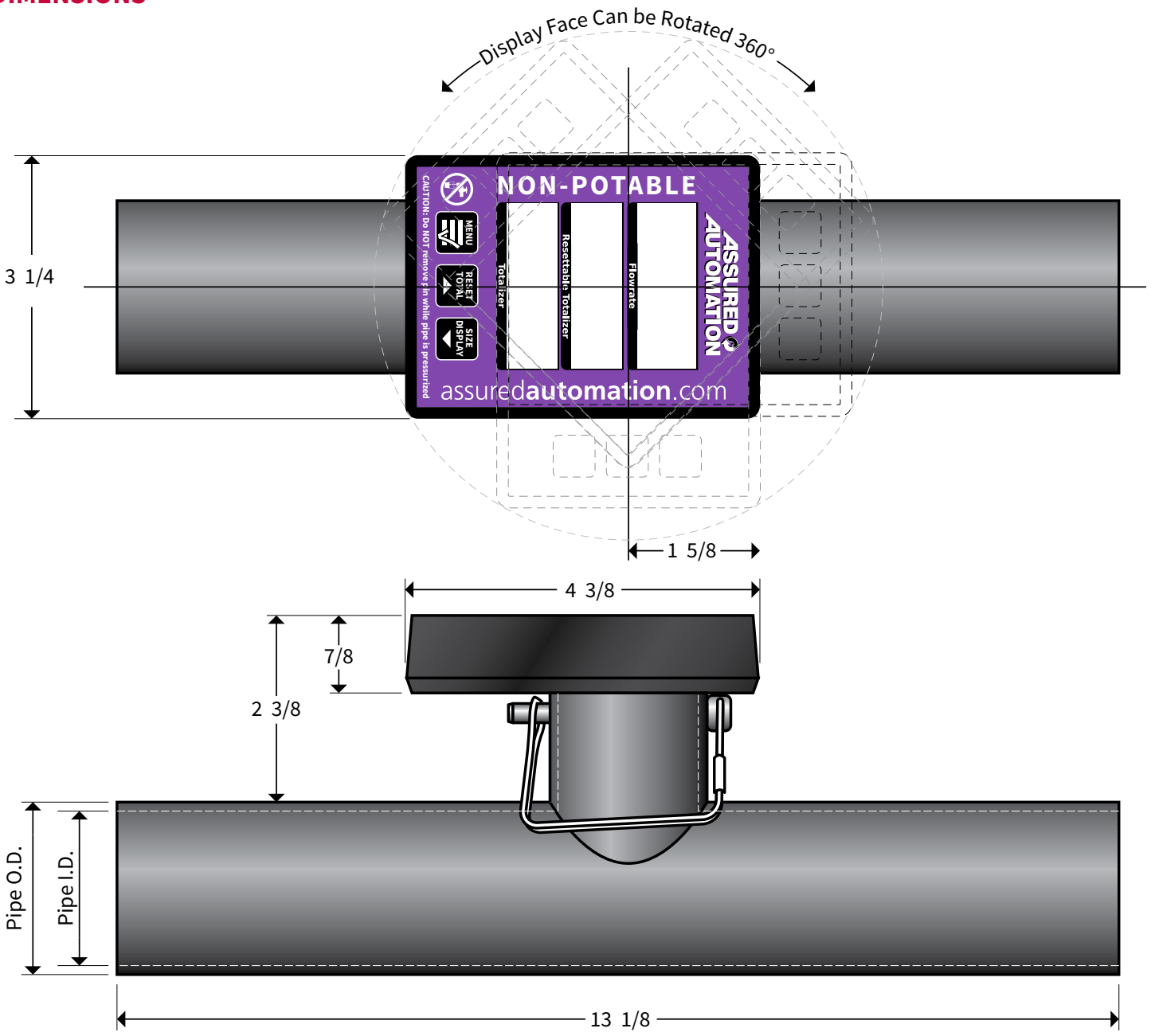
USAGE GUIDELINES

Paddle wheel type meters will only operate properly when the pipe is full and the flow rate is within the recommended range. Low accuracy and fouling problems are typical when pipes are too large and flow rates are not within the recommend range. Mounting configurations that allow air to become entrapped around the paddle will greatly affect the results. These meters will tolerate considerable sediment and debris.

WWM

Paddle Wheel Flow Meters for Wastewater Effluent

DIMENSIONS



PIPE DIAMETERS

Size	1/2"	3/4"	1"	1 1/2"		2"		3"		4"		6"		8"	
Pipe Schedule	**80**	**80**	**80**	**40**	**80**	**40**	**80**	**40**	**80**	**40**	**80**	**40**	**80**	**40**	**80**
Inner Diameter (I.D.)	0.546	0.742	0.957	1.610	1.500	2.067	1.939	3.068	2.900	4.026	3.826	6.065	5.761	7.981	7.625
Outer Diameter (O.D.)	0.84	1.050	1.315	1.900	1.900	2.375	2.375	3.500	3.500	4.500	4.500	6.625	6.625	8.625	8.625
Wall Thickness	0.147	0.154	0.179	0.145	0.200	0.154	0.218	0.216	0.300	0.237	0.337	0.280	0.432	0.322	0.500

WWM

Paddle Wheel Flow Meters for Wastewater Effluent

ORDERING INFORMTAION

WWM				
Series	Connection	Schedule	Size	Display

Wastewater Flow Meter:

WWM = Corrosion resistant paddle wheel flow meter for wastewater effluent

Connection Type:

P = Pipe Mount - mounted on 13" pipe
S = Saddle Mount - insertion mount on existing pipe using a saddle and hose clamps

Pipe Schedule:

40 = Schedule 40 *(not available in 1/2", 3/4", or 1")*
80 = Schedule 80

Pipe Size:

050 = 1/2"
075 = 3/4"
100 = 1"
Only available in Pipe Mount

150 = 1 1/2"
200 = 2"
300 = 3"
400 = 4"

