LAMBERT HOUSES PARCEL 5

2080 AND 2082 BOSTON ROAD

BRONX, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C203136

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau B
625 Broadway, 12th Floor
Albany, New York 12233

Prepared On Behalf Of:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2023

CERTIFICATION STATEMENT

I, Rebecca Kinal, PE, certify that I am currently a New York State registered professional engineer 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).

_____ Rebecca A. Kinal, NYS Professional Engineer #082046

12/11/2023 DATE

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LIST OF ACRONYMS

Acronym	Definition
ASTM	American Society for Testing and Materials
AWQSGVs	Ambient Water Quality Standards and Guidance Values
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below Ground Surface
CAMP	Community Air Monitoring Plan
cfm	Cubic Feet per Minute
CFR	Code of Federal Regulations
COC	Certificate of Completion
CO	Certificate of Occupancy
CPP	Citizen Participation Plan
CVOC	Chlorinated Volatile Organic Compound
DD	Decision Document
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
EE	Environmental Easement
ESA	Environmental Site Assessment
EWP	Excavation Work Plan
FER	Final Engineering Report
GPA	Gas Permeable Aggregate
HASP	Health and Safety Plan
IC	Institutional Control
mg/m^3	Milligrams per Cubic Meter
MTA	Metropolitan Transportation Authority
NY	New York
NYC	New York City
NYCDOHMH	New York City Department of Health and Mental Hygiene
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OER	New York City Office of Environmental Remediation
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PE	Professional Engineer

Acronym	Definition
PFAS	Per- and Polyfluoroalkyl Substances
PGWSCO	Protection of Groundwater Soil Cleanup Objective
PID	Photoionization Detector
ppm	Parts per Million
PRR	Periodic Review Report
PVC	Polyvinyl Chloride
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
RRSCO	Restricted Residential Soil Cleanup Objective
RSO	Remedial Site Optimization
SCGs	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SI	Site Investigation
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-slab Depressurization System
SVIE	Soil Vapor Intrusion Evaluation
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
TOGS	Technical Operational and Guidance Series
UST	Underground Storage Tank
UUSCO	Unrestricted Use Soil Cleanup Objective
VI	Vapor Intrusion
VIWP	Vapor Intrusion Work Plan
VMP	Vacuum Monitoring Point
VOC	Volatile Organic Compound

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 (SMP):

Table I
Site Management Plan Summary

Site Identification:	BCP Site Identification No. C203136 2080 and 2082 Boston Road Bronx, New York
Institutional Controls (ICs):	1. The property may be used for restricted residential, commercial, or industrial use, as set forth in the Environmental Easement.
	2. The Engineering Control (EC) must be operated and maintained as specified in this SMP.
	3. The EC 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 New York State Department of Health (NYSDOH) and the New York City Department of Health and Mental Hygiene (NYCDOHMH) 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 New York State Department of Environmental Conservation (NYSDEC).
	5. Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP.
	6. All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP.
	7. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.
	8. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP.
	9. 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.
	10. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries, and any potential impacts that are identified must be monitored or mitigated.
	11. In-ground vegetable gardens and farming on the Site are prohibited.

Engineering Control (EC):	Site Cover System (Track 4 area)
Inspections:	Frequency
1. Site Cover System Inspection	Annually
Reporting:	
Periodic Review Report (PRR)	First PRR 16 months after receipt of Certificate of Completion. Annually thereafter.

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Lambert Houses Parcel 5 site located at 2080 and 2082 Boston Road in the Bronx, New York (hereinafter referred to as the "Site"). The Site is currently enrolled in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C203136, which is administered by New York State Department of Environmental Conservation (NYSDEC). A Site Location map is provided as Figure 1.

Boston Tremont Housing Development Fund Corporation entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC on July 23, 2020 (index no. C203136-07-20) as a Participant to remediate the Site. The BCA was amended on May 4, 2021 to add Boston Tremont Apartment LLC and 2080 Boston Road Associates, LLC to the BCA; on August 19, 2021 to update the Site address; on February 2, 2022 to add 2080 Boston Road Associates II, LLC (as a beneficial owner) and 2080 Boston Road Housing Development Fund Corporation (as a fee owner) to the BCA; and, on July 18, 2023 to identify 2080 Boston Road Associates, LLC as a beneficial owner and designate the Site as an affordable housing project. Boston Tremont Housing Development Fund Corporation, Boston Tremont Apartment LLC, 2080 Boston Road Associates, LLC, 2080 Boston Road Associates II, LLC, and 2080 Boston Road Housing Development Fund Corporation are collectively referred to as "the Requestors." The Site was remediated to a combination of Track 1 Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Track 4 Restricted Residential Soil Cleanup Objectives (RRSCOs) in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP), Final Engineering Report (FER), and Decision Document (DD), as described in this SMP. Figure 2 shows the Site Plan and boundaries of the Site. The Track 4 portion of the Site is subject to the Environmental Easement (EE), provided in Appendix A. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the EE.

After completion of the remedial work, some contamination was left in the Track 4 area of the Site, which is hereafter referred to as "remaining contamination." Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination and ensure protection of public health and the environment. An EE granted to NYSDEC, and recorded with the Bronx County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site.

This SMP was prepared to manage remaining contamination at the Site until the EE is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. This plan has been approved by NYSDEC, and compliance with this plan is required by the grantor of the EE 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 EE. Failure to properly implement the SMP is a violation of the EE, which is grounds for revocation of the Certificate of Completion (COC); and
- Failure to comply with this SMP is also a violation of ECL, 6 New York Codes, Rules and Regulations (NYCRR) Part 375, and the BCA (Index # C203136-07-20; Site #C203136) for the 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 NYS. A list of contacts for persons involved with the Site is provided in Appendix B of this SMP.

This SMP was prepared by AKRF Inc. (AKRF), on behalf of the Requestors, in accordance with the requirements of NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the EE for the Site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC Project Manager. NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the Site conditions. In accordance with the EE for the Site, the 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:

1. 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 ECL.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (EWP). If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or ECs 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.
5. Notice within 48 hours of any non-routine maintenance activities.
6. 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.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to 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:

1. 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; and
2. 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 II includes contact information for these notifications. 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 B.

Table II
Notifications*

Company/Regulator	Contact Name	Contact Title	Contact Information
NYSDEC	Michael D. MacCabe, P.E.	Project Manager	518-402-9687
	Sarah Quandt	Section Chief	518-402-9116
	Kelly Lewandowski	Chief, Site Control	518-402-9553
NYSDOH	BEEI@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 County of the Bronx, New York, and is identified as Block 3140 and Lot 7 on the New York City (NYC) Tax Map. The approximately 76,665-acre area is bounded by East 180th Street to the north, followed by River Park and the Bronx Zoo; the Bronx River to the east, followed by River Garden and automotive, commercial, and industrial properties; residential buildings and East 179th Street to the south, followed by the elevated 2 and 5 Metropolitan Transit Authority (MTA) subway tracks; and Boston Road to the west, followed by residential apartment buildings. Figure 1 shows the location of the Site, with a more detailed view of the Site provided as Figure 2. The boundaries of the Site are more fully described in the EE, provided as Appendix A. The owner and operator of the Site parcel at the time of issuance of this SMP are 2080 Boston Tremont Housing Development Fund Corporation, 2080 Boston Road Associates, LLC, and 2080 Boston Road Associates II, LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site is currently being redeveloped with a new 7- to 17-story residential building with landscaped areas and an approximately 6,680-square-foot detached one-story garage/storage building in the southern portion of the Site. When completed, the building will contain approximately 279 units of affordable housing. The residential building includes a partial cellar in the northern portion of the Site for housing utilities (water room, electric room, detention tank, etc.). The Site is zoned residential (R-8/R7-1). There are currently no occupants at the Site.

2.2.2 Geology

Based on an August 2019 survey of the Site by Montrose Surveying Co., LLP, the Site slopes down to the northeast and lies at elevations ranging from 14.48 feet to 29.67 feet above the North American Vertical Datum of 1988 (NAVD88).

Based on field observations during previous investigations, including AKRF's May 2021 Remedial Investigation (RI), the stratigraphy of the Site generally consisted of historic fill comprising sand, gravel, and silt with varying amounts of concrete, brick, and asphalt from surface grade to between 3 and 18 feet below ground surface (bgs). The fill was underlain by sand and silt with gravel or weathered bedrock observed at variable depths ranging from 2 to 18 feet bgs in the western portion of the Site, and approximately 3 to 15 feet bgs in the southern and eastern portions of the Site. Based on a March 2020 geotechnical investigation conducted by Haley & Aldrich of New York, bedrock was noted on-site at depths ranging from approximately 3 to 43 feet bgs. Bedrock was encountered at depths ranging from 3 to 8 feet bgs in the northwestern portion of the Site (Track 1 area) during the remedial action.

2.2.3 Hydrogeology

Based on Site-specific groundwater measurements collected during the RI, groundwater beneath the Site ranges from approximately 5.196 to 5.867 feet NAVD88 (or approximately 13.5 to 14 feet bgs). Regionally, groundwater flows in a generally easterly direction toward the Bronx River, which is located east-adjacent to the Site.

2.3 Investigation and Remedial History

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. Copies of all reports and documents referenced were placed in the Site document repositories.

Phase I Environmental Site Assessment, Lambert Houses (Bronx Borough Block 3138, Lots 1 and 45; Block 3132, Lot 1; Block 3139, Lots 1, 19, and 50; and Block 3140, Tax Lot 7), AKRF, Inc., July 2015

AKRF conducted a Phase I Environmental Site Assessment (ESA) in conformance with the American Society of Testing Materials (ASTM) Standard E1527-13 and a Tier 1 Vapor Encroachment Screen in accordance with ASTM Standard E2600-15, which were documented in a July 2015 Phase I ESA Report. The assessment revealed the following for the Site:

- A portion of the Site was developed historically with the Metropolitan Dye Works, including a Benzine (petroleum distillate) House and a Mat Factory from 1896 to 1977, and the "United Metal Con'd Door and Sash Co. Inc." from 1915 to 1977. Certificates of Occupancy (COs) for the Site indicated a motor vehicle repair shop from 1949 to 1965, manufacturing in 1957, and a furniture repair and refinishing shop in 1962 and 1965.
- The surrounding area was historically developed with light manufacturing, dry cleaning, storage, and automotive uses.

Subsurface Investigation Letter Report, Lambert Houses Parcel 5 (Bronx Borough Block 3140, Lot 7), AKRF, Inc., February 2020.

AKRF conducted a Subsurface Investigation (SI) in accordance with a New York City Office of Environmental Remediation (OER)-approved work plan, which was documented in a February 2020 SI Letter Report. The scope of the SI included: a geophysical investigation across accessible areas of the Site; advancement of 12 soil borings across the Site with continuous sample collection and laboratory analysis of 21 samples to evaluate soil quality; installation of 4 temporary groundwater monitoring wells with the collection of 4 groundwater samples for laboratory analysis to evaluate groundwater quality; and installation of 9 temporary soil vapor probes with the collection of 9 soil vapor samples.

Weathered bedrock was observed beneath the Site at highly variable depths ranging from 2 feet to 5.5 feet below ground surface (bgs)and 2 duplicate samples; the installation of 2 permanent groundwater monitoring wells with collection and laboratory analysis of 3 groundwater samples and 2 blind duplicate samples; the installation of 6 temporary soil vapor points with collection and laboratory analysis of 6 soil vapor samples; and the performance of a groundwater monitoring well elevation survey to determine groundwater elevations beneath the Site. The results of the RI are summarized below:

- The stratigraphy of the Site generally consisted of fill material (comprising sand, gravel, silt, concrete, wood, brick, and asphalt) extending from surface grade to between 3 and 8 feet bgs. The fill was underlain by sand and silt with gravel or weathered bedrock observed at variable depths ranging from 2 to 5.5 feet bgs along the western portion of the Site, and to approximately 18 feet bgs on the southern and eastern portions of the Site.
- Based on Site-specific groundwater measurements, groundwater beneath the Site ranged from 5.196 to 5.867 feet above NAVD88 (or approximately 13.57 to 13.94 feet bgs). Regionally, groundwater flows in a generally easterly direction.

- Based on the RI results, the primary contaminants of concern at the Site included: polycyclic aromatic hydrocarbons (PAHs) [a class of SVOCs], pesticides, polychlorinated biphenyls (PCBs), and metals in soil/fill above the 6 NYCRR Part 375 RRSCOs and/or UUSCOs; CVOCs in groundwater; and chlorinated solvent-related VOCs in soil vapor. Detected concentrations were likely attributed to former on-site uses and the quality of the historic fill at the Site, which is of unknown origin.
- The CVOCs vinyl chloride and cis-1,2-dichloroethene were detected above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1. Ambient Water Quality Standards and Guidance Values (AWQSGVs) in the groundwater sample collected from the southeastern portion of the Site, as well as the associated blind duplicate sample. These compounds are breakdown products of PCE and TCE, which were identified in the groundwater sample at estimated trace concentrations well below their AWQSGVs. The metals iron (total and dissolved), manganese (total and dissolved), lead (total), and sodium (total and dissolved) were also detected above their respective AWQSGVs in one or more samples. The elevated CVOC concentrations in groundwater are most likely related to historical on-site uses and/or regional groundwater quality.
- Chlorinated solvent-related VOCs (including TCE and PCE, and the associated breakdown products) were detected at elevated concentrations in one or more soil vapor samples collected, with the highest concentrations detected in the samples collected from the southern portion of the Site. CVOCs were not detected in the soil samples. The concentrations of VOCs in soil vapor are likely related to historical on-site and/or surrounding property uses.

Brownfield Cleanup Program Application – Lambert Houses Parcel 5, 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., March 2020, Revised April 2020

AKRF prepared a BCP Application for the Site in March 2019, and a revised application in April 2019, which discussed soil, groundwater, and soil vapor contamination associated with the Site's former uses.

Citizen Participation Plan, Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., January 2021

AKRF prepared a Citizen Participation Plan (CPP) for the Site in January 2021, which provided details on major issues of public concern related to the Site and surrounding areas. The CPP provided this information to the public and encouraged citizen involvement in decisions being made about the Site regarding their health.

BCA – 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., April 2021

The Site was entered into the BCP in July 2020 (BCA Index No. C203136-07-20).

BCA Amendment No. 1 – Lambert Houses Parcel 5, 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., May 2021

AKRF prepared a BCA amendment application in April 2021 to add two new entities to the BCA: Boston Tremont Apartments LLC and 2080 Boston Road Associates, LLC. The amendment was approved on May 4, 2021.

BCA Amendment No. 2 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., August 2021

AKRF prepared a second BCA amendment application in July 2021 to modify the Site address to 2080 and 2082 Boston Road. The amendment was approved on August 19, 2021.

Remedial Action Work Plan, 2080 and 2082 Boston Road, Bronx, New York, AKRF Inc., September 2021

AKRF prepared a Remedial Action Work Plan (RAWP) in September 2021, which outlined the remedial activities and cleanup objectives for the Site. The RAWP proposed the following: excavation and removal of soil/fill exceeding UUSCOs to achieve a Track 1 cleanup within the footprint of the proposed new multi-story residential building; excavation of soil/fill to achieve a Track 4 cleanup for the remainder of the Site; and excavation and removal of any unknown underground storage tanks (USTs) and associated piping encountered during the excavation in accordance with applicable federal, state, and local laws and regulations, as defined by 6 NYCRR Part 375-6.8. The remedy also included the installation of ICs/ECs, including the installation of a passive sub-slab depressurization system (SSDS) into the proposed building design as part of construction.

RAWP approval and the NYSDEC DD were both issued in September 2021.

BCA Amendment No. 3 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., February 2022

AKRF prepared a third BCA amendment application in December 2021 to document the addition of "New Requestors" to the BCA—2080 Boston Road Associates II, LLC and 2080 Boston Road Housing Development Fund Corporation—and to modify the BCA to reflect the transfer of title and conveyance of a beneficial interest to the New Requestors. The amendment was approved on February 2, 2022.

BCA Amendment No.4 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., June 2023

AKRF prepared a fourth BCA amendment application in June 2023 to reflect the transfer of title and conveyance of a beneficial interest to 2080 Boston Road Associates, LLC (existing Requestor) and to document the BCP site as an affordable housing project. The amendment was approved on July 18, 2023.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site, as listed in the DD dated September 2021, 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

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater 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

The Site was remediated to a combination of Track 1 and Track 4 Cleanup standards. Excavation in the Track 1 area was extended down to bedrock to remove all overburden soil/fill, but contamination remains in the subsurface in the Track 4 portion of the Site. Post-excavation soil endpoint samples were collected from the Track 4 portion to document the remaining contamination and confirm removal of source material. The extent of remedial excavation is shown on Figure 3. All endpoint sample results were compared to the 6 NYCRR Part 375 UUSCOs and RRSCOs, as shown in Attached Tables 1 through 6. The endpoint sample locations and exceedances compared against the UUSCOs and RRSCOS are shown on Figures 4A and 4B.

2.5.2 Groundwater

Groundwater quality was characterized during previous investigations and the RI, which were conducted prior to entering the BCP. The CVOCs vinyl chloride and cis-1,2-dichloroethene were detected above the AWQSGVs in the groundwater sample collected from the southeastern portion of the Site. These compounds are breakdown products of the CVOCs PCE and TCE, which were identified in the groundwater sample at estimated trace concentrations well below their AWQSGVs. Additionally, the metals iron (total and dissolved), manganese (total and dissolved), lead (total), and sodium (total and dissolved) were detected above their respective AWQSGVs in one or more samples. However, these detections were attributed to regional groundwater quality, and thus remediation of groundwater was not required as a component of the DD.