600 = 6"
800 = 8"
Only available in Saddle Mount

Display Type:

PT = Local Display *(on meter)*
RD = Remote Display *(wall mount)*

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APPENDIX 12
O&M MANUAL

Sub-Slab Depressurization System (SSDS) Operations, Maintenance and Monitoring (OM&M) Plan

For

1500 Astor Avenue

BRONX COUNTY

NYSDEC Site Number: C203105

Prepared for:

Eastchester-Astor LLC

760 White Plains Road

Scarsdale, New York 10583

Prepared by:

TENEN ENVIRONMENTAL

121 West 27th Street, Suite 702

New York, NY 10001

mcarroll@tenen-env.com

NOVEMBER 2023

OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

TABLE OF CONTENTS

APPENDICES

OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

1.0 INTRODUCTION

This Operations, Maintenance and Monitoring (OM&M) Plan has been developed to detail the engineering control (EC) implemented at the property located at 1500 Astor Avenue in the Pelham Gardens neighborhood of the Bronx, NY (Site). The EC was incorporated as part of the New York State Department of Environmental Conservation (NYSDEC) requirements for soil vapor mitigation.

The Site is located at 1500 Astor Avenue, in the Pelham Gardens neighborhood of the Bronx, NY and is identified as Block 4393, Lot 1 on the New York City Tax Map. The Site is an approximately 0.644-acrea area and is bounded by Waring Avenue to the north, Astor Avenue to the south, Woodhull Avenue to the east, and Eastchester Road to the west. a two-story building along Astor Avenue connected to a one-story building along Eastchester Road. The building along Eastchester Road has a full basement, which is used for storage only. The Site is located in an R4A zoning district with a C-12 commercial overlay; a designation that typically denotes two- and three-story residential buildings with commercial uses that serve local retail needs. The building along Astor Avenue is currently occupied by medical offices, the one-story building along Eastchester Road is currently occupied by commercial units. Site occupants include a restaurant, an urgent care medical center and two real estate offices.

The objective of the Site Management Plan (SMP) is to maintain a negative pressure under the entire footprint of the Site building. The Site location is shown in Figure 1 of the SMP.

1.1 Background

Environmental investigations at the Site have documented elevated concentrations of chlorinated solvents in the soil vapor. There is the potential for an indoor air intrusion condition.

In order to address the potential for indoor air quality impacts from the sub-slab soil vapor, an active sub-slab depressurization system (SSDS) has been designed and was retrofitted into the existing building.

The goals of the active SSDS for the Site are to mitigate soil vapor intrusion into the existing onsite building, and to prevent off-Site migration of soil vapors.

1.2 Summary of Engineering Control (EC)

Engineering Controls (ECs) to address remaining contamination through physical protective measures at the Site has been incorporated to ensure that the Site remains protective of public health and the environment.

A sub-slab depressurization system (SSDS) was installed below the cellar foundation slab of the existing Eastchester Road building. The principal components of the SSDS include six four-inch diameter extraction pits that were cored through the existing concrete basement slab with a coring machine. A four-inch vertical PVC pipe was set within each pit, after which the concrete slab was repaired. The four-inch vertical PVC pipes were then connected to the existing header system, a moisture knock-out tank and a blower. The goal of the system was to create a pressure differential of at least -0.02 inches of water column (in-wc) between the cellar foundation slab and the sub-slab environment; however, differential pressure readings above -0.004 in-wc are considered acceptable. An alarm system was installed to notify the building management if a drop in pressure occurs, which indicates that the system is not operating as designed. The system was designed in general accordance with NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (NYSDOH Soil Vapor Guidance).

2.0 Engineering Control Operations

One temporary EC was incorporated into the new onsite building to address potential remaining contamination at the Site. The EC is:

- an active sub-slab depressurization system (SSDS)
- a sump treatment system
- post-remedial groundwater monitoring
- post-remedial indoor air monitoring

General design drawings and specifications are included in the Appendices.

2.1 Sub-Slab Depressurization System (SSDS)

The SSDS will reduce the potential for soil vapor migration into the new onsite building. The SSDS will be inspected at specific intervals as defined in this OM&M.

2.2 Sump Treatment System

The sump in the basement of the Eastchester Road building was retrofitted with a drum of Granular Activated Carbon (GAC) to treat the effluent prior to discharge to the sewer system and a tightfitting cover and/or rubber gasket to mitigate potential soil vapor intrusion into the building. The sump treatment system will remain operational in conjunction with the in-situ chemical oxidation (ISCO) groundwater treatment system. The sump treatment system will be inspected at specific intervals as defined in this OM&M.

2.3 Groundwater Monitoring

Long-term monitoring (minimum of eight quarterly events) of the groundwater will be conducted to confirm groundwater concentrations. All quarterly monitoring samples will be analyzed for VOCs.

While post-remedial groundwater monitoring is part of the selected remedy, it is presented as an EC because it will continue after the Final Engineering Report (FER) and Site Management Plan (SMP) are submitted.

2.4 Indoor Air Monitoring

Long-term monitoring (minimum of two annual events) of the indoor air of the Eastchester Road building will be conducted to confirm the efficacy of the active SSDS. All annual monitoring samples will be analyzed for VOCs.

While post-remedial indoor air sampling is part of the selected remedy, it is presented as an EC because it will continue after the FER and SMP are submitted.

3.0 Routine Maintenance and Monitoring

EC inspections will be performed by a person knowledgeable with the mechanical systems present in the building and familiar with the property and may include a building or property superintendent.

3.1 EC Inspection Frequency

Site inspection and certification for performance of the active SSDS will be performed on a schedule detailed in the SMP and reported in an annual Periodic Review Report (PRR).