Groundwater use at the Site is subject to the ICs documented within the EE and is restricted for use as a source of potable or process water without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or New York City Department of Health and Mental Hygiene (NYCDOHMH).

2.5.3 Soil Vapor

Elevated concentrations of select CVOCs were detected in one or more soil vapor samples collected from the Site during the RI. The concentrations of CVOCs in soil vapor are likely related to historical on-site and/or surrounding property uses.

Any remaining VOCs in soil vapor will be mitigated by the vapor mitigation systems, consisting of a vapor barrier and passive SSDSs (below the building slabs). The SSDS has the capability to become an active system, if necessary (refer to Section 3.3.2).

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site (in the Track 4 portion), ICs and 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 Project Manager.

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 EE;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of the plans and procedures to be followed for implementation of ICs/ECs, such as the implementation of the EWP (provided in Appendix C) 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 project manager.

3.2 Institutional Controls

A series of ICs is required by NYSDEC's September 2021 DD to: (1) implement, maintain, and monitor ECs; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the Site to restricted residential, commercial, and/or industrial uses only. The ICs are applicable to the Track 4 portion of the Site (see Figure 3). Adherence to these ICs on the Site is required by the EE and will be implemented under this SMP. ICs identified in the EE may not be discontinued without an amendment to or extinguishment of the EE. The IC boundaries are shown on Figure 3. The ICs for the Site include the following:

- The Site may be used for restricted residential, commercial, or 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 NYSDOH or NYCDOHMH 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 NYSDEC;
- Any soil vapor intrusion evaluation and 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 NYS with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the EE;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 3, and any potential impacts that are identified must be monitored or mitigated;
- In-ground vegetable gardens and farming on the Site are prohibited; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

3.3 Engineering Control

3.3.1 Site Cover System

The Site was remediated to a combination of Track 1 Unrestricted Use and Track 4 Restricted Residential Use cleanup standards. Exposure to remaining contamination in the Track 4 portion of the Site is prevented by an engineered Site cover system. This cover system is comprised of: (1) a minimum of 5-inch-thick concrete building slabs underlain by a minimum 20-mil vapor barrier (also serving as a demarcation barrier); and (2) a minimum of 2 feet of clean fill with a demarcation barrier below or pavers (concrete and/or asphalt) in the exterior landscaped areas. The extent of the cover system is shown on Figure 5. The EWP provided in Appendix C outlines the procedures required in the event that the cover system is breached, penetrated, or temporarily removed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in the HASP and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in Appendix D. Any breach of the Site's cover system must be overseen by either a Professional Engineer (PE) who is licensed and registered in NYS or a qualified person who directly reports to a PE who is licensed and registered in NYS.

3.4 Passive Sub-Slab Depressurization Systems (SSDSs)

During construction and to address any potential vapor intrusion concerns, two passive SSDSs were installed at the Site: one beneath a portion of the new residential building foundation and one beneath a portion of the one-story garage foundation slab. The SSDSs were installed as passive systems with the ability to be activated if directed by NYSDEC and NYSDOH after completion of the Soil Vapor Intrusion Evaluation (SVIE). The SSDS layout plans are shown on Figure 6 and the as-built drawings for the underground components of the SSDSs are included in Appendix E. Each SSDS consists of slotted polyvinyl chloride (PVC) piping beneath the foundation slab, connected via a network of aboveground piping to a vertical riser and exhaust stack equipped with a wind turbine**.**

The underground elements of the SSDS installed under the new residential building slab include the following components:

- Five SSDS branches consisting of 0.02-inch slotted and solid, 4-inch-diameter Schedule 40 PVC pipe lengths installed beneath the building slab with riser legs penetrating the building slab. The riser legs were connected and transitioned to an 8-inch galvanized steel riser pipe extending to the building roof;
- Communication and pipe sleeves through concrete foundation elements;
- A minimum 6-inch-thick gas permeable aggregate (GPA) stratum underlain by a non-woven geotextile fabric;
- Six vacuum monitoring points (VMPs) installed beneath the building slab; and
- A combination of Stego Wrap 20-mil thickness and SikaProof A+12 47-mil thickness vapor barrier membrane beneath the full extent of the building slab, and a combination of Karnak 83 Fibered dampproofing membrane and Sikabit S60 59-mil thickness vapor barrier membrane behind the subgrade walls.

The underground elements of the SSDS installed under the new garage building slab include the following components:

- A single SSDS branch consisting of 4-inch-diameter 0.02-inch slotted and solid Schedule 40 PVC pipe installed beneath the slab with a riser penetrating the building slab. The riser leg was connected and transitioned to an 4-inch galvanized steel riser pipe extending to the building roof;
- A minimum 6-inch-thick GPA stratum underlain by a non-woven geotextile fabric;
- Three VMPs installed beneath the slab; and
- Stego Wrap 20-mil thickness vapor barrier membrane beneath the full extent of the building slab and Karnak 83 Fibered dampproofing membrane behind subgrade foundation walls.

As outlined in the RAWP, a SVIE will be conducted after completion of the building envelopes. Concurrent sub-slab and indoor air samples will be collected, and the data will be evaluated via the NYSDOH Decision Matrices to determine if either of the passive venting systems needs to be activated. A VI Work Plan (VIWP) will be submitted to NYSDEC and NYSDOH for review and approval prior to conducting the work. The results of the VI Assessment will be documented in a VI Report and used to determine whether vapor concentrations necessitate active operation for either of the SSDSs to prevent contaminated vapors from entering the Site building(s). In the event that active operation of the SSDSs is required, an SMP modification will be completed.

For either system that is activated, a suction fan or blower will be added and the operational capabilities of the suction fan will have a minimum rating of 100 cubic feet per minute (cfm) for the garage system and 350 CFM for the residential building system, and will operate at a vacuum of approximately 8 inches H_2O (subject to balancing). The vacuum capabilities of the proposed fan are intended to overcome frictional losses within the subsurface and aboveground piping and induce a minimum vacuum of 0.004 inches H_2O at each of the VMPs. The installation of a minimum 20-mil vapor barrier under the building slab, as previously discussed, is expected to assist the SSDS in generating a subsurface vacuum by creating an upper boundary that will prohibit sub-slab vapors from escaping the treatment area. The SMP will be revised if either of the SSDSs are converted from passive to active.

The SSDSs will not be decommissioned unless prior written approval is granted by the NYSDEC and the NYSDOH. If monitoring data indicates that the SSDSs may no longer be required, a

proposal to discontinue the SSDSs will be submitted by the remedial party to the NYSDEC and NYSDOH.

3.4.1 Criteria for Completion of Remediation/Termination of Remedial System

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the RAOs identified by the DD. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the Site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

The remedial party will also conduct any needed Site restoration activities, such as asphalt patching, clean fill import for Site cover, and decommissioning treatment system equipment. In addition, the remedial party will conduct any necessary restoration of vegetation coverage, trees, and wetlands, and will comply with NYSDEC and United States Army Corps of Engineers regulations and guidance. Also, the remedial party will ensure that no ongoing erosion is occurring on the Site.

Site Cover System

The Site cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP, in perpetuity.

3.3.3.2 - Sub-Slab Depressurization (SSD) System

If the results of the SVIE indicate that one or both of the SSDSs needs to be activated, the SSDSs will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH project managers. If monitoring data indicates that the SSDS may no longer be required, a proposal to discontinue the SSDS will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

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 QAPP provided in Appendix F.

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

- Sampling and analysis of all appropriate media (e.g., indoor air, soil vapor);
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance (SCGs), particularly groundwater standards and Part 375 Soil Cleanup Objectives (SCOs) for soil;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

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; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site-wide and Cover System Inspection

Site-wide and cover system 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 (QEP) as defined in 6 NYCRR Part 375, a PE who is licensed and registered in NYS, or a qualified person who directly reports to a PE who is licensed and registered in NYS. 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 G – Site Management Form. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the Site cover system 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

- Confirmation 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 (PRR). 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 the requirements of this SMP and the EE;
- Achievement of remedial performance criteria; and
- Whether 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 by a QEP, as defined in 6 NYCRR Part 375, within 5 days of the event to verify the effectiveness of the ICs/ECs implemented at the Site. Written confirmation—including a summary of actions taken, or to be taken, and the potential impact to the environment and the public—must be provided to the NYSDEC project manager within 7 days of the event. The remedial party will submit follow-up status report to NYSDEC within 45 days of the event describing and documenting (1) the actions taken to respond to any emergency event requiring ongoing responsive action, and (2) the actions taken to restore the effectiveness of the ECs.

4.3 SSDS Monitoring

In the event that the passive SSDS needs to be activated (i.e., via installation of suction fan or fans), monitoring of the SSDSs will be performed on a routine basis, as identified in Table III. The monitoring will be conducted by a QEP as defined in 6 NYCRR Part 375, a PE who is licensed and registered in NYS, or a qualified person who directly reports to a PE who is licensed and registered in NYS. 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 SSDS has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSDS components to be monitored include, but are not limited to, those listed in the table below.

Table III
SSDS Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
General system piping	Visual - Intactness	N/A	Annually
Suction fan	Visual - Intactness	TBD	Annually

Note: N/A = not applicable; TBD = to be determined (operating range for suction fan will be determined at system start-up if the SSDS is converted to an active system)

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

Two passive SSDSs were installed as part of Site remediation, but they do not rely on any mechanical equipment at this time that would require routine maintenance. Therefore, the operation and maintenance of such components is not included in this SMP. All associated inspection requirements are included in Section 4.0 and in the associated log sheet included as part of Appendix G. Since no operation and maintenance criteria is established for the Site, the venting systems will be visually inspected annually, and the status of the above-grade components of the venting systems will be certified as part of the routine IC/EC certification process.

In the event that the passive SSDSs are converted into an active systems or additional ECs requiring an Operation and Maintenance Plan are installed at the Site, this SMP will be revised to update the operation and maintenance requirements, as necessary.

The installed cover system is a permanent EC and does not require routine maintenance following installation. The cover system will be inspected annually and the findings will be reported in the subsequent PRR (See Section 7.0).

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 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 its ECs to severe storms/weather events and associated flooding.

- Flood Plain: The Site is not located within a flood plain.
- Site Drainage and Storm Water Management: Stormwater at the Site and the surrounding area flows to the NYC combined sewer system.
- Erosion: The Site is covered by buildings and hardscapes; thus, erosion is not anticipated to be an issue of concern.
- High Wind: All permanent building components are secured against high winds. In the event that high winds are forecast for the Site, proper precautions will be taken to secure or shelter any Site components that are not protected against high winds.
- Electricity: Electricity to the buildings is supplied via newly installed underground vaults and conduits and is not expected to be affected by severe weather events.
- Spill/Contaminant Release: Storage of large amounts of fuel oil or other chemicals at the Site is not expected. Nominal amounts of cleaning chemicals are likely to be stored throughout the Site but are not expected to be affected by severe weather conditions.
- Wildfires: The Site is located in an urban area and there is no risk associated with wildfires.

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 PRR.

6.2.1 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.

6.2.2 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.

6.2.3 Frequency of System Checks, Sampling, and Other Periodic Activities

Transportation to and from the Site, 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.

6.3 Remedial System Optimization

A Remedial System Optimization (RSO) study will be conducted any time that the NYSDEC project manager 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 DD;
- 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;
- 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/or
- 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 provide a basis for changing the remedial strategy.

The RSO study will focus 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 G. These forms are subject to NYSDEC revision. All site management inspection, maintenance, and monitoring events will be conducted by a QEP as defined in 6 NYCRR Part 375, a PE who is licensed and registered in NYS, or a qualified person who directly reports to a PE who is licensed and registered in NYS.

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

Table IV
Schedule of Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
PRR (Inclusive of All Inspections and Sampling Events)	First inspection no more than 16 months after COC, then at least annually thereafter, and PRR due 1 month later or as otherwise determined by the NYSDEC

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

All interim monitoring/inspection 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 (e.g., sub-slab vapor, indoor air, outdoor air);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the laboratory data deliverables 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 relevant 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 relevant 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

The first PRR will be submitted to the NYSDEC project manager 16 months after the COC is issued. After submittal of the initial PRR, the next PRR shall be submitted annually to the NYSDEC project manager 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 PRR will be prepared that addresses the Site described in Appendix A – 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 PRR. 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, fire inspections, and severe condition inspections, if applicable.
- A 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.
- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.

- 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.), including a listing of all compounds analyzed, along with the applicable standards and all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends (as applicable).
- Results of all analyses, copies of all laboratory data sheets, and the laboratory data deliverables for all samples collected during the reporting period 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 addresses the following:
  - The compliance of the remedy with the requirements of the Site-specific RAWP and DD;
  - 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
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a [qualified environmental professional as defined in 6 NYCRR Part 375 or PE licensed to practice and registered in NYS will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"For each institutional or engineering 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 control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by NYSDEC;*
- *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 NYSDEC 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 [and generally accepted engineering practices]; and*
- *The information presented in this report is accurate and complete.*

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, Rebecca Kinal, of AKRF, Inc., am certifying as Owner's/Remedial Party's Designated Site Representative.

"I certify that the New York State Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."

The signed certification will be included in the PRR.

The PRR will be submitted, in electronic format, to the NYSDEC and NYSDOH project managers. The PRR may also need to be submitted in hard-copy format if 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 IC or EC or failure to conduct site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager 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

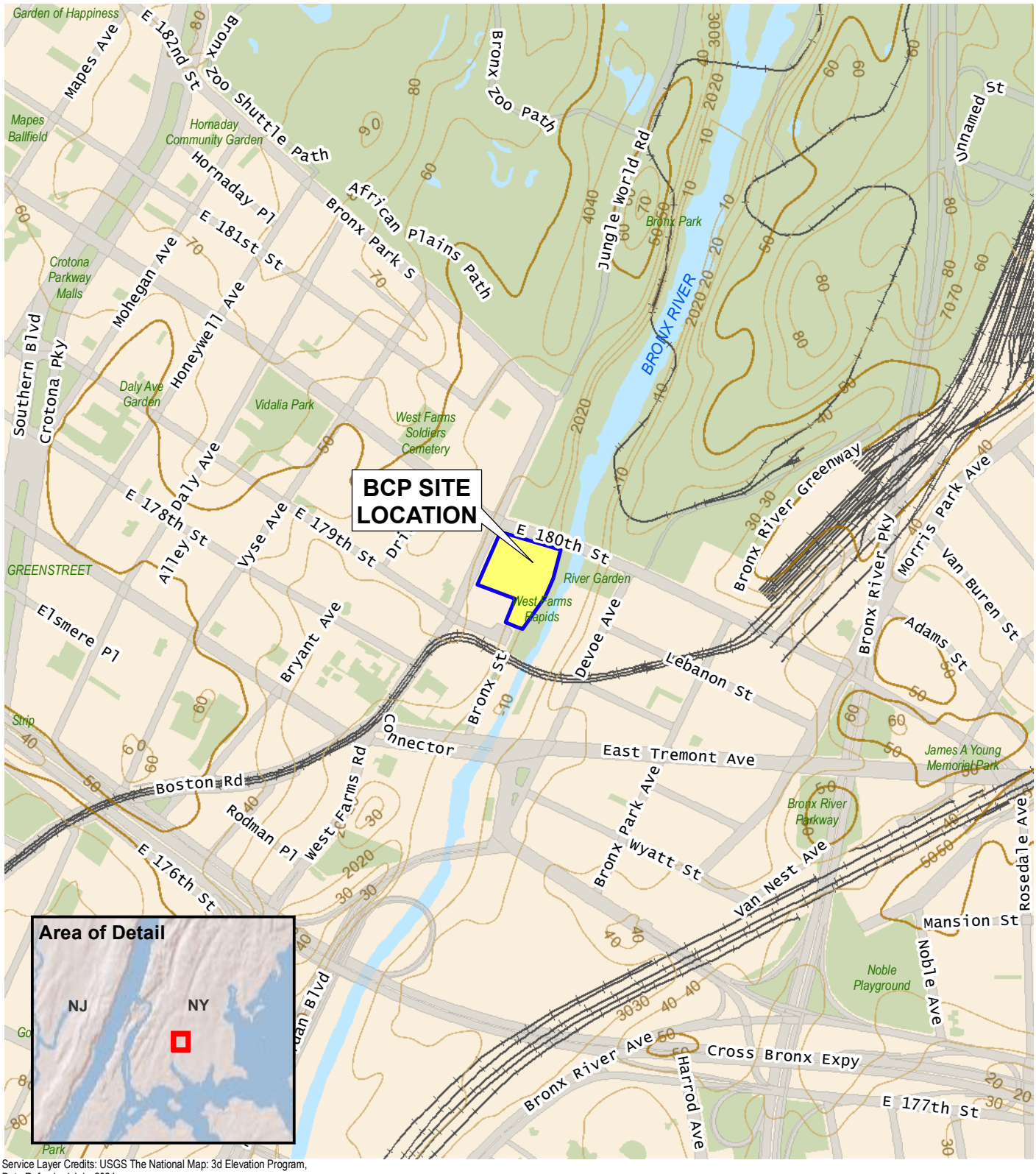
In the event that an RSO study is to be performed (see Section 6.3), upon completion of the study, an RSO report must be submitted to NYSDEC for approval. The RSO report will document the research/investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model, and present recommendations. RSO recommendations are to be implemented upon approval from 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 and NYSDOH project managers.

8.0 REFERENCES

1. 6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.
2. NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".
3. NYSDEC, 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).
4. *Phase I Environmental Site Assessment (ESA), Lambert Houses (Bronx Borough Block 3138, Lots 1 and 45; Block 3132, Lot 1; Block 3139, Lots 1, 19, and 50; and Block 3140, Tax Lot 7), AKRF, Inc., July 2015.*
5. *Subsurface Investigation Letter Report, Lambert Houses Parcel 5 (Bronx Borough Block 3140, Lot 7), AKRF, Inc., February 2020.*
6. Remedial Investigation Work Plan (RIWP) – 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., August 2020.
7. Remedial Investigation Report – 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., May 2021.
8. *BCP Application – Lambert Houses Parcel 5, 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., March 2020, Revised April 2020.*
9. *Citizen Participation Plan (CPP), Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., January 2021.*
10. *Brownfield Cleanup Agreement – 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., April 2021.*
11. *BCA Amendment No. 1 – Lambert Houses Parcel 5, 1048 and 1075 East 180th Street, and 2094 Boston Road, Bronx, New York, AKRF, Inc., April 2021.*
12. *BCA Amendment No. 2 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., April 2021*.
13. *Remedial Action Work Plan (RAWP), 2080 and 2082 Boston Road, Bronx, New York, AKRF Inc., September 2021*.
14. *Decision Document* – BCP Site No. C203136, Lambert Houses Parcel 5, Bronx, New York, September 2021.
15. *BCA Amendment No. 3 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., February 2022.*
16. *BCA Amendment No. 4 – Lambert Houses Parcel 5, 2080 and 2082 Boston Road, Bronx, New York, AKRF, Inc., July 2023*.

FIGURES



Service Layer Credits: USGS The National Map: 3d Elevation Program, Data Refreshed July, 2021

0 600 1,200

SCALE IN FEET

N

AKRF

440 Park Avenue South, New York, NY 10016

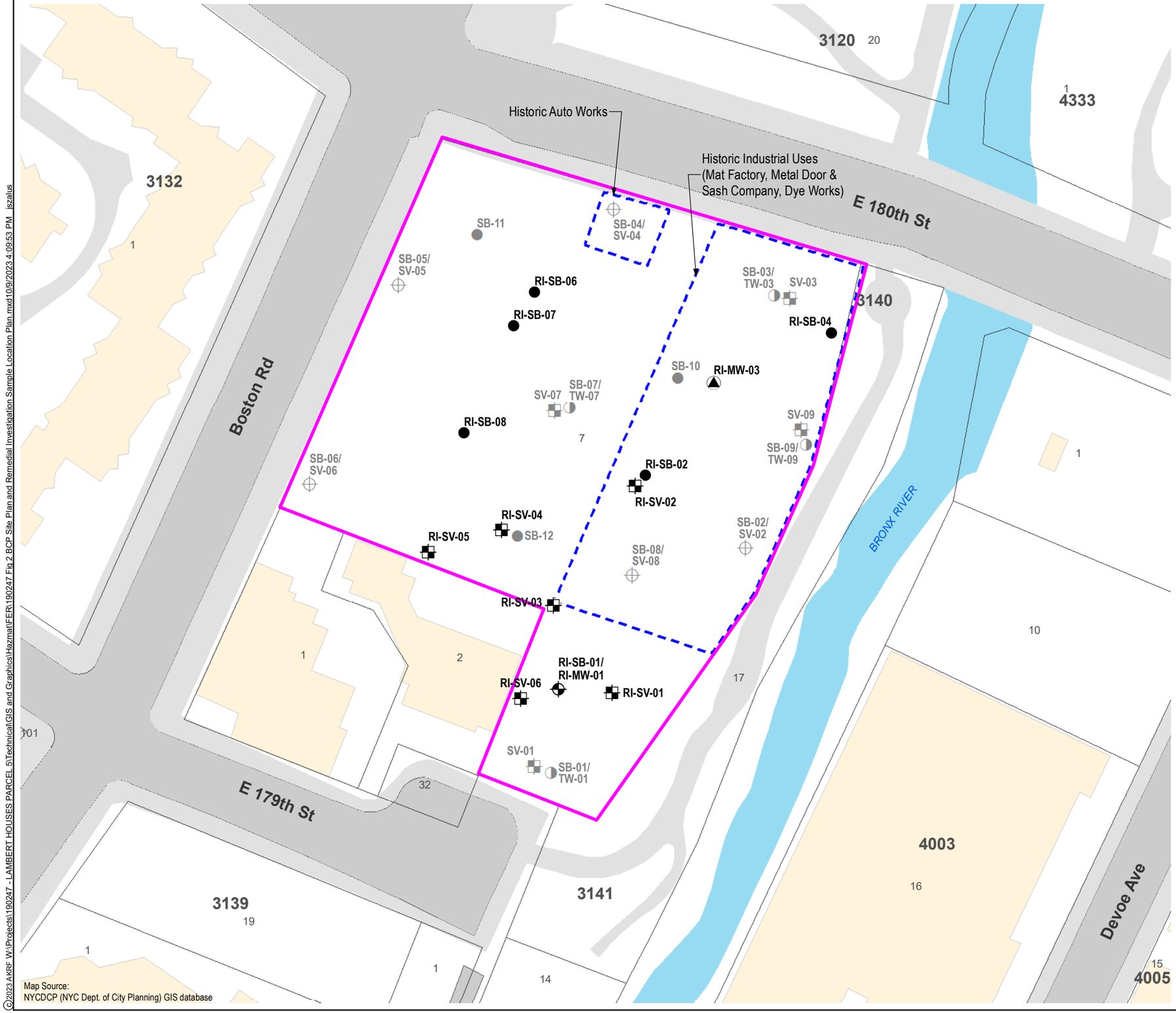
Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

BCP SITE LOCATION

DATE
10/9/2023

PROJECT NO.
190247

FIGURE
1



LEGEND

- PROJECT SITE BOUNDARY
- 7 LOT BOUNDARY AND TAX LOT
- 3140 BLOCK NUMBER
- SOIL BORING (JANUARY 2020)
- SOIL BORING/TEMPORARY SOIL VAPOR POINT (JANUARY 2020)
- SOIL BORING/TEMPORARY GROUNDWATER WELL (JANUARY 2020)
- TEMPORARY SOIL VAPOR POINT (JANUARY 2020)
- BUILDING
- SOIL BORING (SEPT - NOV 2020)
- GROUNDWATER WELL (SEPT - NOV 2020)
- SOIL BORING/GROUNDWATER WELL (SEPT - NOV 2020)
- TEMPORARY SOIL VAPOR POINT (SEPT - NOV 2020)

0 30 60 120
SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database

AKRF
440 Park Avenue South, New York, NY 10016

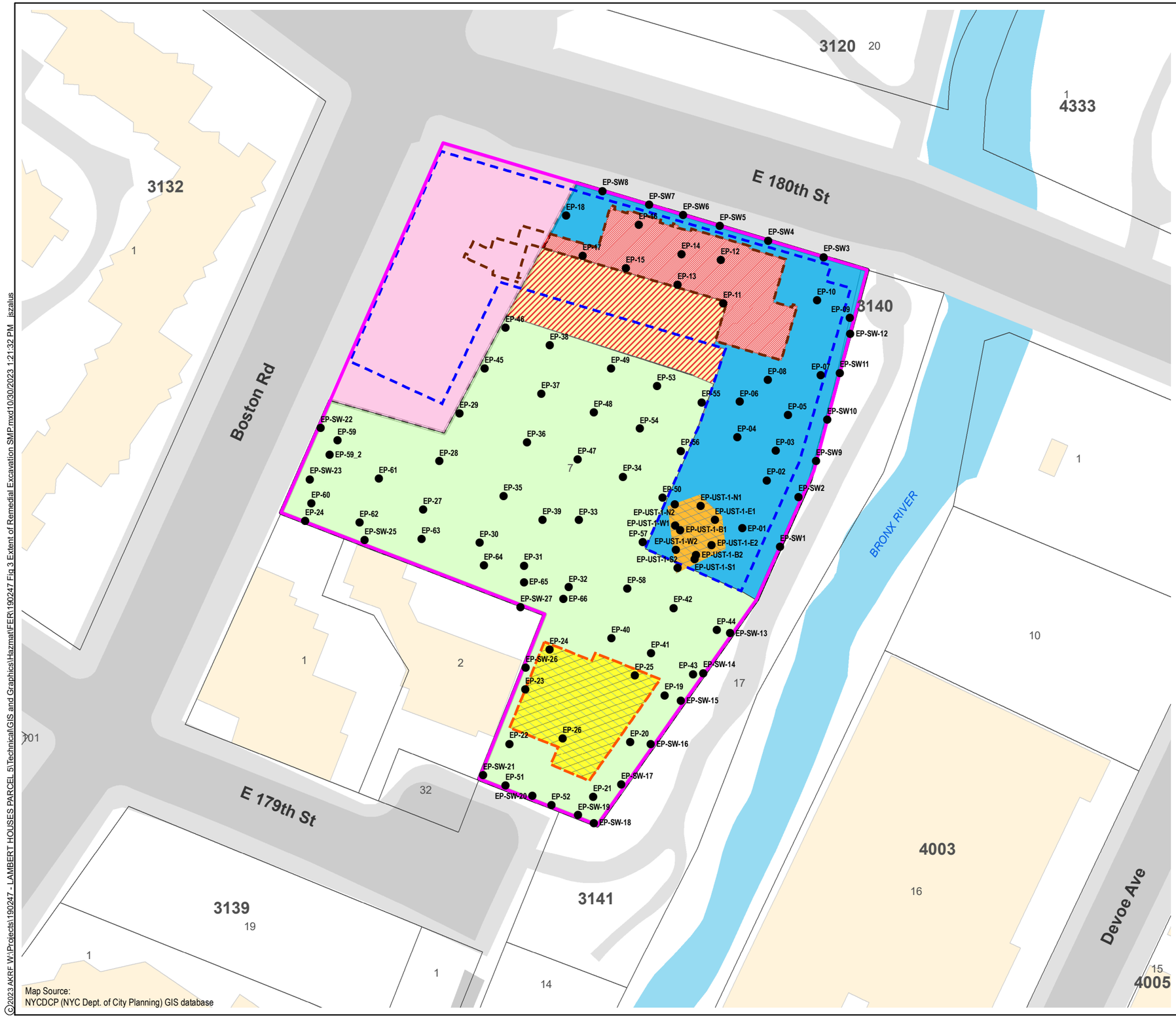
Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

BCP SITE AND SAMPLE LOCATION PLAN

DATE
10/9/2023

PROJECT NO.
190247

FIGURE
2



LEGEND

- PROJECT SITE BOUNDARY
- 7 — LOT BOUNDARY AND TAX LOT NUMBER
- 3141 — BLOCK NUMBER
- BUILDING
- TRACK 1 EXCAVATION RANGING FROM 2 - 8 FEET BELOW GRADE (NO ENDPOINT COLLECTED IN THE AREA AS THE EXCAVATION EXTENDED TO BEDROCK)
- EXCAVATION RANGING FROM 2 - 5 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 15 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 11 FEET BELOW GRADE
- EXCAVATION TO 8 FEET BELOW GRADE (GARAGE/STORAGE BUILDING)
- EXCAVATION RANGING FROM 10 - 15 FEET BELOW GRADE FOR CELLAR
- EXCAVATION RANGING FROM 14 - 18 FEET BELOW GRADE TO RECOVER PETROLEUM SPILL
- MULTI-STORY RESIDENTIAL BUILDING FOOTPRINT
- ONE STORY GARAGE/STORAGE BUILDING
- CELLAR FOOTPRINT
- ENDPOINT SAMPLE LOCATION

Note:
No endpoint samples were collected in the areas where excavation was extended to bedrock (Track 1 Area).

STATE OF NEW YORK
REBECCA A. KINAL
082046-1
LICENSED PROFESSIONAL ENGINEER

0 30 60 120
SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database

AKRF
440 Park Avenue South, New York, NY 10016

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

EXTENT OF REMEDIAL EXCAVATION

DATE
10/30/2023

PROJECT NO.
190247

FIGURE
3

	PART 375 RESTRICTED RESIDENTIAL mg/kg	PART 375 UNRESTRICTED mg/kg
Volatile Organic Compounds		
Acetone	100	0.05
Semivolatile Organic Compounds		
Benzo(a)Anthracene	1	1
Benzo(a)Pyrene	1	1
Benzo(b)Fluoranthene	1	1
Benzo(k)Fluoranthene	3.9	0.8
Chrysene	3.9	1
Dibenz(a,h)Anthracene	0.33	0.33
Indeno(1,2,3-c,d)Pyrene	0.5	0.5
Metals		
Barium	400	350
Cadmium	4.3	2.5
Copper	270	50
Lead	400	63
Mercury	0.81	0.18
Zinc	10000	109
PCBs		
Total PCBs	1	0.1
Pesticides		
Aldrin	0.097	0.005
Chlordane, cis-	4.2	0.094
Dieldrin	0.2	0.005
P,P'-DDD	13	0.0033
P,P'-DDE	8.9	0.0033
P,P'-DDT	7.9	0.0033

	PFAS GUIDANCE VALUES Restricted Residential Use ppb	PFAS GUIDANCE VALUES Unrestricted Use ppb
PFAS		
Perfluorooctanesulfonic acid (PFOS)	44	0.88
Perfluorooctanoic acid (PFOA)	33	0.66

LEGEND

- ENDPOINT SAMPLE
- PROJECT SITE
- LOT BOUNDARY AND TAX LOT
- BUILDING
- TRACK 1 EXCAVATION RANGING FROM 2 - 8 FEET BELOW GRADE (NO ENDPOINT COLLECTED IN THE AREA AS THE EXCAVATION EXTENDED TO BEDROCK)
- EXCAVATION RANGING FROM 2 - 5 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 15 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 11 FEET BELOW GRADE
- EXCAVATION TO 8 FEET BELOW GRADE (GARAGE/STORAGE BUILDING)
- EXCAVATION RANGING FROM 10 - 15 FEET BELOW GRADE FOR CELLAR
- EXCAVATION RANGING FROM 14 - 18 FEET BELOW GRADE TO REMOVE PETROLEUM CONTAMINATED SOIL
- MULTI-STORY RESIDENTIAL BUILDING
- ONE STORY GARAGE/STORAGE BUILDING
- CELLAR

Part 375 Soil Cleanup Objectives (SCOs): SCOs listed in the New York State Department of Environmental Conservation (NYSDEC) "Part 375" Regulations (6 NYCRR Part 375).

Exceedances of NYSDEC Unrestricted Use Soil Cleanup Objectives (UUSCOs) are presented in bold font.

Exceedances of NYSDEC Restricted Residential Soil Cleanup Objectives(RRSCOs) are presented in red.

mg/kg:milligrams per kilogram = parts per million (ppm)
µg/kg = micrograms per kilogram = parts per billion (ppb)

J: The concentration given is an estimated value.
L: Sample result is estimated and biased low.
N: Indicates presumptive evidence of a compound. This flag is usually used for a tentatively identified compound, where the identification is based on a mass spectral library search.

Note:
No endpoint samples were collected in the areas where excavation was extended to bedrock (Track 1 Area).

EP-X02_11_20220301 is a blind duplicate of sample EP-SW2_11_20220301
EP-X03_5_20220308 is a blind duplicate of sample EP-08_5_20220308
EP-X05_15_20220325 is a blind duplicate of sample EP-17_15_20220325

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REMAINING POST-EXCAVATION ENDPOINT SOIL SAMPLE EXCEEDANCES (NORTHERN PORTION)

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

DATE
11/20/2023

PROJECT NO.
190247

FIGURE
4A

SOIL

Part 375 Soil Cleanup Objectives (SCOs): SCOs listed in the New York State Department of Environmental Conservation (NYSDEC) "Part 375" Regulations (6 NYCRR Part 375).

Exceedances of NYSDEC Unrestricted Use Soil Cleanup Objectives (UUSCOs) are presented in bold font.

Exceedances of NYSDEC Restricted Residential Soil Cleanup Objectives(RRSCOs) are presented in red.

mg/kg:milligrams per kilogram = parts per million (ppm)
µg/kg = micrograms per kilogram = parts per billion (ppb)

J: The concentration given is an estimated value.
L: Sample result is estimated and biased low.
N: Indicates presumptive evidence of a compound. This flag is usually used for a tentatively identified compound, where the identification is based on a mass spectral library search.
K: Reported concentration value is proportional to dilution factor and may be exaggerated

Note:
No endpoint samples were collected in the areas
where excavation was extended to bedrock (Track 1 Area).