3.2 EC Inspection Components

The EC inspections will evaluate the following:

- continued performance of ECs as designed;
- compliance with this RAWP;
- continued achievement of remedial performance criteria;
- accuracy and completeness of Site records;
- necessity for any changes to the remedial systems; and
- general Site conditions at the time of inspection.

In the event of an emergency, such as a natural disaster or an unforeseen failure of any of the ECs, an inspection of the ECs will be conducted by a Qualified Environmental Professional (QEP), as defined by NYSDEC.

3.3 Engineering Control (EC) Inspections

3.3.1 Sub-Slab Depressurization System (SSDS)

EC inspections of the SSDS components shall include the following:

- Observe visible components (fan, vacuum switch/alarm, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum switch/alarm tubing and riser pipe taps;
- Verify operation of vacuum switch/alarm by disconnecting tubing from riser pipe and noting if the system goes into alarm mode;
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe;
- Inspect power to fan by operating dedicated switch; and,
- Measurement of the sub-slab pressure at six monitoring points to ensure the fan and system components are intact and properly venting.

3.3.2 Sump Treatment System

EC inspections of the sump treatment system components shall include the following:

- Observe any visible components (pump, floats, pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in tubing or pipes;
- Inspect sump connections for proper seal;
- Inspect tubing and connections for leaks and tightness; and,
- Inspect carbon drum.

3.4 Inspection Reporting

EC inspections will be performed by a person with knowledge of the mechanical systems present in the building and familiar with the property. Such person may include a building or property superintendent. Inspections will be completed and reported to NYSDEC at the frequency detailed in Section 3.1. The letter report will include, at a minimum:

- Date of inspection;
- Personnel conducting inspection;

- Description of the inspection activities performed;
- Observations for each EC inspected, noting any deficiencies, conclusions and recommendations;
- Copies of inspection forms;
- Indoor air sampling results if applicable; and
- Certification of ECs, as discussed below.

PRR's containing the findings from inspections and associated certifications will be submitted to NYSDEC on an annual basis. PRR's will be submitted in digital format to NYSDEC. The Department will send a reminder notice indicating the date in which the PRR is due.

3.5 Certifications

The results of the EC inspections will be certified at the time of the inspection and the signed certifications included with the PRR.

The Inspection Certification will certify whether:

- on-site ECs are unchanged from the previous certification;
- on-site ECs remain in-place and effective;
- on-site ECs are performing as designed; and
- anything has occurred that would impair the ability of the controls to protect public health and the environment.

4.0 EMERGENCY CONTACT NUMBERS

In the event of any emergency condition pertaining to any EC, the current Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to a Qualified Environmental Professional (QEP), as defined by NYSDEC. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

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

Project Contact Numbers

Contact	Number
Matthew Carroll Tenen Environmental	(646) 606-2332 ext. 103

Appendix A

SSDS Design – As-Built

Legend

- Riser to First Floor
- Soil Vapor Venting Location
- Previous Soil Vapor Sample Location
- Extraction Pit
- Pressure Monitoring Point
- Permanent PVC Header

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MATTHEW M. CARROLL
091629
LICENSED PROFESSIONAL ENGINEER

0 15 30 60 Feet

NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

Site
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Bronx, New York
Block 4393, Lot 1

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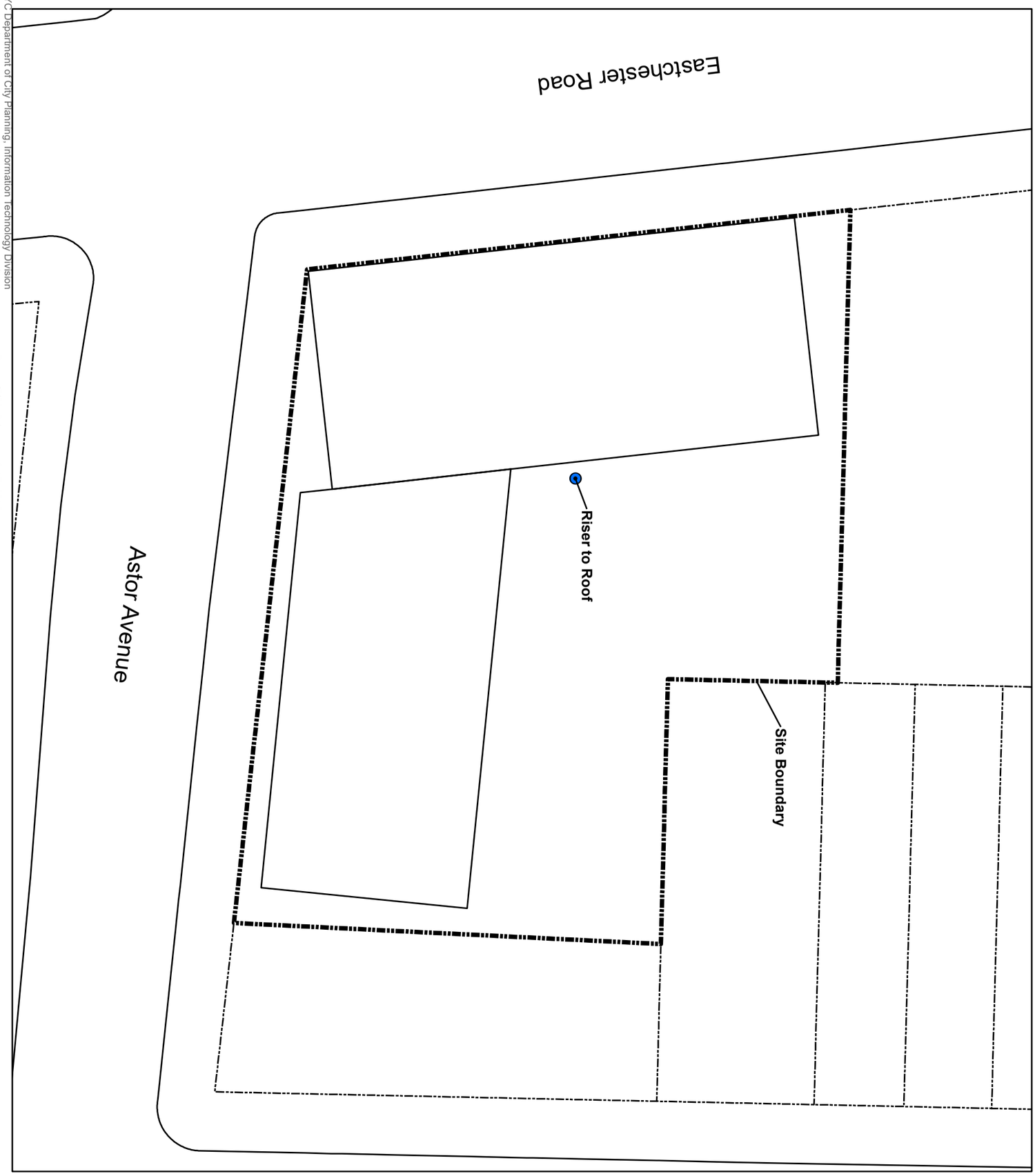
Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	MC	December 2021	As Noted