EP-SW-X09_20230424 is a blind duplicate of sample EP-SW-17_2_20230424
EP-SW-X10_20230503 is a blind duplicate of sample EP-SW-21_2_20230503
EP-X06_8_20220505 is a blind duplicate of sample EP-20_8_20220505
EP-X07_2_20220627 is a blind duplicate of sample EP-32_2_20220627
EP-X11_2_20230927 is a blind duplicate of sample EP-59_2_20230927

LEGEND

- ENDPOINT SAMPLE LOCATION
- PROJECT SITE BOUNDARY
- LOT BOUNDARY AND TAX LOT
- BUILDING
- TRACK 1 EXCAVATION RANGING FROM 2 - 8 FEET BELOW GRADE (NO ENDPOINT COLLECTED IN THE AREA AS THE EXCAVATION EXTENDED TO BEDROCK)
- EXCAVATION RANGING FROM 2 - 5 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 15 FEET BELOW GRADE
- EXCAVATION RANGING FROM 5 - 11 FEET BELOW GRADE
- EXCAVATION TO 8 FEET BELOW GRADE (GARAGE/STORAGE BUILDING)
- EXCAVATION RANGING FROM 10 - 15 FEET BELOW GRADE FOR CELLAR
- EXCAVATION RANGING FROM 14 - 18 FEET BELOW GRADE TO REMOVE PETROLEUM CONTAMINATED SOIL
- MULTI-STORY RESIDENTIAL BUILDING FOOTPRINT
- ONE STORY GARAGE/STORAGE BUILDING
- CELLAR FOOTPRINT

	PART 375 RESTRICTED RESIDENTIAL mg/kg	PART 375 UNRESTRICTED mg/kg
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Acetone	100	0.05
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Benzo(a)Pyrene	1	1
Benzo(b)Fluoranthene	1	1
Benzo(k)Fluoranthene	3.9	0.8
Chrysene	3.9	1
Dibenz(a,h)Anthracene	0.33	0.33
Indeno(1,2,3-c,d)Pyrene	0.5	0.5
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Barium	400	350
Cadmium	4.3	2.5
Copper	270	50
Lead	400	63
Mercury	0.81	0.18
Zinc	10000	109
PCBs		
Total PCBs	1	0.1
Pesticides		
Aldrin	0.097	0.005
Chlordane, cis-	4.2	0.094
Dieldrin	0.2	0.005
P,P'-DDD	13	0.0033
P,P'-DDE	8.9	0.0033
P,P'-DDT	7.9	0.0033

	PFAS GUIDANCE VALUES Restricted Residential Use ppb	PFAS GUIDANCE VALUES Unrestricted Use ppb
PFAS		
Perfluorooctanesulfonic acid (PFOS)	44	0.88
Perfluorooctanoic acid (PFOA)	33	0.66

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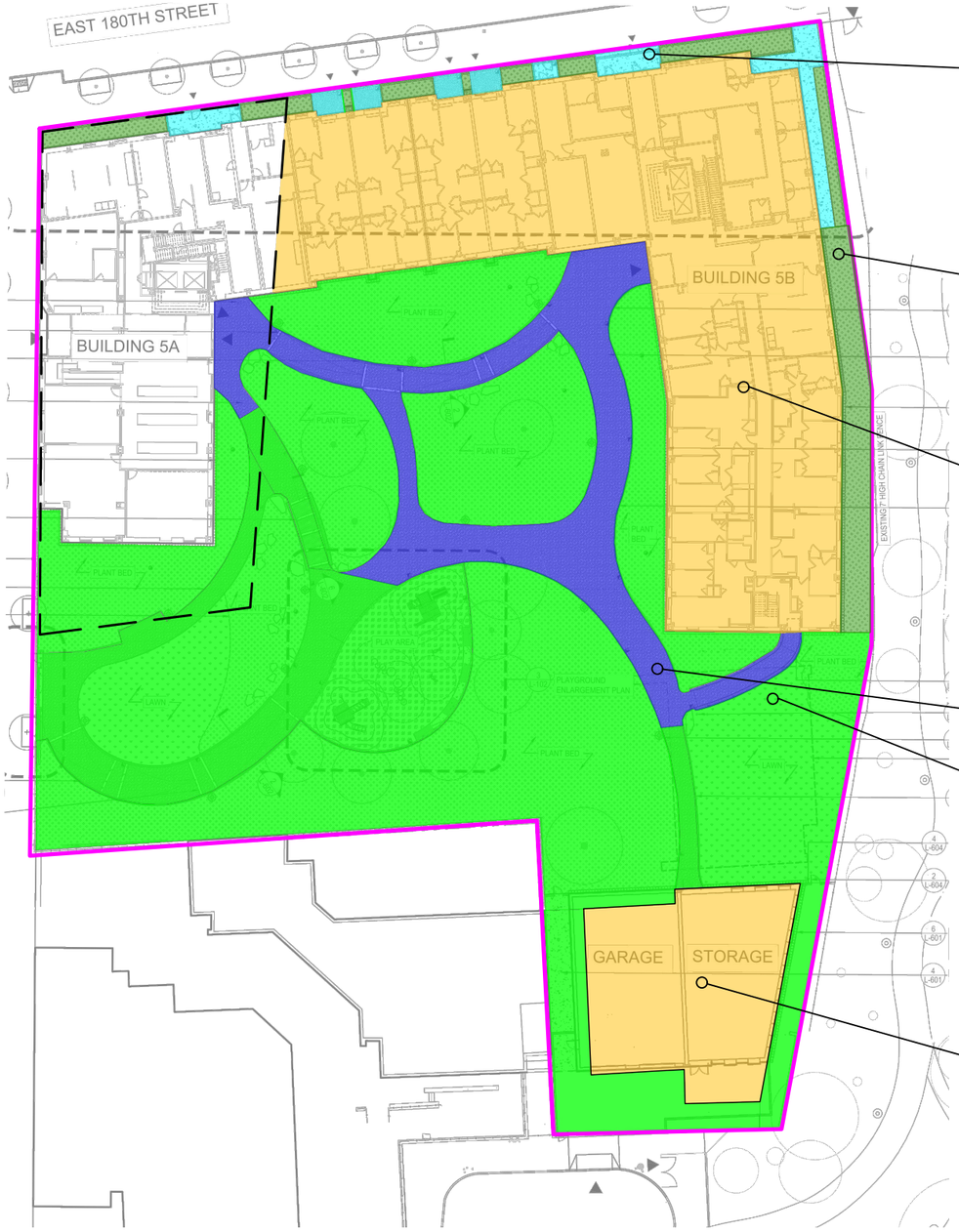
REMAINING POST-EXCAVATION ENDPOINT SOIL SAMPLE EXCEEDANCES (SOUTHERN PORTION)

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

DATE
11/20/2023

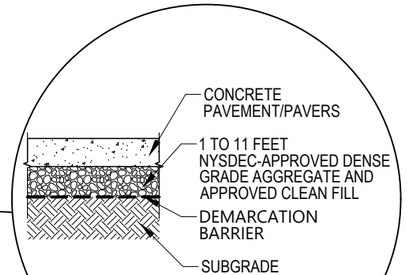
PROJECT NO.
190247

FIGURE
4B

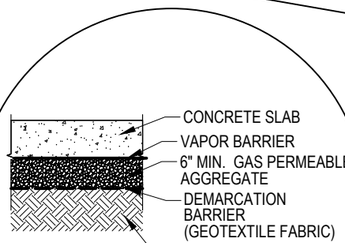


LEGEND

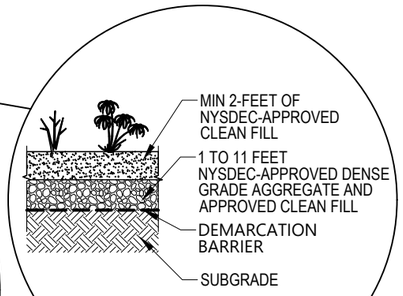
- PROJECT SITE BOUNDARY
- EXTENT OF SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS)
- LANDSCAPED/PLANTING AREA
- PAVERS/CONCRETE
- LANDSCAPED/PLANTING AREA WITH DENSE GRADE AGGREGATE BELOW
- PAVERS/CONCRETE WITH DENSE GRADE AGGREGATE BELOW
- TRACK 1 AREA EXTENT (REMAINDER OF SITE IS TRACK 4)



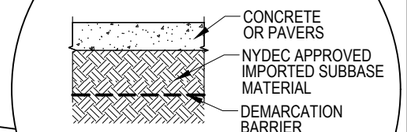
CONCRETE PAVEMENT DETAIL (TYP.)
N.T.S.



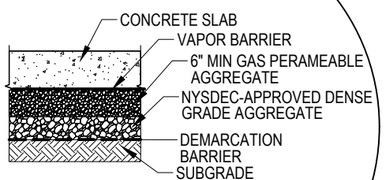
BACKFILL AREA FOR BUILDING (TYP.)
N.T.S.



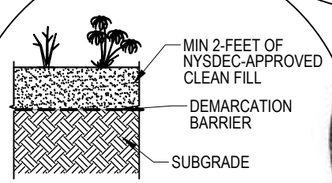
CLEAN FILL DETAIL (TYP.)
N.T.S.



CONCRETE AND/OR PAVERS (TYP.)
N.T.S.



BACKFILL AREA FOR GARAGE/STORAGE BUILDING (TYP.)
N.T.S.



LANDSCAPE/PLANTING AREAS WITH MIN. 2' CLEAN FILL BUFFER (TYP.)
N.T.S.

0 25 50 100
SCALE IN FEET

SOURCE:
Based on Figure L-101 *Materials Plan*,
Prepared by Datner Architects
1385 Broadway, 15th Floor New York, New York
Oct 2020

AKRF
440 Park Avenue South, New York, NY 10016

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

EXTENT OF BACKFILL PLACEMENT

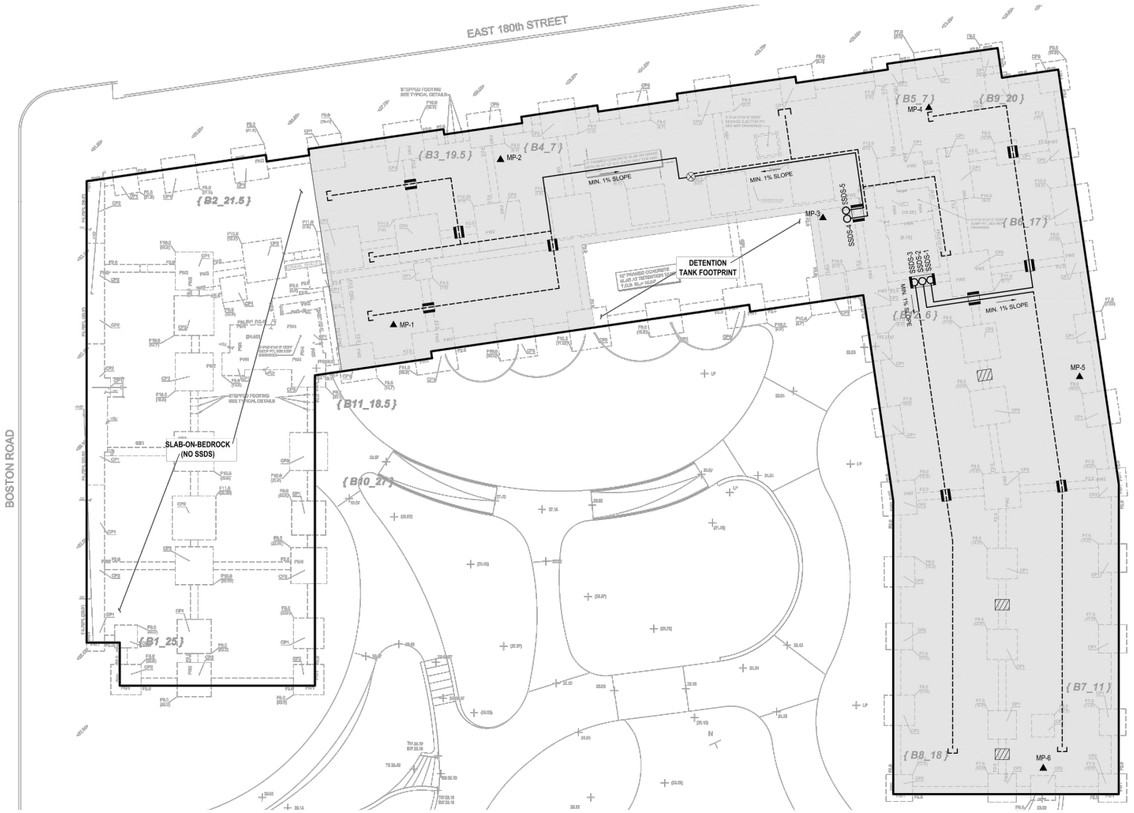
STATE OF NEW YORK
REBECCA A. KINAL
082046-1
LICENSED PROFESSIONAL ENGINEER

DATE
11/30/2023

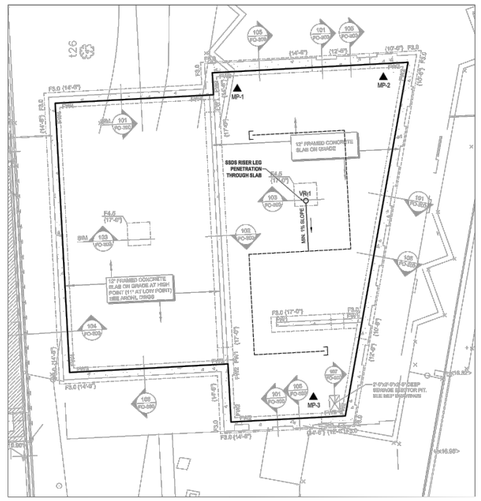
PROJECT NO.
190247

FIGURE
5

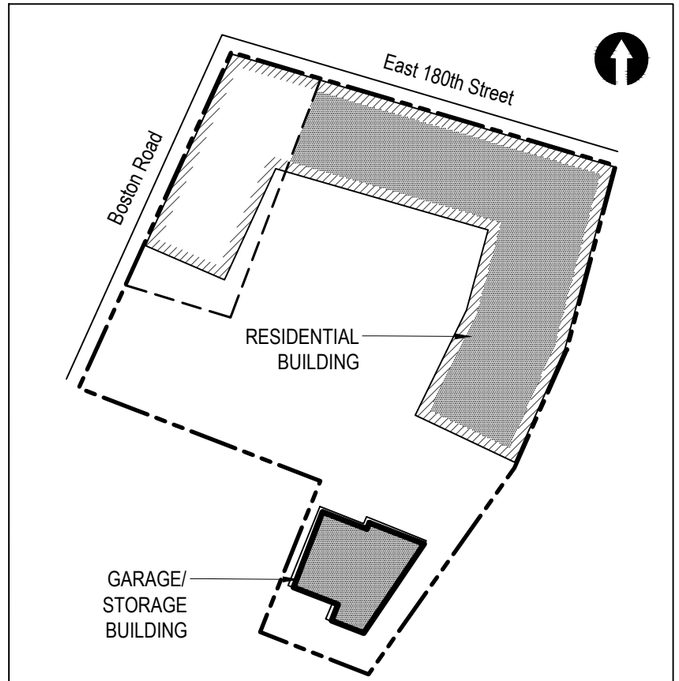
 W:\Projects\190247 - LAMBERT HOUSES PARCEL 5\Technical\Hazmat\FER\CAD\190247 Fig 5 Extent of Backfill Placement SMP.dwg last save: jszalus 11/30/2023 3:45 PM



SUB-SLAB DEPRESSURIZATION LAYOUT FOR RESIDENTIAL BUILDING



SUB-SLAB DEPRESSURIZATION LAYOUT FOR GARAGE/STORAGE BUILDING



KEY PLAN

LEGEND

- PROJECT SITE BOUNDARY
- TRACK 1 AREA
- EXTENT OF GAS PERMEABLE AGGREGATE
- EXTENT OF VAPOR BARRIER/WATERPROOFING
- SOLID 4" SCHEDULE 40 PVC PIPE
- SLOTTED 4" SCHEDULE 40 PVC PIPE WITH PVC END CAP
- SSDS-1 — PIPE PENETRATION LOCATION WITH IDENTIFICATION
- PIPE SLEEVE THROUGH GRADE BEAM OR WALL
- COMMUNICATION SLEEVE THROUGH FOUNDATION ELEMENT
- MP-1 — MONITORING POINT LOCATION
- CONDENSATE DRAIN

AKRF
440 Park Avenue South, New York, NY 10016

Lambert Houses Parcel 5
Blocks 3140, Lot 7
Bronx, New York

SSDS LAYOUT PLANS

DATE
10/31/2023

PROJECT NO.
190247

FIGURE
6

STATE OF NEW YORK ★ REBECCA A. KINAL ★ 082046-1 ★ LICENSED PROFESSIONAL ENGINEER

APPENDIX A
ENVIRONMENTAL EASEMENT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Office of the General Counsel
625 Broadway, 14th Floor, Albany, New York 12233-1500
P: (518) 402-9185 I F: (518) 402-9018
www.dec.ny.gov

VIA FEDERAL EXPRESS

December 6, 2023

Hirschen Singer & Epstein LLP
902 Broadway
13th Floor
New York, NY 10010
Attn: Fatmata Jalloh

RE: Environmental Easement Package
Site Name: Lambert Houses Parcel 5 Site
Site No.: C203136

Dear Ms. Jalloh,

Enclosed please find a fully executed Environmental Easement, TP-584 and NYC RPT tax forms required for recording.

Once the Environmental Easement is recorded, the local municipality will need to be notified via Certified Mail, Return Receipt Requested.

Please return to this office, copies of the recorded easement marked by the County Clerk's Office with the date and location of recording, and a certified copy of the municipal notices. The information from the recorded easement and notices are necessary to process the Certificate of Completion.

If you have any further questions or concerns relating to this matter, please contact our office at (518) 8564.