Drawing Title: **Proposed SSDS Layout - Cellar**

Drawing No: **Figure X-000.0**



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0 15 30 60 Feet

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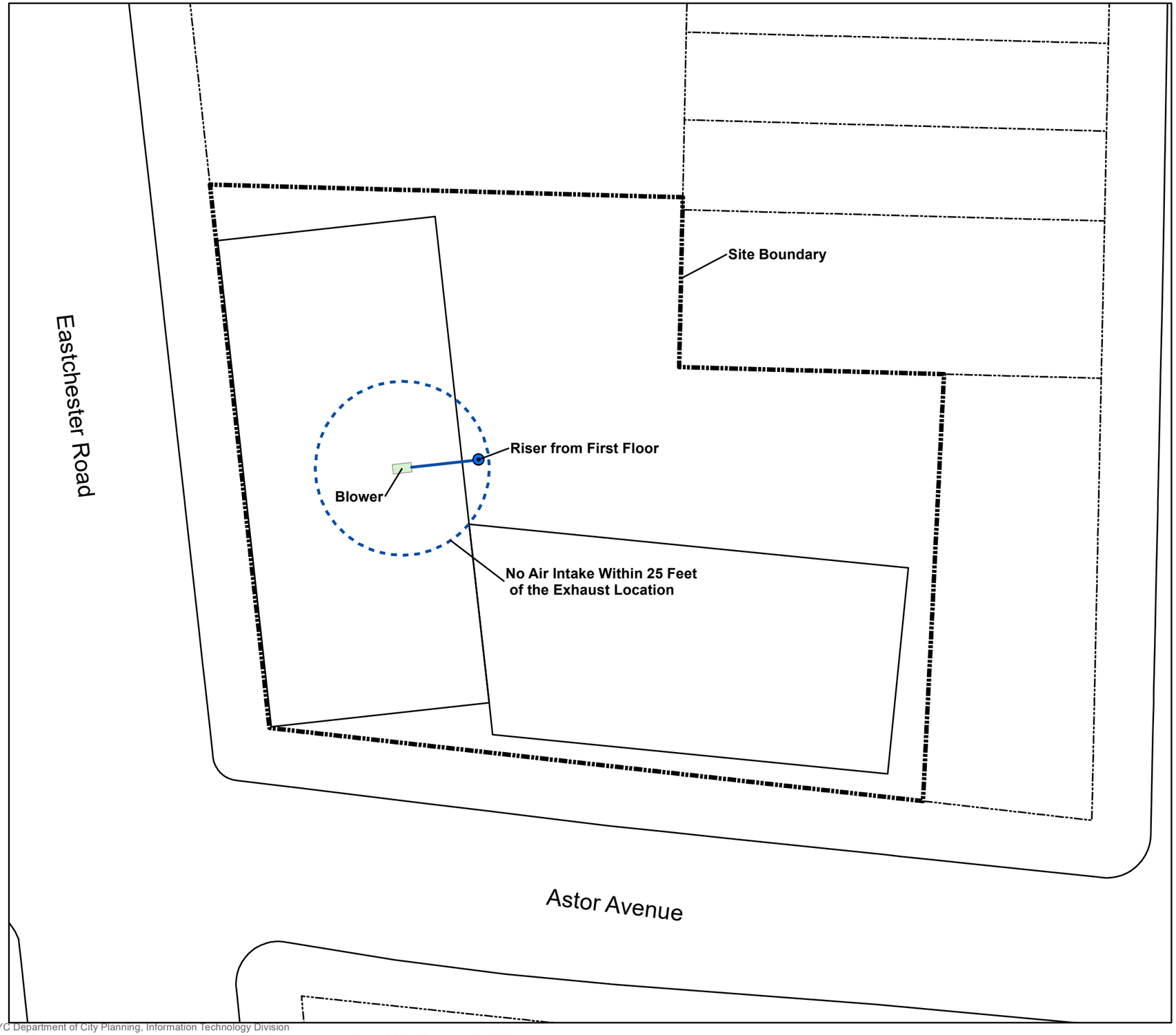
STATE OF NEW YORK
MATTHEW M. CARROLL
091629

Legend

Riser to Roof

Drawing Title: **Proposed SSDS Layout - First Floor**	Drawn By: LM	TENEN ENVIRONMENTAL	Site: **1500 Astor Avenue Bronx, New York Block 4393, Lot 1**
	Checked By: MC		
Drawing No: **Figure X-001.0**	Date: December 2021	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Scale: As Noted		



NYC Department of City Planning, Information Technology Division
Property Solutions Inc., Moorestown, NJ, 1500 Astor Avenue, Sampling Location Plan, 4/7/2016 & June 16-17, 2016

N
W
E
S

Legend

- Riser from First Floor
- Permanent PVC Header
- Blower

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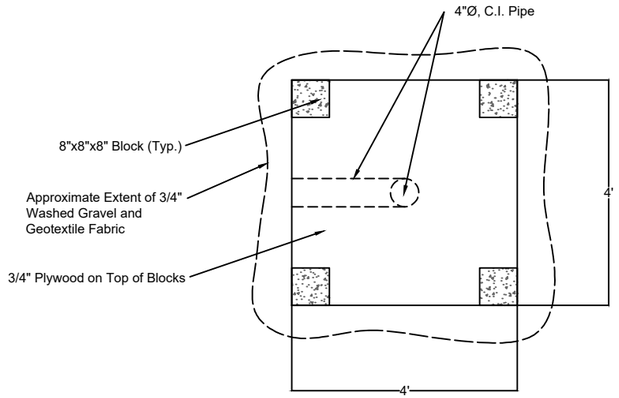
Drawn By	Checked By	Date	Scale
LM	MC	December 2021	As Noted

Drawing Title
Proposed SSDS Layout - Roof

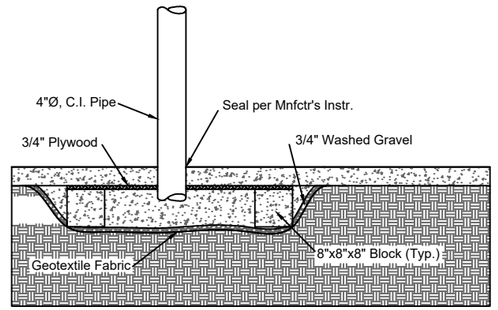
Drawing No
Figure X-002.0

1



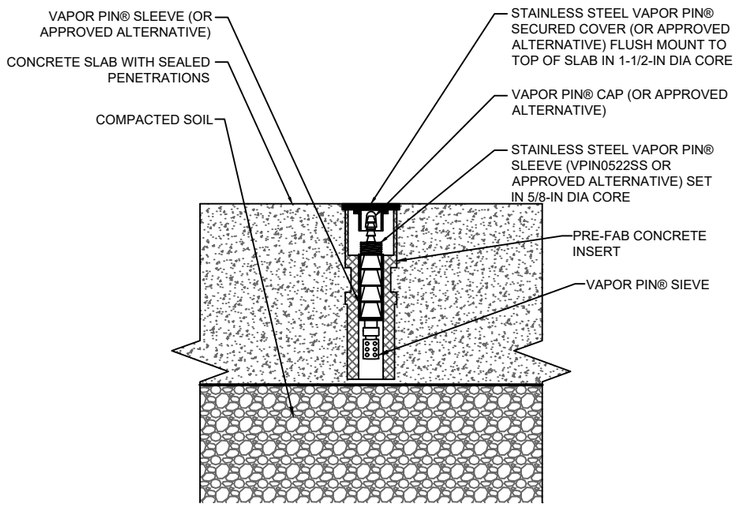
Suction Pit - Plan View

2



Suction Pit - Section View

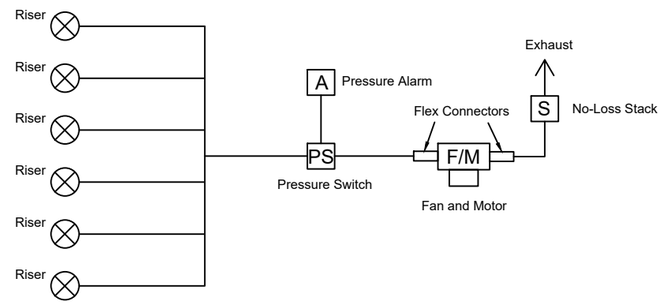
3



NOTE: TYPICAL CONSTRUCTION SHOWN IN THE DETAIL. CONTRACTOR MUST FOLLOW MANUFACTURER INSTRUCTIONS/MANUALS FOR ACTUAL CONSTRUCTION. USE VAPOR PIN ® EXTENSION 1.5 AS NECESSARY TO EXTEND SIEVE TO WITHIN ONE INCH BELOW SLAB

TYPICAL VACUUM MONITORING POINT (SECTION VIEW)
NOT TO SCALE

4



Sub-Slab Depressurization System - Schematic from Riser to Exhaust Location

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091629

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DRAWN BY	CHECKED BY	DATE	SCALE:
LM	MC	December 2021	As Noted

DRAWING TITLE: SSDS Details

DRAWING NO.: X-003.00

Appendix B

Sub-Slab Depressurization System (SSDS)

Routine Operating Procedures

The long-term operation and maintenance program described below shall continue throughout the life cycle of the SSDS to ensure a proper working order. The long-term operation and maintenance program for the major SSDS components includes manufacturer's recommendations for the reinstallation of SSDS components if modifications to the existing system need to be made, inspection procedures, an operation schedule, typical routine maintenance activities and schedules, and troubleshooting.

The alarm system, described below, shall run continuously and only be disconnected for routine maintenance and inspection activities or replacement. Each riser pipe is equipped with the following:

- OBAR Systems GBR25-R

The OBAR Systems GBR25-R includes a scaled adjustment knob to allow changes to the switching pressure to be made without a pressure gauge; the product is an SPDT pressure switch and alarm combination. The alarm is wired to send a signal remotely to the Eastchester Road building management system. In case there is a need to relocate a switch/alarm, the new location shall ensure that the switch/alarm remains in close proximity to the riser pipes and is installed correctly. If the device is not indicating a vacuum while the SSDS is on, staff will make sure that the tubing connected to the riser pipe is connected to the low pressure port. High pressure ports on the vacuum switch/alarm should be vented to atmosphere.