Sincerely,

Cheryl Salem
Legal Assistant II
Remediation Bureau

ec: M. Murphy, NYSDEC

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

THIS INDENTURE made this 1st day of December, 2023, between Owner(s), **2080 Boston Road Housing Development Fund Corporation**, (the "Grantor Fee Owner") having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York, **2080 Boston Road Associates II, LLC**, (the "Grantor Beneficial Owner"), having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York, and **2080 Boston Road Associates, LLC**, (the "Grantor LIHTC Tenant"), having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York (collectively, 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 Fee Owner, is the owner of the fee interest in the real property located at the address of 2080 and 2082 Boston 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 3140 Lot 7, being the same as that property conveyed to Grantor by deed dated December 22, 2021 and recorded in the City Register of the City of New York as CRFN #2022000010432. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.532 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 25, 2023 and revised on September 19, 2023,

prepared by Jonathan S. Schmidt of Control Point Associates, Inc. PC, 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, Grantor Beneficial Owner, is the holder of a beneficial interest in the Controlled Property, as memorialized in a Declaration of Interest and Nominee Agreement dated December 22, 2021 and recorded in the City Register of the City of New York as CRFN #2022000010434; and

WHEREAS, Grantor LIHTC Tenant, is the holder of a 35-year leasehold interest in the Controlled Property being leased by the Grantor Beneficial Owner, as memorialized in a Memorandum of Master Lease dated December 22, 2022 and recorded in City Register of the City of New York as CRFN #2022000010433; 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: C203136-07-20, as amended by Amendment #1 on May 4, 2021, Amendment #2 on August 19, 2021, Amendment #3 on February 2, 2022, and Amendment #4 on July 18, 2023, 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:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), 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 purposes as defined in 6NYCRR 375-1.8(g)(2)(i), 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: C203136
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 Fee Owner has caused this instrument to be signed in its name.

2080 Boston Road Housing Development Fund Corporation:

By: _____

Name: Matthew Kelly

Title: Vice President Date: 11/24/2023

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 29th day of November, in the year 2023, before me, the undersigned, personally appeared Matthew Kelly, 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.

_____
Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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

2080 Boston Road Associates II, LLC:

By: 2080 Boston Road Associates, LLC, its managing member

By: 2080 Boston Road Management Corp., its managing Member

By: _____
Name: Matthew Kelly

Title: Vice President Date: 11/24/2023

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 29th day of November, in the year 2023, before me, the undersigned, personally appeared Matthew Kelly, 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.

_____
Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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

2080 Boston Road Associates, LLC:

By: 2080 Boston Road Management Corp., its managing member

By: _____
Name: Matthew Kelly

Title: Vice President Date: 11/24/2023

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 29th day of November, in the year 2023, before me, the undersigned, personally appeared Matthew Kelly, 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.

_____
Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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: _____
Andrew O. Guglielmi, Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 1st day of December in the year 2023 before me, the undersigned, personally appeared Andrew O. Guglielmi, 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

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified in Albany County
My Commission Expires March 3, 2027

SCHEDULE "A" PROPERTY DESCRIPTION

PARCEL DESCRIPTION – BCP SITE BOUNDARY

ALL those plots, pieces or parcels of real property situate, lying and being in the Borough of Bronx, City and State of New York, bounded and described as follows:

BEGINNING at a point formed by the intersection of the easterly side of Boston Road and the southerly side of East 180th Street;

THENCE eastwardly along the southerly side of East 180th Street, 266.00 feet to a point;

THENCE southwardly, forming an interior angle of 90 degrees with the previous course, 125.06 feet to an angle point;

THENCE continuing southwardly, forming an interior angle of 171 degrees 41 minutes 41 seconds with the previous course, 85.94 feet to an angle point;

THENCE continuing southwardly, forming an interior angle of 169 degrees 57 minutes 05 seconds with the previous course, 166.38 feet to a point;

THENCE westwardly, forming an interior angle of 102 degrees 50 minutes 15 seconds with the previous course, 75.99 feet to a point, formerly in the westerly side of the former Bronx Street, 34.00 feet North of the former intersection of East 179th Street and Bronx Street;

THENCE northwardly, forming an interior angle of 90 degrees 17 minutes 06 seconds with the previous course, along the formerly westerly side of Bronx Street, 108.23 feet to a point;

THENCE westwardly, forming an exterior angle of 88 degrees 55 minutes 36 seconds with the previous course, 170.99 feet to a point in the easterly side of Boston Road;

THENCE northwardly, along the easterly side of Boston Road, forming an interior angle of 85 degrees 51 minutes 10 seconds with the previous course, 243.09 feet to the point or place of BEGINNING.

The above described Lot 7 Parcel Area having an area of 79,611 square feet or 1.827 Acres.

ENVIRONMENTAL EASEMENT AREA

ALL THOSE PLOTS, PIECES OR PARCELS OF REAL PROPERTY SITUATE, LYING AND BEING IN THE BOROUGH OF BRONX, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT FORMED BY THE INTERSECTION OF THE EASTERLY SIDE OF BOSTON ROAD AND THE SOUTHERLY SIDE OF EAST 180TH STREET;

THENCE EASTWARDLY ALONG THE SOUTHERLY SIDE OF EAST 180TH STREET, 82.03 FEET TO THE POINT OF BEGINNING;

THENCE CONTINUING EASTWARDLY ALONG THE SOUTHERLY SIDE OF EAST 180TH STREET, 183.97 FEET TO A POINT;

THENCE SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 90 DEGREES WITH THE PREVIOUS COURSE, 125.06 FEET TO AN ANGLE POINT;

THENCE CONTINUING SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 171 DEGREES 41 MINUTES 41 SECONDS WITH THE PREVIOUS COURSE, 85.94 FEET TO AN ANGLE POINT;

THENCE CONTINUING SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 169 DEGREES 57 MINUTES 05 SECONDS WITH THE PREVIOUS COURSE, 166.38 FEET TO A POINT;

THENCE WESTWARDLY, FORMING AN INTERIOR ANGLE OF 102 DEGREES 50 MINUTES 15 SECONDS WITH THE PREVIOUS COURSE, 75.99 FEET TO A POINT, FORMERLY IN THE WESTERLY SIDE OF THE FORMER BRONX STREET, 34.00 FEET NORTH OF THE FORMER INTERSECTION OF EAST 179TH STREET AND BRONX STREET;

THENCE NORTHWARDLY, FORMING AN INTERIOR ANGLE OF 90 DEGREES 17 MINUTES 06 SECONDS WITH THE PREVIOUS COURSE, ALONG THE FORMERLY WESTERLY SIDE OF BRONX STREET, 108.23 FEET TO A POINT;

THENCE WESTWARDLY, FORMING AN EXTERIOR ANGLE OF 88 DEGREES 55 MINUTES 36 SECONDS WITH THE PREVIOUS COURSE, 170.99 FEET TO A POINT IN THE EASTERLY SIDE OF BOSTON ROAD;

THENCE NORTHWARDLY, ALONG THE EASTERLY SIDE OF BOSTON ROAD, FORMING AN INTERIOR ANGLE OF 85 DEGREES 51 MINUTES 10 SECONDS WITH THE PREVIOUS COURSE, 74.74 FEET TO A POINT;

THENCE EASTERLY, FORMING AN INTERIOR ANGLE OF 99 DEGREES 12 MINUTES 26 SECONDS WITH THE PREVIOUS COURSE, 72.85 FEET TO A POINT;

THENCE NORTHERLY, FORMING AN INTERIOR ANGLE OF 237 DEGREES 38 MINUTES 56 SECONDS WITH THE PREVIOUS COURSE, 168.79 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 66,773 SQUARE FEET OR 1.532 ACRES, MORE OR LESS

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

THIS INDENTURE made this 1st day of December, 2023, between Owner(s), **2080 Boston Road Housing Development Fund Corporation**, (the "Grantor Fee Owner") having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York, **2080 Boston Road Associates II, LLC**, (the "Grantor Beneficial Owner"), having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York, and **2080 Boston Road Associates, LLC**, (the "Grantor LIHTC Tenant"), having an office at 902 Broadway, 13th Floor, New York, NY 10010, County of New York, State of New York (collectively, 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 Fee Owner, is the owner of the fee interest in the real property located at the address of 2080 and 2082 Boston 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 3140 Lot 7, being the same as that property conveyed to Grantor by deed dated December 22, 2021 and recorded in the City Register of the City of New York as CRFN #2022000010432. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.532 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 25, 2023 and revised on September 19, 2023,

prepared by Jonathan S. Schmidt of Control Point Associates, Inc. PC, 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, Grantor Beneficial Owner, is the holder of a beneficial interest in the Controlled Property, as memorialized in a Declaration of Interest and Nominee Agreement dated December 22, 2021 and recorded in the City Register of the City of New York as CRFN #2022000010434; and

WHEREAS, Grantor LIHTC Tenant, is the holder of a 35-year leasehold interest in the Controlled Property being leased by the Grantor Beneficial Owner, as memorialized in a Memorandum of Master Lease dated December 22, 2022 and recorded in City Register of the City of New York as CRFN #2022000010433; 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: C203136-07-20, as amended by Amendment #1 on May 4, 2021, Amendment #2 on August 19, 2021, Amendment #3 on February 2, 2022, and Amendment #4 on July 18, 2023, 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:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), 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 purposes as defined in 6NYCRR 375-1.8(g)(2)(i), 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: C203136
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.

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by the SMP, the terms of the SMP will control.

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

2080 Boston Road Housing Development Fund Corporation:

By: _____

Name: Matthew Kelly

Title: Vice President Date: 11/29/2023

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 29th day of November, in the year 2023, before me, the undersigned, personally appeared Matthew Kelly, 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.

_____
Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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

2080 Boston Road Associates II, LLC:

By: 2080 Boston Road Associates, LLC, its managing member

By: 2080 Boston Road Management Corp., its managing Member

By: _____

Name: Matthew Kelly

Title: Vice President Date: 11/24/2023

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 29th day of November, in the year 2023, before me, the undersigned, personally appeared Matthew Kelly, 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.

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Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
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Commission Expires 6/21/2026

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2080 Boston Road Associates, LLC:

By: 2080 Boston Road Management Corp., its managing member

By: _____
Name: Matthew Kelly

Title: Vice President Date: 11/29/2023

Grantor's Acknowledgment

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_____
Notary Public - State of New York

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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: _____
Andrew O. Guglielmi, Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 18th day of December, in the year 2023 before me, the undersigned, personally appeared Andrew O. Guglielmi, 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

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified in Albany County
My Commission Expires March 3, 2027

SCHEDULE "A" PROPERTY DESCRIPTION

PARCEL DESCRIPTION – BCP SITE BOUNDARY

ALL those plots, pieces or parcels of real property situate, lying and being in the Borough of Bronx, City and State of New York, bounded and described as follows:

BEGINNING at a point formed by the intersection of the easterly side of Boston Road and the southerly side of East 180th Street;

THENCE eastwardly along the southerly side of East 180th Street, 266.00 feet to a point;

THENCE southwardly, forming an interior angle of 90 degrees with the previous course, 125.06 feet to an angle point;

THENCE continuing southwardly, forming an interior angle of 171 degrees 41 minutes 41 seconds with the previous course, 85.94 feet to an angle point;

THENCE continuing southwardly, forming an interior angle of 169 degrees 57 minutes 05 seconds with the previous course, 166.38 feet to a point;

THENCE westwardly, forming an interior angle of 102 degrees 50 minutes 15 seconds with the previous course, 75.99 feet to a point, formerly in the westerly side of the former Bronx Street, 34.00 feet North of the former intersection of East 179th Street and Bronx Street;

THENCE northwardly, forming an interior angle of 90 degrees 17 minutes 06 seconds with the previous course, along the formerly westerly side of Bronx Street, 108.23 feet to a point;

THENCE westwardly, forming an exterior angle of 88 degrees 55 minutes 36 seconds with the previous course, 170.99 feet to a point in the easterly side of Boston Road;

THENCE northwardly, along the easterly side of Boston Road, forming an interior angle of 85 degrees 51 minutes 10 seconds with the previous course, 243.09 feet to the point or place of BEGINNING.

The above described Lot 7 Parcel Area having an area of 79,611 square feet or 1.827 Acres.

ENVIRONMENTAL EASEMENT AREA

ALL THOSE PLOTS, PIECES OR PARCELS OF REAL PROPERTY SITUATE, LYING AND BEING IN THE BOROUGH OF BRONX, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT FORMED BY THE INTERSECTION OF THE EASTERLY SIDE OF BOSTON ROAD AND THE SOUTHERLY SIDE OF EAST 180TH STREET;

THENCE EASTWARDLY ALONG THE SOUTHERLY SIDE OF EAST 180TH STREET, 82.03 FEET TO THE POINT OF BEGINNING;

THENCE CONTINUING EASTWARDLY ALONG THE SOUTHERLY SIDE OF EAST 180TH STREET, 183.97 FEET TO A POINT;

THENCE SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 90 DEGREES WITH THE PREVIOUS COURSE, 125.06 FEET TO AN ANGLE POINT;

THENCE CONTINUING SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 171 DEGREES 41 MINUTES 41 SECONDS WITH THE PREVIOUS COURSE, 85.94 FEET TO AN ANGLE POINT;

THENCE CONTINUING SOUTHWARDLY, FORMING AN INTERIOR ANGLE OF 169 DEGREES 57 MINUTES 05 SECONDS WITH THE PREVIOUS COURSE, 166.38 FEET TO A POINT;

THENCE WESTWARDLY, FORMING AN INTERIOR ANGLE OF 102 DEGREES 50 MINUTES 15 SECONDS WITH THE PREVIOUS COURSE, 75.99 FEET TO A POINT, FORMERLY IN THE WESTERLY SIDE OF THE FORMER BRONX STREET, 34.00 FEET NORTH OF THE FORMER INTERSECTION OF EAST 179TH STREET AND BRONX STREET;

THENCE NORTHWARDLY, FORMING AN INTERIOR ANGLE OF 90 DEGREES 17 MINUTES 06 SECONDS WITH THE PREVIOUS COURSE, ALONG THE FORMERLY WESTERLY SIDE OF BRONX STREET, 108.23 FEET TO A POINT;

THENCE WESTWARDLY, FORMING AN EXTERIOR ANGLE OF 88 DEGREES 55 MINUTES 36 SECONDS WITH THE PREVIOUS COURSE, 170.99 FEET TO A POINT IN THE EASTERLY SIDE OF BOSTON ROAD;

THENCE NORTHWARDLY, ALONG THE EASTERLY SIDE OF BOSTON ROAD, FORMING AN INTERIOR ANGLE OF 85 DEGREES 51 MINUTES 10 SECONDS WITH THE PREVIOUS COURSE, 74.74 FEET TO A POINT;

THENCE EASTERLY, FORMING AN INTERIOR ANGLE OF 99 DEGREES 12 MINUTES 26 SECONDS WITH THE PREVIOUS COURSE, 72.85 FEET TO A POINT;

THENCE NORTHERLY, FORMING AN INTERIOR ANGLE OF 237 DEGREES 38 MINUTES 56 SECONDS WITH THE PREVIOUS COURSE, 168.79 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 66,773 SQUARE FEET OR 1.532 ACRES, MORE OR LESS

NEW YORK CITY DEPARTMENT OF FINANCE

NYC - RPT

Department of Finance

REAL PROPERTY TRANSFER TAX RETURN

(Pursuant to Title 11, Chapter 21, NYC Administrative Code)

▲ DO NOT WRITE IN THIS SPACE ▲
FOR OFFICE USE ONLY

GRANTOR

● Name BOSTON ROAD ASSOCIATES II, LLC

SOCIAL SECURITY NUMBER

OR

EMPLOYER IDENTIFICATION NUMBER 87-3278719

SINGLE MEMBER EIN OR SSN

● Grantor is a(n): (check one) ☐ individual ☐ partnership ☐ corporation ☐ single member LLC ☑ multiple member LLC (see instructions) ☐ other

Telephone Number

● Permanent mailing address after transfer (number and street) 902 BROADWAY, 13TH FLOOR

● City and State NEW YORK, NY

Zip Code 10010

● Single member's name if grantor is a single member LLC

GRANTEE

● Name THE PEOPLE OF THE STATE OF NEW YORK

SOCIAL SECURITY NUMBER

OR

EMPLOYER IDENTIFICATION NUMBER 14-6013200

SINGLE MEMBER EIN OR SSN

● Grantee is a(n): (check one) ☐ individual ☐ partnership ☐ corporation ☐ single member LLC ☐ multiple member LLC (see instructions) ☑ other STATE GOVERNMENT AGENCY

Telephone Number

● Permanent mailing address after transfer (number and street) ACTING THROUGH THEIR COMMISSIONER OF THE DEPT. OF ENVIRONMENTAL CONSERVATION, 625 BROADWAY

● City and State ALBANY, NY

Zip Code 12233-1500

● Single member's name if grantee is a single member LLC

PROPERTY LOCATION

LIST EACH LOT SEPARATELY. ATTACH A RIDER IF ADDITIONAL SPACE IS REQUIRED

● Address (number and street)	Apt. No.	Borough	Block	Lot	# of Floors	Square Feet	● Assessed Value of Property
2082 BOSTON ROAD		BRONX	3140	7	16	336,457	2,070,000.00

● DATE OF TRANSFER TO GRANTEE: 11/15/2023

● PERCENTAGE OF INTEREST TRANSFERRED: 100 %

CONDITION OF TRANSFER. See Instructions

● Check (✓) all of the conditions that apply and fill out the appropriate schedules of this return. Additionally, Schedules1 and 2 must be completed for all transfers.

a. ☐ ..... Arms length transfer
b. ☐ ..... Transfer in exercise of option to purchase
c. ☐ ..... Transfer from cooperative sponsor to cooperative corporation
d. ☐ ..... Transfer by referee or receiver (complete Schedule A)
e. ☐ ..... Transfer pursuant to marital settlement agreement or divorce decree (complete Schedule I)
f. ☐ ..... Deed in lieu of foreclosure (complete Schedule C)
g. ☐ ..... Transfer pursuant to liquidation of an entity (complete Schedule D)
h. ☐ ..... Transfer from principal to agent, dummy, strawman or conduit or vice-versa (complete Schedule E)
i. ☐ ..... Transfer pursuant to trust agreement or will (attach a copy of trust agreement or will)
j. ☐ ..... Gift transfer not subject to indebtedness
k. ☐ ..... Gift transfer subject to indebtedness
l. ☐ ..... Transfer to a business entity in exchange for an interest in the business entity (complete Schedule F)
m. ☐ ..... Transfer to a governmental body
n. ☐ ..... Correction deed
o. ☐ ..... Transfer by or to a tax exempt organization (complete Schedule G)
p. ☐ ..... Transfer of property partly within and partly without NYC
q. ☐ ..... Transfer of successful bid pursuant to foreclosure
r. ☐ ..... Transfer by borrower solely as security for a debt or a transfer by lender solely to return such security
s. ☐ ..... Transfer wholly or partly exempt as a mere change of identity or form of ownership. Complete Schedule M)
t. ☐ ..... Transfer to a REIT or to a corporation or partnership controlled by a REIT. (Complete Schedule R)
u. ☐ ..... Other transfer in connection with financing (describe): _____
v. ☐ .....A grant or assignment of a leasehold interest in a tax-free NY area
w. ☐ ..... Transfer to an HDFC or an entity controlled by an HDFC. (Complete Schedule L)
x. .....Reserved
y. .....Reserved
z. ☑ ..... Other (describe) ENVIRONMENTAL EASEMENT

202306050035210102

● TYPE OF PROPERTY (✓)

a. ☐ ..... 1-3 family house
b. ☐ ..... Individual residential condominium unit
c. ☐ ..... Individual cooperative apartment
d. ☐ ..... Commercial condominium unit
e. ☐ ..... Commercial cooperative
f. ☐ ..... 4 family dwelling
g. ☑ ..... Apartment building
h. ☐ ..... Office building
i. ☐ ..... Industrial building
j. ☐ ..... Utility
k. ☐ ..... OTHER (describe): _____

● TYPE OF INTEREST (✓)

Check box at LEFT if you intend to record a document related to this transfer. Check box at RIGHT if you do not intend to record a document related to this transfer.