The vacuum switch/alarm does not require lubrication or periodic servicing. Repairs or alterations made to the vacuum switches by others will void the unit's warranty. The vacuum switches are factory calibrated and cannot be recalibrated in the field. The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix 11.

When testing the vacuum alarms, the tubing that connects the vacuum alarms to the riser pipe shall be disconnected and the low set point raised above the current reading. If the vacuum alarms are powered at the time of disconnecting the tubing from the riser pipe, the alarms will go

off. The alarms should go back on-line when the tubing is reconnected to the riser pipe. If the system is in alarm when there is a vacuum present in the riser pipe, inspect the tubing and riser pipe tap to ensure that there are no blockages. If there is a blockage in either the tubing or the riser pipe tap, remove the blockage and retest the vacuum alarm/monitor.

The SSDS fans shall operate continuously and only be turned off for routine maintenance and inspection activities or replacement. The SSDS fans shall not be left on the system piping without electrical power for more than 48 hours due to possible fan failure that could result from this non-operational storage. The SSDS fan units do not require periodic servicing and should be returned to the manufacturer or supplier for service. Repairs or alterations made to the SSDS fan units by others will void the unit's warranty. The installation and operating instructions for the SSDS fan units have been included in Appendix 9.

Inspections of the SSDS components shall include the following:

- Observe visible components (fan, vacuum switch/alarm, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum switch/alarm tubing and riser pipe taps;
- Verify operation of vacuum switch/alarm by disconnecting tubing from riser pipe and noting if the system goes into alarm mode;
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe;
- Inspect power to fan by operating dedicated switch; and,
- Measurement of the sub-slab pressure at six monitoring points to ensure the fan and system components are intact and properly venting.

Common troubleshooting tips that can be followed if the vacuum switch/alarm will not indicate a vacuum or is sluggish include the following:

- The pressure ports (high or low) are not hooked up correctly;
- The fittings or sensing lines are blocked, pinched or leaking;
- The cover is loose;
- The pressure sensor is improperly located;

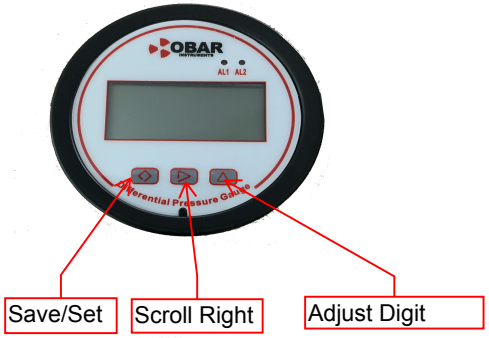
- The ambient temperature is too low (below 20-deg C)

The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix C. The installation and operating instructions for the fan unit have been included in Appendix D.

Appendix C

SSDS Vacuum Switch and Alarm

GBR 25R Relay Gauge Programing Guide



The gauge is pre-set to:
Audible and Visual alarm with visual being displayed as "Lo"
Display is set to:
inches of W.C. Refresh: every 5 seconds. Alarm: activated at pressure less than 1.0" W.C. Alarm Delay: 0

Available Programs

The GBR series gauge/alarm are programmable for the following changes indicated by P# and setting #
P081 Display pressure readings in units of: #1 pascals, #2 K-pascals, #3 mbar, #4 mm water column, #5 inches water column
P075 Refresh display: 0.5, 1, 5, or 10 seconds
P401 or 402 to set relays

Steps to Access a Program

In each case to change a program setting use the following initial steps:
Press Save/Set button and P000 will appear. Press Scroll Right button to Select first digit 0. Press Adjust Digitbutton to enter program number for that digit.
Press Scroll Right button to select second, third or first digit and press Adjust Digit button to set the program number .
Once program number is set, press Save/Set Button to begin adjusting the program setting to the desired function.
After inputting the number representing the desired function, hold the Save/Set button to input the setting for that function and the gauge will return to displaying the system pressure.

P081 Pressure Units
(Preset to Inches of WC)
1. Activate P081 programing
2. Press Adjust Digit button to select a unit.
1= Pascal, 2=K Pascal, 3= mbar,
4= mm W.C., 5= in W.C.
3. Hold Save/Set button to input new settings

P075 Refresh Delay
(Preset to refresh every 5 Sec)
1. Activate P075 programing
2. Press Adjust Digit button to select refresh delay.
Refresh delay choices are 0.5, 1, 5, 10 seconds
3. Hold Save/Set button to input new settings

P302 Alarm Audible option
(Preset Audible & Visual)
1. Activate P302 programing
2. Press Adjust Digit button to select
1 for Audible & Visual alarm
0 for Visual alarm only.
3. Hold Save/Set button to input new settings

To Re Zero Display
1. Disconnect tubing from suction pipe.
2. Hold Scroll Right button for 5 seconds
3. Display should read zero
4. Reconnect tubing into the suction pipe

P810 Factory Reset
(Factory Setting is alarm off)
1. Activate P810 programing
2. Hold Save/Set button to revert to Factory Settings

P401 and 402 Relay Activation Pressure
(Preset to 250 Pa or 1.0" WC)
1. Activate P401 or 402 programing
2. Press Adjust Digit button and select 1.
0 turns off relay
1, 2, 3 & 4 are high versus low alarm variations
3. Press Save/Set button to next set low activation pressure
4. Pressure setting is made in Pascals (00250.0 Pa = 1"WC)
5. Use Scroll Right and Adjust Digit button to specify desired low activation pascal pressure
6. Press Save/Set button to set specified low pressure
7. Next display is high pressure setting used for high low variations
High pressure setting used if 2, 3 or 4 was initially programed.
8. Press Save/Set button to next set and specify 0 for Alarm Delay.
9. Press Save/Set button to next specify 0 for Restore Delay
10 Press Save/Set Button and system pressure is displayed

Appendix D

SSDS Fan and Motor

RadonAway®

The world's leading radon fan manufacturer

HS Series Installation & Operating Instructions

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

1. **WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible or flammable materials.