	REC.		NON REC.
a.	☐	Fee	☐
b.	☐	Leasehold Grant	☐
c.	☐	Leasehold Assignment or Surrender	☐
d.	☐	Easement	☑
e.	☐	Subterranean Rights	☐
f.	☐	Development Rights	☐
g.	☐	Stock	☐
h.	☐	Partnership Interest	☐
i.	☐	OTHER. (describe): _____	☐

SCHEDULE 1 - DETAILS OF CONSIDERATION

COMPLETE THIS SCHEDULE FOR ALL TRANSFERS AFTER COMPLETING THE APPROPRIATE SCHEDULES ON PAGES 5 THROUGH 12. ENTER "ZERO" ON LINE 11 IF THE TRANSFER REPORTED WAS WITHOUT CONSIDERATION.

1. Cash	1.	0 00
2. Purchase money mortgage	2.	0 00
3. Unpaid principal of pre-existing mortgage(s)	3.	0 00
4. Accrued interest on pre-existing mortgage(s)	4.	0 00
5. Accrued real estate taxes	5.	0 00
6. Amounts of other liens on property	6.	0 00
7. Value of shares of stock or of partnership interest received	7.	0 00
8. Value of real or personal property received in exchange	8.	0 00
9. Amount of Real Property Transfer Tax and/or other taxes or expenses of the grantor which are paid by the grantee	9.	0 00
10. Other (describe): _____	10.	0 00
11. **TOTAL CONSIDERATION** (add lines 1 through 10 - must equal amount entered on line 1 of Schedule 2) (see instructions)	11.	$ 0 00

See instructions for special rules relating to transfers of cooperative units, liquidations, marital settlements and transfers of property to a business entity in return for an interest in the entity.

SCHEDULE 2 - COMPUTATION OF TAX

A. Payment | Pay amount shown on line 15 - *See Instructions*

		Payment Enclosed
1. Total Consideration (from line 11, above)	1.	0 00
2. Excludable liens (see instructions)	2.	0 00
3. Consideration (line 1 less line 2)	3.	0 00
4. Tax Rate (see instructions)	4.	0 %
5. HDFC Exemption (see Schedule L, line 15)	5.	0 00
6. Consideration less HDFC Exemption (line 3 less line 5)	6.	0 00
7. Percentage change in beneficial ownership (see instructions)	7.	100 %
8 Taxable consideration (multiply line 6 by line 7)	8.	0 00
9. Tax (multiply line 8 by line 4)	9.	0 00
10. Credit (see instructions)	10.	0 00
11. Transfer tax previously paid (see Schedule L, line 18)	11.	0 00
12. Tax due (line 9 less line 10 and 11) (if the result is negative, enter zero)	12.	0 00
13. Interest (see instructions)	13.	0 00
14. Penalty (see instructions)	14.	0 00
15. **Total Tax Due** (add lines 12, 13 and 14)	15.	$ 0 00

SCHEDULE 3 - TRANSFERS INVOLVING MULTIPLE GRANTORS AND/OR GRANTEES

NOTE If additional space is needed, attach copies of this schedule or an addendum listing all of the information required below.

GRANTOR(S)

● Name 2080 BOSTON ROAD ASSOCIATES, LLC

● Grantor is a(n): (check one) ☐ individual ☐ partnership ☐ corporation ☐ single member LLC ☑ multiple member LLC ☐ other_____ | Telephone Number

● Permanent mailing address after transfer (number and street) 902 BROADWAY, 13TH FLOOR

● City and State NEW YORK, NY | Zip Code 10010

● Single member's name if grantor is a single member LLC

SOCIAL SECURITY NUMBER ___ ■ ___ ■ ___

OR

EMPLOYER IDENTIFICATION NUMBER 86 ■ 2858806

SINGLE MEMBER EIN OR SSN

● Name 2080 BOSTON ROAD HOUSING DEV. FUND CORPORATION

● Grantor is a(n): (check one) ☐ individual ☐ partnership ☑ corporation ☐ single member LLC ☐ multiple member LLC ☐ other_____ | Telephone Number

● Permanent mailing address after transfer (number and street) 902 BROADWAY, 13TH FLOOR

● City and State NEW YORK, NY | Zip Code 10010

● Single member's name if grantor is a single member LLC

SOCIAL SECURITY NUMBER ___ ■ ___ ■ ___

OR

EMPLOYER IDENTIFICATION NUMBER 87 ■ 2167221

SINGLE MEMBER EIN OR SSN

GRANTEE(S)

● Name

● Grantee is a(n): (check one) ☐ individual ☐ partnership ☐ corporation ☐ single member LLC ☐ multiple member LLC ☐ other_____ | Telephone Number

● Permanent mailing address after transfer (number and street)

● City and State | Zip Code

● Single member's name if grantee is a single member LLC

SOCIAL SECURITY NUMBER ___ ■ ___ ■ ___

OR

EMPLOYER IDENTIFICATION NUMBER ___ ■ ___

SINGLE MEMBER EIN OR SSN

● Name

● Grantee is a(n): (check one) ☐ individual ☐ partnership ☐ corporation ☐ single member LLC ☐ multiple member LLC ☐ other_____ | Telephone Number

● Permanent mailing address after transfer (number and street)

● City and State | Zip Code

● Single member's name if grantee is a single member LLC

SOCIAL SECURITY NUMBER ___ ■ ___ ■ ___

OR

EMPLOYER IDENTIFICATION NUMBER ___ ■ ___

SINGLE MEMBER EIN OR SSN

GRANTOR'S ATTORNEY ▼

Name of Attorney	HIRSCHEN SINGER & EPSTEIN LLP	Telephone Number	(212) 819-1130
Address (number and street)	902 BROADWAY, 13TH FLOOR	City and State	NEW YORK, NY
		Zip Code	10010
EMPLOYER IDENTIFICATION NUMBER	-	OR SOCIAL SECURITY NUMBER	- -

GRANTEE'S ATTORNEY ▼

Name of Attorney	BRADFORD D. BURNS, ESQ., NEW YORK STATE DEC	Telephone Number	(518) 402-9518
Address (number and street)	625 BROADWAY	City and State	ALBANY, NY
		Zip Code	11233-1500
EMPLOYER IDENTIFICATION NUMBER	-	OR SOCIAL SECURITY NUMBER	- -

CERTIFICATION ▼

I swear or affirm that this return, including any accompanying schedules, affidavits and attachments, has been examined by me and is, to the best of my knowledge, a true and complete return made in good faith, pursuant to Title 11, Chapter 21 of the Administrative Code and the regulations issued thereunder.

GRANTOR

Sworn to and subscribed to

before me on this _____ day

of _____, _____.

87-3278719
EMPLOYER IDENTIFICATION NUMBER OR SOCIAL SECURITY NUMBER

BOSTON ROAD ASSOCIATES II, LLC
Name of Grantor

Signature of Notary

Signature of Grantor

Notary's stamp or seal

GRANTEE

Sworn to and subscribed to

before me on this 18th day

of December, 2023

14-6013200
EMPLOYER IDENTIFICATION NUMBER OR SOCIAL SECURITY NUMBER

THE PEOPLE OF THE STATE OF NEW YORK
Name of Grantee

Signature of Notary

Signature of Grantee

Notary's stamp or seal

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified in Albany County
My Commission Expires March 3, 2027

2023060500352101

SIGNATURE PAGE

TO NEW YORK CITY DEPARTMNT OF FINANCE

REAL PROPERTY TRANSFER TAX RETURN (FORM NYC-RPT)

CERTIFICATION

I swear or affirm that this return, including any accompanying schedules, affidavits and attachments, has been examined by me and is, to the best of my knowledge, a true and complete return made in good faith, pursuant to Title 11, Chapter 21 of the Administrative Code and the regulations issued thereunder.

GRANTOR:

2080 BOSTON ROAD ASSOCIATES II, LLC

TAX IDENTIFICATION NUMBER:
87-3278719

By: 2080 Boston Road Associates, LLC, its managing member

By: 2080 Boston Road Management Corp., its managing member

By: _____
Name: Matthew Kelly
Title: Vice President

Sworn to and subscribed to before me on
this 22nd day of November, 2023

_____
Notary Public

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

CERTIFICATION

I swear or affirm that this return, including any accompanying schedules, affidavits and attachments, has been examined by me and is, to the best of myknowledge, a true and complete return made in good faith, pursuant to Title 11, Chapter 21 of the Administrative Code and the regulations issued thereunder.

GRANTORS

EIN/SSN	Name of Grantor	Signature of Grantor
86-2858806	2080 BOSTON ROAD ASSOCIATES, LLC	
87-2167221	2080 BOSTON ROAD HOUSING DEV. FUND CORPORATION	

GRANTEES

EIN/SSN	Name of Grantee	Signature of Grantee
	Andrew Guglielmi - Director of Remediation	Andrew Guglielmi

2023060500352101

SIGNATURE PAGE

TO NEW YORK CITY DEPARTMNT OF FINANCE

REAL PROPERTY TRANSFER TAX RETURN (FORM NYC-RPT)

CERTIFICATION

I swear or affirm that this return, including any accompanying schedules, affidavits and attachments, has been examined by me and is, to the best of my knowledge, a true and complete return made in good faith, pursuant to Title 11, Chapter 21 of the Administrative Code and the regulations issued thereunder.

GRANTOR:

2080 BOSTON ROAD ASSOCIATES, LLC

TAX IDENTIFICATION NUMBER: 86-2858806

By: 2080 Boston Road Management Corp., its managing member

By: _____
Name: Matthew Kelly
Title: Vice President

Sworn to and subscribed to before me on this 22nd day of November, 2023

_____
Notary Public

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

SIGNATURE PAGE

TO NEW YORK CITY DEPARTMNT OF FINANCE

REAL PROPERTY TRANSFER TAX RETURN (FORM NYC-RPT)

CERTIFICATION

I swear or affirm that this return, including any accompanying schedules, affidavits and attachments, has been examined by me and is, to the best of my knowledge, a true and complete return made in good faith, pursuant to Title 11, Chapter 21 of the Administrative Code and the regulations issued thereunder.

GRANTOR:

2080 BOSTON ROAD HOUSING DEVELOPMENT FUND CORPORATION

TAX IDENTIFICATION NUMBER:
87-2167221

By: _____
Name: Matthew Kelly
Title: Vice President

Sworn to and subscribed to before me on
this 22nd day of November, 2023

_____
Notary Public

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

TP-584-NYC (9/19)

Department of Taxation and Finance

Combined Real Estate Transfer Tax Return, Credit Line Mortgage Certificate, and Certification of Exemption from the Payment of Estimated Personal Income Tax for the Conveyance of Real Property Located in New York City

Recording office time stamp

See Form TP-584-NYC-I, Instructions for Form TP-584-NYC, *before completing this form. Print or type.*

Schedule A – Information relating to conveyance

Grantor/Transferor

☐ Individual
☐ Corporation
☐ Partnership
☐ Estate/Trust
☐ Single member LLC
☑ Multi-member LLC
☐ Other

Name *(if individual, last, first, middle initial)* (☑ *mark an X if more than one grantor*): BOSTON ROAD ASSOCIATES II, LLC

Social Security number (SSN):

Mailing address: 902 BROADWAY, 13TH FLOOR

SSN:

City	State	ZIP code
NEW YORK	NY	10010

Employer identification number (EIN): 87 3278719

Single member's name if grantor is a single member LLC *(see instructions)*

Single member EIN or SSN:

Grantee/Transferee

☐ Individual
☐ Corporation
☐ Partnership
☐ Estate/Trust
☐ Single member LLC
☐ Multi-member LLC
☑ Other

Name *(if individual, last, first, middle initial)* (☐ *mark an X if more than one grantee*): THE PEOPLE OF THE STATE OF NEW YORK

SSN:

Mailing address: ACTING THROUGH THEIR COMMISSIONER OF THE DEPT. OF ENVIRONMENTAL CONSERVATION, 625 BROADWAY

SSN:

City	State	ZIP code
ALBANY	NY	12233-1500

EIN: 14 6013200

Single member's name if grantee is a single member LLC *(see instructions)*

Single member EIN or SSN:

Location and description of property conveyed

Tax map designation – Section, block & lot *(include dots and dashes)*	SWIS code (six digits)	Street address	City, town, or village	County
2 - 3140 - 7	650000	2082 BOSTON ROAD	NEW YORK	BRONX

Type of property conveyed *(mark an X in applicable box)*

1 ☐ One- to three-family house
2 ☐ Residential cooperative
3 ☐ Residential condominium
4 ☐ Vacant land
5 ☐ Commercial/Industrial
6 ☑ Apartment building
7 ☐ Office building
8 ☐ Four-family dwelling
9 ☐ Other _____

Date of conveyance: 11 (month) 15 (day) 2023 (year)

☐ Contract executed on or before April 1, 2019 *(see instructions)*

Percentage of real property conveyed which is residential real property 0 % *(see instructions)*

Condition of conveyance *(mark all that apply)*

a. ☐ Conveyance of fee interest
b. ☐ Acquisition of a controlling interest (state percentage acquired _____ %)
c. ☐ Transfer of a controlling interest (state percentage transferred _____ %)
d. ☐ Conveyance to cooperative housing corporation
e. ☐ Conveyance pursuant to or in lieu of foreclosure or enforcement of security interest *(attach Form TP-584.1, Schedule E)*
f. ☐ Conveyance which consists of a mere change of identity or form of ownership or organization *(attach Form TP-584.1, Schedule F)*
g. ☐ Conveyance for which credit for tax previously paid will be claimed *(attach Form TP-584.1, Schedule G)*
h. ☐ Conveyance of cooperative apartment(s)
i. ☐ Syndication
j. ☐ Conveyance of air rights or development rights
k. ☐ Contract assignment
l. ☐ Option assignment or surrender
m. ☐ Leasehold assignment or surrender
n. ☐ Leasehold grant
o. ☑ Conveyance of an easement
p. ☐ Conveyance for which exemption from transfer tax claimed *(complete Schedule B, Part 4)*
q. ☐ Conveyance of property partly within and partly outside the state
r. ☐ Conveyance pursuant to divorce or separation
s. ☑ Other *(describe)* ENVIRONMENTAL EASEMENT

For recording officer's use	Amount received	Date received	Transaction number
	Schedule B, Part 1 $		
	Schedule B, Part 2 $		
	Schedule B, Part 3 $		

2023060500352301O2

Schedule B – Real estate transfer tax return (Tax Law, Article 31)

Part 1 – Computation of tax due *(in addition to the tax on line 4, you must compute the tax on lines 5a and 5b, if applicable)*