2. **WARNING!** Check voltage at the fan to ensure it corresponds with nameplate. See Vapor Intrusion Application Note #AN001 for important information on VI Applications. RadonAway.com/vapor-intrusion

3. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.

4. **NOTICE!** There are no user serviceable parts located inside the fan unit.
   Do NOT attempt to open. Return unit to the factory for service.

5. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA) "National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician.

6. **WARNING!** In the event that the fan is immersed in water, return unit to factory for service before operating.

7. **WARNING!** Do not twist or torque fan inlet or outlet piping as leakage may result.

8. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.

9. **WARNING!** TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

   a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

   b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1 INTRODUCTION

The HS Series Fan is intended for use by trained, certified/licensed, professional radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of the HS Series Fan. This instruction should be considered as a supplement to EPA/Radon Industry standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2 ENVIRONMENTALS

The HS Series Fan is designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the HS Series Fan should be stored in an area where the temperature is always greater than 32°F or less than 100°F. The HS Series Fan is thermally protected such that it will shut off when the internal temperature is above 194°F +/- 9°F (90°C +/- 5°C). If the HS Series Fan is idle in an area where the ambient temperature exceeds this shut off, it will not restart until the internal temperature falls below 104°F.

1.3 ACOUSTICS

The HS Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. Recommended system design and installation considerations to minimize noise: When installing the HS Series Fan above sleeping areas, select a location for mounting at the farthest possible distance. Avoid mounting near doors, fold-down stairs or other uninsulated structures which may transmit sound. Ensure a solid mounting for the HS Series Fan to avoid structure-borne vibration or noise.

The velocity of the outgoing air must also be considered in the overall system design. With small diameter piping, the “rushing” sound of the outlet air can be disturbing. The system design should incorporate a means to slow and quiet the outlet air. The use of the RadonAway Exhaust Muffler, p/n 24002, is strongly recommended.

1.4 GROUND WATER

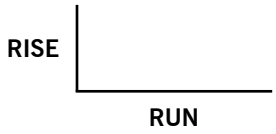
Under no circumstances should water be allowed to be drawn into the inlet of the HS Series Fan as this may result in damage to the unit. The HS Series Fan should be mounted at least 5 feet above the slab penetration to minimize the risk of filling the HS Series Fan with water in installations with occasional high water tables.

In the event that a temporary high water table results in water at or above slab level, water will be drawn into the riser pipes thus blocking air flow to the HS Series Fan. The lack of cooling air will result in the HS Series Fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, power down and disconnect the HS Series Fan until the water recedes allowing for return to normal operation; then reconnect and power on to turn the fan back on.

1.5 CONDENSATION & DRAINAGE

WARNING!: Failure to provide adequate drainage for condensation can result in system failure and damage the HS Series Fan.
Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation.

The use of small diameter piping in a system increases the speed at which the air moves. The speed of the air can pull water uphill and, at sufficient velocity, it can actually move water vertically up the side walls of the pipe. This has the potential of creating a problem in the negative pressure (inlet) side piping. For HS Series Fan inlet piping, the following table provides the minimum recommended pipe diameters as well as minimum pitch under several system conditions. Use this chart to size piping for a system.



Pipe Diameter	Minimum Rise per 1 Foot of Run*		
	@ 25 CFM	@ 50 CFM	@ 100 CFM
4”	1/32”	3/32”	3/8”
3”	1/8”	3/8”	1 1/2”

*Typical operational flow rates:

HS2000 12 - 63 CFM
HS3000 19 - 39 CFM
HS5000 16 - 44 CFM

All exhaust piping should be 2” PVC.

1.6 SYSTEM MONITOR & LABEL

A properly designed system should incorporate a “System On” indicator for affirmation of system operation. A Magnehelic pressure gauge is recommended for this purpose. The indicator should be mounted at least 5 feet above the slab penetration to minimize the risk of filling the gauge with water in installations with occasional high water tables. A System Label (P/N 15022) with instructions for contacting the installing contractor for service and also identifying the necessity for regular radon tests to be conducted by the building occupants, must be conspicuously placed where the occupants frequent and can see the label.

1.7 SLAB COVERAGE

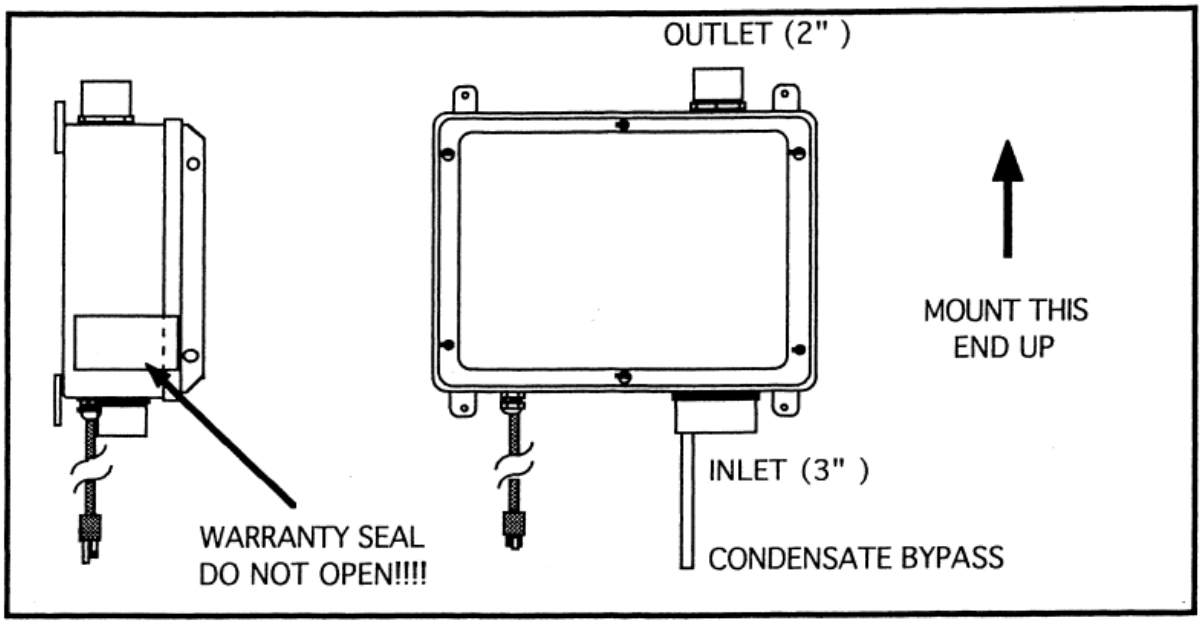
The HS Series Fan can provide coverage of well over 1000 sq. ft. per slab penetration. This will, of course, depend on the sub-slab aggregate in any particular installation and the diagnostic results. In general, sand and gravel are much looser aggregates than dirt and clay. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size; larger as needed) be created below the slab at each suction hole. When fine sand or dirt is present it is recommended that the pit be lined with a material such as clean gravel, size 4, 5, 56, or 6 as classified (ASTM C33).