1	Enter amount of consideration for the conveyance *(if you are claiming a total exemption from tax, mark the exemption claimed box, enter consideration and proceed to Part 4)* ☐ **Exemption claimed**	1.	0 00
2	Continuing lien deduction *(see instructions if property is taken subject to mortgage or lien)*	2.	0 00
3	Taxable consideration *(subtract line 2 from line 1)*	3.	0 00
4	Tax: $2 for each $500, or fractional part thereof, of consideration on line 3	4.	0 00
5a	Tax: $1.25 for each $500, or fractional part thereof, of consideration for the conveyance of residential real property located in New York City if the amount on line 3 is $3 million or more *(see instructions)*	5a.	0 00
5b	Tax: $1.25 for each $500, or fractional part thereof, of consideration for the conveyance of property located in New York City other than residential real property, if the amount on line 1 is $2 million or more *(see instructions)*	5b.	0 00
6	Total before credit(s) claimed *(add lines 4, 5a, and 5b)*	6.	0 00
7	Amount of credit claimed for tax previously paid *(see instructions and attach Form TP-584.1, Schedule G)*	7.	0 00
8	Total tax due* *(subtract line 7 from line 6)*	8.	0 00

Part 2 – Computation of additional tax due on the conveyance of residential real property for $1 million or more *(see instructions)*

1	Enter amount of consideration for conveyance *(from Part 1, line 1)*	1.	0 00
2	Taxable consideration *(multiply line 1 by the percentage of the premises which is residential real property, as shown in Schedule A)*	2.	0 00
3	Total additional transfer tax due* *(multiply line 2 by 1% (.01))*	3.	0 00

Part 3 – Computation of supplemental tax due on the conveyance of residential real property, or interest therein, located in New York City, for $2 million or more *(see instructions)*

1	Enter amount of consideration for conveyance *(from Part 1, line 1)*	1.	0 00
2	Taxable consideration *(multiply line 1 by the percentage of the premises which is residential real property, as shown in Schedule A)*	2.	0 00
3	Total supplemental transfer tax due* *(multiply line 2 by tax rate, see instruction for rates)*	3.	0 00

*** The total tax (from Part 1, line 8; Part 2, line 3; and Part 3, line 3 above) is due within 15 days from the date of conveyance.**

Part 4 – Explanation of exemption claimed on Part 1, line 1 *(mark any boxes that apply)*

The conveyance of real property is exempt from the real estate transfer tax for the following reason:

a. Conveyance is to the United States of America, New York State, or any of their instrumentalities, agencies, or political subdivisions (or any public corporation, including a public corporation created pursuant to agreement or compact with another state or Canada) ..... a ☐

b. Conveyance is to secure a debt or other obligation ..... b ☐

c. Conveyance is without additional consideration to confirm, correct, modify, or supplement a prior conveyance ..... c ☐

d. Conveyance of real property is without consideration and not in connection with a sale, including conveyances conveying realty as bona fide gifts ..... d ☐

e. Conveyance is given in connection with a tax sale ..... e ☐

f. Conveyance is a mere change of identity or form of ownership or organization where there is no change in beneficial ownership. (This exemption cannot be claimed for a conveyance to a cooperative housing corporation of real property comprising the cooperative dwelling or dwellings.) Attach Form TP-584.1, Schedule F ..... f ☐

g. Conveyance consists of deed of partition ..... g ☐

h. Conveyance is given pursuant to the federal Bankruptcy Act ..... h ☐

i. Conveyance consists of the execution of a contract to sell real property, without the use or occupancy of such property, or the granting of an option to purchase real property, without the use or occupancy of such property ..... i ☐

j. Conveyance of an option or contract to purchase real property with the use or occupancy of such property where the consideration is less than $200,000 and such property was used solely by the grantor as the grantor's personal residence and consists of a one-, two-, or three-family house, an individual residential condominium unit, or the sale of stock in a cooperative housing corporation in connection with the grant or transfer of a proprietary leasehold covering an individual residential cooperative apartment ..... j ☐

k. Conveyance is not a conveyance within the meaning of Tax Law, Article 31, § 1401(e) *(attach documents supporting such claim)* ..... k ☐

2023060500352301O2

Schedule C – Credit Line Mortgage Certificate (Tax Law, Article 11)

Complete the following only if the interest being transferred is a fee simple interest.
I (we) certify that: *(mark an **X** in the appropriate box)*

1. ☐ The real property being sold or transferred is not subject to an outstanding credit line mortgage.

2. ☐ The real property being sold or transferred is subject to an outstanding credit line mortgage. However, an exemption from the tax is claimed for the following reason:
   a ☐ The transfer of real property is a transfer of a fee simple interest to a person or persons who held a fee simple interest in the real property (whether as a joint tenant, a tenant in common or otherwise) immediately before the transfer.

   b ☐ The transfer of real property is (A) to a person or persons related by blood, marriage or adoption to the original obligor or to one or more of the original obligors or (B) to a person or entity where 50% or more of the beneficial interest in such real property after the transfer is held by the transferor or such related person or persons (as in the case of a transfer to a trustee for the benefit of a minor or the transfer to a trust for the benefit of the transferor).

   c ☐ The transfer of real property is a transfer to a trustee in bankruptcy, a receiver, assignee, or other officer of a court.

   d ☐ The maximum principal amount secured by the credit line mortgage is $3,000,000 or more, and the real property being sold or transferred is **not** principally improved nor will it be improved by a one- to six-family owner-occupied residence or dwelling.

   Note: for purposes of determining whether the maximum principal amount secured is $3,000,000 or more as described above, the amounts secured by two or more credit line mortgages may be aggregated under certain circumstances. See TSB-M-96(6)-R for more information regarding these aggregation requirements.

   e ☐ Other *(attach detailed explanation)*.

3. ☐ The real property being transferred is presently subject to an outstanding credit line mortgage. However, no tax is due for the following reason:
   a ☐ A certificate of discharge of the credit line mortgage is being offered at the time of recording the deed.

   b ☐ A check has been drawn payable for transmission to the credit line mortgagee or his agent for the balance due, and a satisfaction of such mortgage will be recorded as soon as it is available.

4. ☐ The real property being transferred is subject to an outstanding credit line mortgage recorded in _____ (insert liber and page or reel or other identification of the mortgage). The maximum principal amount of debt or obligation secured by the mortgage is _____. No exemption from tax is claimed and the tax of _____ is being paid herewith. *(Make check payable to county clerk where deed will be recorded or, if the recording is to take place in New York City but not in Richmond County, make check payable to the **NYC Department of Finance.**)*

Signature (both the grantor(s) and grantee(s) must sign)

The undersigned certify that the above information contained in schedules A, B, and C, including any return, certification, schedule, or attachment, is to the best of his/her knowledge, true and complete, and authorize the person(s) submitting such form on their behalf to receive a copy for purposes of recording the deed or other instrument effecting the conveyance.

Grantor signature	Title	Grantee signature	Title
		Andrew Hughes	Director of Remediation
Grantor signature	Title	Grantee signature	Title

Reminder: Did you complete all of the required information in Schedules A, B, and C? Are you required to complete Schedule D? If you marked *e*, *f*, or *g* in Schedule A, did you complete Form TP-584.1? If the contract was executed prior to April 1, 2019, did you attach the necessary verification? Have you attached your check(s) made payable to the county clerk where recording will take place or, if the recording is in the New York City boroughs of Manhattan, Bronx, Brooklyn, or Queens, to the ***NYC Department of Finance***? If no recording is required, send this return and your check(s), made payable to the ***NYS Department of Taxation and Finance***, directly to the NYS Tax Department, RETT Return Processing, PO Box 5045, Albany NY 12205-0045. If not using U.S. Mail, see Publication 55, *Designated Private Delivery Services*.

SIGNATURE PAGE
TO NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE
COMBINED REAL ESTATE TRANSFER TAX RETURN, CREDIT LINE MORTGAGE CERTIFICATE, AND CERTIFICATION OF EXEMPTION FROM PAYMENT OF ESTIMATED PERSONAL INCOME TAX (FORM TP-584)

The undersigned certify that the above instrument contained in schedules A, B, and C, including any return, certification, schedule or attachment, is to the best of his/her knowledge, true and complete, and authorize the person(s) submitting such form on their behalf to receive a copy for purposes of recording the deed or other instrument effecting the conveyance.

GRANTOR:

2080 BOSTON ROAD ASSOCIATES II, LLC

TAX IDENTIFICATION NUMBER:
87-3278719

By: 2080 Boston Road Associates, LLC, its managing member

By: 2080 Boston Road Management Corp., its managing member

By: _____
Name: Matthew Kelly
Title: Vice President

Sworn to and subscribed to before me on
this 22nd day of November, 2023

_____
Notary Public

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

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TO NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE
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GRANTOR:

2080 BOSTON ROAD HOUSING DEVELOPMENT FUND CORPORATION

TAX IDENTIFICATION NUMBER:
87-2167221

By: _____
Name: Matthew Kelly
Title: Vice President

Sworn to and subscribed to before me on
this 22nd day of November, 2023

_____
Notary Public

James Kwak
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01KW6435304
Qualified in Queens County
Commission Expires 6/21/2026

Signature (both the grantor(s) and grantee(s) must sign)

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Grantor signature	Title	Grantee signature	Title
		Andrew Singleton	Director of Remediation
Grantor signature	Title	Grantee signature	Title

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TO NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE
COMBINED REAL ESTATE TRANSFER TAX RETURN, CREDIT LINE MORTGAGE CERTIFICATE, AND CERTIFICATION OF EXEMPTION FROM PAYMENT OF ESTIMATED PERSONAL INCOME TAX (FORM TP-584)

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By: 2080 Boston Road Associates, LLC, its managing member

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James Kwak
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Grantor Signature	Title	Grantee Signature	Title
		Andrew Duglecka	Director of Remediation

Schedule D – Certification of exemption from the payment of estimated personal income tax (Tax Law, Article 22, § 663)

Complete the following only if a fee simple interest or a cooperative unit is being transferred by an individual or estate or trust.

If the property is being conveyed by a referee pursuant to a foreclosure proceeding, proceed to Part 2, mark the second box under *Exemptions for nonresident transferor(s)/seller(s)*, and sign at bottom.

Part 1 – New York State residents

If you are a New York State resident transferor(s)/seller(s) listed in Form TP-584-NYC, Schedule A (or an attachment to Form TP-584-NYC), you must sign the certification below. If one or more transferors/sellers of the real property or cooperative unit is a resident of New York State, **each** resident transferor/seller must sign in the space provided. If more space is needed, photocopy this Schedule D and submit as many schedules as necessary to accommodate all resident transferors/sellers.

Certification of resident transferor(s)/seller(s)

This is to certify that at the time of the sale or transfer of the real property or cooperative unit, the transferor(s)/seller(s) as signed below was a resident of New York State, and therefore is not required to pay estimated personal income tax under Tax Law, § 663(a) upon the sale or transfer of this real property or cooperative unit.

Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date

Note: A resident of New York State may still be required to pay estimated tax under Tax Law, § 685(c), but not as a condition of recording a deed.

Part 2 – Nonresidents of New York State

If you are a nonresident of New York State listed as a transferor/seller in Form TP-584-NYC, Schedule A (or an attachment to Form TP-584-NYC) but are not required to pay estimated personal income tax because one of the exemptions below applies under Tax Law, § 663(c), mark the box of the appropriate exemption below. If any one of the exemptions below applies to the transferor(s)/seller(s), that transferor(s)/seller(s) is not required to pay estimated personal income tax to New York State under Tax Law, § 663. **Each** nonresident transferor/seller who qualifies under one of the exemptions below must sign in the space provided. If more space is needed, photocopy this Schedule D and submit as many schedules as necessary to accommodate all nonresident transferors/sellers.

If none of these exemption statements apply, you must complete Form IT-2663, *Nonresident Real Property Estimated Income Tax Payment Form*, or Form IT-2664, *Nonresident Cooperative Unit Estimated Income Tax Payment Form*. For more information, see *Payment of estimated personal income tax*, on Form TP-584-NYC-I, page 1.

Exemption for nonresident transferor(s)/seller(s)

This is to certify that at the time of the sale or transfer of the real property or cooperative unit, the transferor(s)/seller(s) (grantor) of this real property or cooperative unit was a nonresident of New York State, but is not required to pay estimated personal income tax under Tax Law, § 663 due to one of the following exemptions:

☐ The real property or cooperative unit being sold or transferred qualifies in total as the transferor's/seller's principal residence (within the meaning of Internal Revenue Code, section 121) from _____ (Date) to _____ (Date) *(see instructions)*.

☐ The transferor/seller is a mortgagor conveying the mortgaged property to a mortgagee in foreclosure, or in lieu of foreclosure with no additional consideration.

☐ The transferor or transferee is an agency or authority of the United States of America, an agency or authority of the state of New York, the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation, the Government National Mortgage Association, or a private mortgage insurance company.

Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date

Certification of resident transferor(s)/seller(s)

This is to certify that at the time of the sale or transfer of the real property or cooperative unit, the transferor(s)/seller(s) as signed below was a resident of New York State, and therefore is not required to pay estimated personal income tax under Tax Law, section 663(a) upon the sale or transfer of this real property or cooperative unit.

Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date

Exemption for nonresident transferor(s)/seller(s)

This is to certify that at the time of the sale or transfer of the real property or cooperative unit, the transferor(s)/seller(s) (grantor) of this real property or cooperative unit was a nonresident of New York State, but is not required to pay estimated personal income tax under Tax Law, section 663 due to one of the following exemptions:

☐ The real property or cooperative unit being sold or transferred qualifies in total as the transferor's/seller's principal residence (within the meaning of Internal Revenue Code, section 121) from _____ (Date) to _____ (Date) *(see instructions)*.

☐ The transferor/seller is a mortgagor conveying the mortgaged property to a mortgagee in foreclosure, or in lieu of foreclosure with no additional consideration.

☐ The transferor or transferee is an agency or authority of the United States of America, an agency or authority of the state of New York, the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation, the Government National Mortgage Association, or a private mortgage insurance company.

Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date
Signature	Print full name	Date

TRANSFERS INVOLVING MULTIPLE GRANTORS AND/OR GRANTEES

NOTE If additional space is needed, attach copies of this schedule or an addendum listing all of the information required below.

Grantor/Transferor
- ☐ Individual
- ☐ Corporation
- ☐ Partnership
- ☐ Estate/Trust
- ☐ Single member LLC
- ☑ Multi-member LLC
- ☐ Other

Name *(if individual, last, first, middle initial)* 2080 BOSTON ROAD ASSOCIATES, LLC	Social security number
Mailing address 902 BROADWAY, 13TH FLOOR	Social security number
City NEW YORK — State NY — ZIP code 10010	Federal EIN 86 | 2858806
Country	
Single member's name if grantor/grantee is a single member LLC	Single member EIN or SSN

Grantor/Transferor
- ☐ Individual
- ☑ Corporation
- ☐ Partnership
- ☐ Estate/Trust
- ☐ Single member LLC
- ☐ Multi-member LLC
- ☐ Other

Name *(if individual, last, first, middle initial)* 2080 BOSTON ROAD HOUSING DEV. FUND CORPORATION	Social security number
Mailing address 902 BROADWAY, 13TH FLOOR	Social security number
City NEW YORK — State NY — ZIP code 10010	Federal EIN 87 | 2167221
Country	
Single member's name if grantor/grantee is a single member LLC	Single member EIN or SSN

- ☐ Individual
- ☐ Corporation
- ☐ Partnership
- ☐ Estate/Trust
- ☐ Single member LLC
- ☐ Multi-member LLC
- ☐ Other

Name *(if individual, last, first, middle initial)*	Social security number
Mailing address	Social security number
City — State — ZIP code	Federal EIN
Country	
Single member's name if grantor/grantee is a single member LLC	Single member EIN or SSN

- ☐ Individual
- ☐ Corporation
- ☐ Partnership
- ☐ Estate/Trust
- ☐ Single member LLC
- ☐ Multi-member LLC
- ☐ Other

Name *(if individual, last, first, middle initial)*	Social security number
Mailing address	Social security number
City — State — ZIP code	Federal EIN
Country	
Single member's name if grantor/grantee is a single member LLC	Single member EIN or SSN

- ☐ Individual
- ☐ Corporation
- ☐ Partnership
- ☐ Estate/Trust
- ☐ Single member LLC
- ☐ Multi-member LLC
- ☐ Other

Name *(if individual, last, first, middle initial)*	Social security number
Mailing address	Social security number
City — State — ZIP code	Federal EIN
Country	
Single member's name if grantor/grantee is a single member LLC	Single member EIN or SSN

APPENDIX B
LIST OF SITE CONTACTS

Company	Individual Name	Title	Contact Number	Contact Email
AKRF	Deborah Shapiro, QEP	Principal	646-388-9544 (office)	dshapiro@akrf.com
	Rebecca A. Kinal, P.E.	Remedial Engineer	914-922-2362 (office)	rkinal@akrf.com
	Ashutosh Sharma	Project Manager	646-388-9865 (office)	asharma@akrf.com
	Antonio Cardenas	Field Team Leader	718-551-7193 (cell)	acardenas@akrf.com
Boston Tremont HDFC, 2080 Boston Road Associates LLC, and Boston Tremont Apartments, LLC	Matthew Kelly	Participant's Representative	(212) 243-9090 x 290 (office)	mkelly@phippsny.org
NYSDEC	Michael MacCabe	Project Manager	(518) 402-9687	michael.maccabe@dec.ny.gov
NYSDEC	Sarah Quandt	Section Chief	(518) 402-9116	sarah.quandt@dec.ny.gov
NYSDOH	NA	NA	NA	beei@health.ny.gov

APPENDIX C
EXCAVATION WORK PLAN

APPENDIX C
EXCAVATION WORK PLAN (EWP)

1.1 Notification

At least 15 days prior to the start of any activity in the Track 4 portion of the Site that is anticipated to encounter remaining contamination or breach or alter the Site's composite cover system, the Site owner or their representative will notify the New York State Department of Environmental Conservation (NYSDEC) contacts listed in the table below. 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 B of this Site Management Plan (SMP).