1.8 ELECTRICAL WIRING

For models with a cord, the HS Series Fan plugs into a standard 120V outlet. The switch box models are hardwired. All wiring must be performed in accordance with the National Fire Protection Association’s (NFPA)”National Electrical Code, Standard #70”-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician. Outdoor installations require the use of a UL listed watertight conduit. Ensure that all exterior electrical boxes are outdoor rated and properly caulked to prevent water penetration into the box. A means, such as a weep hole, is recommended to drain the box.

1.9 SPEED CONTROLS

Electronic speed controls can **NOT** be used on HS Series units.



2.0 INSTALLATION

2.1 MOUNTING

Mount the HS Series Fan to the wall studs, or similar structure, in the selected location with (4) 1/4" x 1 1/2" lag screws (not provided). Ensure the HS Series Fan is both plumb and level.

2.2 DUCTING CONNECTIONS

Make final ducting connection to HS Series Fan with flexible couplings. Ensure all connections are tight. Do not twist or torque inlet and outlet piping on HS Series Fan or leaks may result.

NOTE: Do NOT solvent weld fittings to unit hubs.

2.3 VENT MUFFLER INSTALLATION

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed above the roofline at the end of the vent pipe.

2.4 OPERATION CHECKS & ANNUAL SYSTEM MAINTENANCE

_____ **Verify** all connections are tight and **leak-free**.

_____ **Ensure** the HS Series Fan and all ducting is secure and vibration-free.

_____ **Verify** system vacuum pressure with Magnehelic. **Ensure** vacuum pressure is within normal operating range and **less than** the maximum recommended as shown below:

HS2000 14" WC
HS3000 21" WC
HS5000 35" WC

(Above are based on sea-level operation, at higher altitudes reduce above by about 4% per 1000 Feet.)
If these are exceeded, increase number of suction points.

_____ **Verify Radon levels** by testing to EPA Protocol and applicable testing standards.

Addendum

Product Specifications

Model	Maximum Static Suction	Recommended Maximum Static Suction	Typical CFM vs Static Suction WC (Recommended Operating Range)						Power* Watts @ 115VAC
			0"	10"	15"	20"	25"	35"	
HS2000	16"	14"	62	40	23	-	-	-	153-314
HS3000	24"	21"	39	30	25	19	-	-	120-250
HS5000	41"	35"	43	35	32	28	24	18	349-381
HS2000E	16"	14"	62	40	23	-	-	-	153-314
HS3000E	24"	21"	39	30	25	19	-	-	120-250
HS5000E	41"	35"	43	35	32	28	24	18	349-381

**Power consumption varies with actual load conditions*

Inlet: 3.0" PVC

Outlet: 2.0" PVC

Mounting: Brackets for vertical mount

Weight: Approximately 18 lbs

Size: Approximately 15"W x 13"H x 8"D

Minimum recommended inlet ducting (greater diameter may always be used):

HS3000, HS5000 --- 2.0" PVC Pipe

HS2000 --- Main feeder line of 3.0" or greater PVC Pipe

Branch lines (if 3 or more) may be 2.0" PVC Pipe

Outlet ducting: 2.0" PVC

Storage Temperature Range: 32°F-100°F

Thermal Cutout: 194°F +/- 9°F (90°C +/- 5°C)

Locked rotor protection

Internal condensate bypass

IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the RadonAway® HS Series Fan for shipping damage within 15 days of receipt. **Notify RadonAway® of any damages immediately.** RadonAway® is not responsible for damages incurred during shipping.

There are no user serviceable parts inside the fan. **Do not attempt to open the housing.** Return unit to factory for service.

Install the HS Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

Provide a copy of this instruction or comparable radon system and testing information to the building occupants after completing system installation.

Warranty

RadonAway® warrants that the HS Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway® will repair or replace any Fan which fails due to defects in materials or workmanship during the Warranty Term. The Fan must be returned (at Owner's cost) to the RadonAway® factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway®.

1 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION

RadonAway® will extend the Warranty Term of the fan to twelve (12) months from date of installation or fifteen (15) months from the date of manufacture, whichever is sooner, if the Fan is installed in a professionally designed and professionally installed active soil depressurization system or installed as a replacement fan in a professionally designed and professionally installed active soil depressurization system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. RadonAway® is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE HS SERIES FAN IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY® BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway® for a Return Material Authorization (RMA) Number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping costs to and from factory.

RadonAway®
3 Saber Way
Ward Hill, MA 01835 USA
TEL (978) 521-3703
FAX (978) 521-3964
Email to: Returns@RadonAway.com

Record the following information for your records:

Serial No. _____

Purchase Date: _____