Table EWP-1
Notifications*

Agency	Name, Role	Contact Information
NYSDEC	Michael H. MacCabe Project Manager	518-402-9687 michael.maccabe@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, any modifications of truck routes, and any work that may impact an engineering control (EC);
- A summary of the 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, and submittals (e.g., reports) to NYSDEC documenting the completed intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the contractor's Health and Safety Plan (HASP), in electronic format, if it differs from the HASP provided in Appendix D of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation, including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP. The alteration, restoration and modification of ECs must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations.

1.2 Soil Screening Methods

Visual, olfactory, and instrument-based [e.g. photoionization detector (PID)] soil screening will be performed during all excavations into known or potentially contaminated material (remaining contamination) or a breach of the composite cover system. A qualified environmental professional (QEP) as defined in 6 New York Codes, Rules, and Regulations (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 will perform the screening. 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 Certificate of Completion (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 as part of the Site cover. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections 1.6 and 1.7 of this Appendix.

1.3 Stockpile Methods

Soil stockpiles will be continuously encircled with a berm and/or silt fence, as needed. 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, maintained at the Site, and available for inspection by NYSDEC.

1.4 Materials Excavation and Load-Out

A QEP as defined in 6 NYCRR Part 375, a 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 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 QEP. 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. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at 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 New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements). Trucks transporting contaminated soil must have either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides.

A truck wash will be operated on-site, as appropriate. The QEP 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. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The QEP 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.

1.5 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 either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides. 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:

- Trucks entering the Site will be traveling via the Cross Bronx Expressway to the Bronx; continue onto East 177th Street; turn right on Devoe Avenue; turn left onto East 180th Street; and turn left onto Boston Road. The Site will be on the left.
- Trucks leaving the Site will head northeast on Boston Road; turn right onto East 180th Street; turn right onto Devoe Avenue; turn right onto Sheridan Avenue; and leave the Bronx via the Cross Bronx Expressway.

All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. These are the most appropriate routes 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 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.

1.6 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 off-site in a permitted facility 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 NYSDEC. Unregulated off-site management of materials from the Site will not occur without formal NYSDEC project manager 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 [e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction and demolition (C&D) debris recovery facility]. Actual disposal quantities and associated documentation will be reported to NYSDEC in the Periodic Review Report (PRR). This documentation will include, but will not be limited to: 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 6 NYCRR Parts 360, 361, 362, 363, 364, and 365. Material that does not meet Unrestricted Use Soil

Cleanup Objectives (SCOs) is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

1.7 Materials Reuse On-Site

The QEP, as defined in 6 NYCRR Part 375, will ensure that the procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) 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 the cover system or within landscaping berms. Contaminated on-site material may only be used beneath the site cover as backfill for subsurface utility lines with prior approval from the NYSDEC project manager.

Proposed materials for reuse on-site must be sampled for full suite analytical parameters, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, target analyte list (TAL) metals, polychlorinated biphenyls (PCBs), 1,4-dioxane, and per- and polyfluoroalkyl substances (PFAS). The sampling frequency will be in accordance with DER-10 Table 5.4(e)10, unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet Restricted-Residential Use criteria presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances April 2023 guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-site will be segregated and staged as described in Sections 1.2 and 1.3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to NYSDEC. Stockpile locations will be based on the locations of Site excavation activities and proximity to nearby Site features. Material reuse on-site will comply with the requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by NYSDEC.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to 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.

1.8 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 off-site at a permitted facility 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 State Pollutant Discharge Elimination System (SPDES) permit.

1.9 Cover System Restoration

After the completion of soil removal and any other invasive activities, the composite cover system will be restored in a manner that complies with the Remedial Action Work Plan (RAWP), Decision Document (DD), and the SMP. The existing cover system is comprised of a minimum of: (1) 5-

inch-thick concrete building slabs underlain by a minimum 20-mil vapor barrier (also serving as a demarcation barrier); and (2) a minimum of 2 feet of clean fill cover with a demarcation barrier below or pavers (concrete and/or asphalt) in the landscaped areas. The demarcation layer, consisting of orange snow fencing material, white geotextile, or equivalent material, etc., will be replaced 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 PRR and in an updated SMP. The alteration, restoration, and modification of ECs must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations.

1.10 Backfill from Off-Site Sources

All materials proposed for import onto the Site will be approved by the QEP, as defined in 6 NYCRR Part 375, and will be in compliance with the 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, other environmental remediation sites, or potentially contaminated sites will not be imported to the Site.

All imported soil will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for Restricted Residential Use. Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by the NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. 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.

1.11 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of the inspections will be recorded in a logbook, maintained at the Site, and available for inspection by 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.

1.12 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. The NYSDEC project manager will be promptly notified of the discovery.

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 (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the Site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone within two hours 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 PRR.

1.13 Community Air Monitoring Plan

Community air monitoring will be conducted during all intrusive Site activities in compliance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) and the Site-specific HASP (Appendix D). Real-time air monitoring for VOCs at the perimeter of the exclusion zone will be performed as follows:

VOC Monitoring

Continuous monitoring for VOCs will be conducted during all soil disturbance/excavation. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background concentrations. VOCs will be monitored continuously at the downwind perimeter of the exclusion zone. Monitoring will be conducted with a photoionization detector (PID) equipped with a 10.6 eV lamp capable of calculating 15-minute running average concentrations.

The following actions will be taken based on organic vapor levels measured:

- If total organic vapor levels exceed 5 parts per million (ppm) above background for the 15-minute average at the exclusion zone perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the exclusion zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the hot 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 above background for the 15-minute average.
- If the total organic vapor level is above 25 ppm at the perimeter of the exclusion zone, activities will be shut down.

More frequent intervals of monitoring will be conducted if required as determined by the Site Safety officer (SSO). All 15-minute readings will be recorded and available for NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, will also be recorded.

Dust/Particulate Monitoring

A Dust Trak® dust monitor or equivalent will be used to measure concentration of total particulate matter during field activities. Continuous monitoring will be conducted during all soil excavation/disturbance. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background concentrations. VOCs will be monitored continuously at the downwind perimeter of the exclusion zone.

The action levels developed for the Site are based upon 15-minute averages of the monitoring data. The measurements will be made as close to the workers as practicable and at the breathing height of the workers. The initial measurement for the day will be performed before the start of work and will establish the background level for that day. The final measurement for the day will be performed after the end of work. The work zone action levels and required responses are listed in the following table:

Table EWP-2
Work Zone Action Levels and Required Responses

Action Level	Response Action
Less than 0.150 mg/m^3	Level D, D-Modified, or C (subject to PID readings)
More than 0.150 mg/m^3 above background in breathing zone	Stop work. Resume work when readings are less than 0.15 mg/m^3.

mg/m^3 = milligrams per cubic meter

If, after implementation of dust suppression techniques, downwind particulate levels are greater than 0.150 mg/m^3 above the background (upwind level), work shall be reevaluated and changes initiated to reduce particulate levels and to prevent visible dust migration, including work stoppage if necessary.

In addition, fugitive dust migration to the nearby community should be visually assessed during all work activities as follows:

- If the downwind particulate level is 0.1 mg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind particulate levels do not exceed 0.150 mg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind particulate levels are greater than 0.150 mg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind particulate concentration to within 0.150 mg/m^3 of the upwind level and in preventing visible dust migration.

Exceedances of these action levels will be reported to NYSDEC and NYSDOH project managers.

1.13.1 Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of ECs such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related

to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 0.150 mg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 0.150 mg/m^3 or less at the monitoring point.

1.13.2 Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other ECs be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

1.14 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 by the on-site QEP or personnel under their direct supervision. 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 PRR.

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.

1.15 Dust Control Plan

Particulate monitoring must be conducted according to the CAMP provided in Section 1.13 of this EWP and in Appendix D. If particulate levels at the Site exceed the thresholds listed in the CAMP or if airborne dust is observed on the Site or leaving the Site, the dust suppression techniques listed below will be employed. The remedial party will also take the measures listed below to prevent dust production on the Site.

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 using 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.

1.16 Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

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

APPENDIX D
HEALTH AND SAFETY PLAN AND COMMUNITY AIR MONITORING PLAN

Lambert Houses Parcel 5
2080 and 2082 Boston Road

BRONX, NEW YORK

Health and Safety Plan and Community Air Monitoring Plan

NYSDEC BCP Site #: C203136

AKRF Project Number: 190247

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau B
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On Behalf Of:

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1.0 INTRODUCTION

This environmental Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) has been developed for implementation of Site Management Plan (SMP) activities conducted by all personnel on-Site, both AKRF, Inc. (AKRF) employees and others, at Lambert Houses Parcel 5 (the "Site"). The Site is located at 2080 and 2082 Boston Road in the Bronx, New York. The legal definition of the Site is Tax Block 3140, Lot 7. A Site Location plan is provided as Figure 1.

Boston Tremont Housing Development Fund Corporation entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC on July 23, 2020 (index no. C203136-07-20) as a Participant to remediate the Site. The BCA was amended on May 4, 2021 to add Boston Tremont Apartment LLC and 2080 Boston Road Associates, LLC to the BCA; on August 19, 2021 to update the Site address; on February 2, 2022 to add 2080 Boston Road Associates II, LLC (as a beneficial owner) and 2080 Boston Road Housing Development Fund Corporation (as a fee owner) to the BCA; and on July 18, 2023 to identify 2080 Boston Road Associates, LLC as a beneficial owner and to identify the Site as an affordable housing project. Boston Tremont Housing Development Fund Corporation, Boston Tremont Apartment LLC, 2080 Boston Road Associates, LLC, 2080 Boston Road Associates II, LLC, and 2080 Boston Road Housing Development Fund Corporation are collectively referred to as "the Requestors." The Site was remediated to a combination of Track 1 Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Track 4 Restricted Residential Soil Cleanup Objectives (RRSCOs) in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP), Final Engineering Report (FER), and Decision Document (DD).

The Site is currently being redeveloped with a new 7- to 17-story residential building with landscaped areas and an approximately 6,680-square foot detached one-story garage/storage building in the southern portion of the Site. When completed, the building will contain approximately 279 units of affordable housing. The residential building includes a partial cellar in the northern portion of the Site to be used for housing utilities (water room, electric room, detention tank, etc.).

After completion of the remedial work in accordance with the NYSDEC-approved RAWP, some contamination was left at this Site. Institutional and Engineering Controls (ICs/ECs) 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 the NYSDEC, and recorded with the Bronx County Clerk, requires compliance with the SMP and all ICs/ECs placed on the Site.

This HASP and CAMP does not discuss routine health and safety issues common to general construction and excavation, including, but not, limited to slips, trips, falls, shoring, and other physical hazards. All AKRF employees are directed that all work must be performed in accordance with the AKRF's Generic HASP and all Occupation Safety and Health Administration (OSHA)-applicable regulations for the work activities required for the project. All project personnel are furthermore directed that they are not permitted to enter Permit Required Confined Spaces (as defined by OSHA). For issues unrelated to contaminated materials, all non-AKRF employees are to be bound by all applicable OSHA regulations as well as any more stringent requirements specified by their employer in their corporate HASP or otherwise. AKRF is not responsible for providing oversight for issues unrelated to contaminated materials for non-employees. This oversight shall be the responsibility of the employer of that worker or other official designated by that employer.

2.0 HEALTH AND SAFETY GUIDELINES AND PROCEDURES

2.1 Hazard Evaluation

2.1.1 Hazards of Concern

Check all that apply		
(**X**) Organic Chemicals	(**X**) Inorganic Chemicals	( ) Radiological
( ) Biological	( ) Explosive/Flammable	( ) Oxygen Deficient Atm
(**X**) Heat Stress	(**X**) Cold Stress	( ) Carbon Monoxide
Comments: No personnel are permitted to enter permit confined spaces.		

2.1.2 Physical Characteristics

Check all that apply		
(**X**) Liquid	(**X**) Solid	( ) Sludge
(**X**) Vapors	( ) Unknown	( ) Other
Comments:		

2.1.3 Hazardous Materials

Check all that apply					
Chemicals	**Solids**	**Sludges**	**Solvents**	**Oils**	**Other**
( ) Acids	( ) Ash	( ) Paints	( ) Halogens	( ) Transformer	( ) Lab
( ) Caustics	( ) Asbestos	( ) Metals	(**X**) Petroleum	( ) Other DF	( ) Pharm
(**X**) Pesticides	( ) Tailings	( ) POTW	(**X**) Other	( ) Motor or Hydraulic Oil	( ) Hospital
(**X**) Petroleum	(**X**) Other	( ) Other	Chlorinated Solvents	(**X**) Gasoline	( ) Rad
( ) Inks	Fill material			(**X**) Fuel Oil	( ) MGP
(**X**) PCBs					( ) Mold
(**X**) Metals					( ) Cyanide
(**X**)Other: VOCs & SVOCs					

2.1.4 Chemicals of Concern

Chemicals	REL/PEL/STEL (ppm)	Health Hazards
1,2 Dichloroethene	REL = 200 ppm PEL = 200 ppm	Nausea, drowsy, tiredness possible heart damage.
1,2-Dichloroethane	REL = 1 ppm PEL = 50 ppm	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen].
1,1,1 Trichloroethane	REL = 350 ppm PEL = 350 ppm	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage
Arsenic	REL= 0.002 mg/m^3 PEL= 0.010 mg/m^3	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]
Benzene	REL = 0.1 ppm PEL = 1 ppm STEL = 5 ppm	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude, dermatitis; bone marrow depression, potential occupational carcinogen.
Ethylbenzene	REL = 100 ppm PEL = 100 ppm	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma.
Lead	REL = 0.05 mg/m^3 PEL = 0.05 mg/m^3	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension.
Mercury	REL = 0.1 mg/m^3 PEL = 0.05 mg/m^3	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria.
Polycyclic Aromatic Hydrocarbons (PAHs)	PEL = 5 mg/m^3	Harmful effects to skin, bodily fluids, and ability to fight disease, reproductive problems; potential carcinogen.
Tetrachloroethylene	PEL = 100 ppm	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen].
Trichloroethylene	REL = 25 ppm PEL = 100 ppm	Headaches, lung irritation, dizziness, poor coordination, impaired heart function, unconsciousness, and nerve, kidney and liver damage.
Toluene	REL = 100 ppm PEL = 200 ppm STEL = 300 ppm	Irritation eyes, nose; lassitude, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage.
Xylenes	REL = 100 ppm PEL = 100 ppm	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, poor coordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis.
Comments: REL = National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit PEL = OSHA Permissible Exposure Limit STEL = OSHA Short Term Exposure Limit		

2.2 Designated Personnel

AKRF will appoint one of its on-site personnel as the Site Safety Officer (SSO). This individual will be responsible for implementation of the HASP. The SSO will have a 2-year or 4-year college degree in occupational safety or a related environmental science/engineering field, and

experience in implementation of air monitoring and hazardous materials sampling programs. Health and safety training required for the SSO and all field personnel are outlined in Section 2.3 of this HASP.

2.3 Training

All personnel who enter the work area while intrusive activities are being performed will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards. In addition, all personnel will have up-to-date 8-hour refresher training. The training will allow personnel to recognize and understand the potential hazards to health and safety. All field personnel must attend a training program, whose purpose is to:

- Make them aware of the potential hazards they may encounter;
- Provide the knowledge and skills necessary for them to perform the work with minimal risk to health and safety and make them aware of the purpose and limitations of safety equipment; and
- Ensure that they can safely avoid or escape from emergencies.

Each member of the field crew will be instructed in these objectives before he/she goes onto the Site. A Site safety meeting will be conducted at the start of the project. Additional meetings shall be conducted, as necessary, for new personnel working at the Site.

2.4 Medical Surveillance Program

All AKRF and subcontractor personnel performing field work involving subsurface disturbance at the Site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). A physician's medical release for work will be confirmed by the SSO before an employee can begin Site activities. The medical release shall consider the type of work to be performed and the required personal protective equipment (PPE). The medical examination will, at a minimum, be provided annually and upon termination of hazardous waste Site work.

2.5 Site Work Zones

During any activities involving subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, ensure that proper protective equipment is donned, and provide an area for decontamination.

The Exclusion Zone is defined as the area where exposure to impacted media could be encountered. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located next to the Exclusion Zone. The Support is the zone area where support facilities such as vehicles, fire extinguisher, and first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all workers on-site would assemble in the event of an emergency. A summary of these areas is provided below. These zones may be changed by the SSO, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins. The exclusion zone and CRZ are 10 and 25 feet from the drill rig during excavation and/or sampling. Control measures such as caution tape and/or traffic cones will be placed around the perimeter of the work area when needed.

Task	Exclusion Zone	CRZ	Support Zone
Excavation and/or Sampling	10 ft from Drill Rig or Excavator	25 ft from Drill Rig or Excavator	As Needed
Comments: Control measures such as "caution tape" and/or traffic cones will be placed around the perimeter of the work area when work is being done in a public area.			

2.6 Air Monitoring

The purpose of the air monitoring program is to identify any exposure of the field personnel to potential environmental hazards in the soil and groundwater. Results of the air monitoring will be used to determine the appropriate response action, if needed.

1.1.1 Volatile Organic Compound (VOC) Monitoring

Continuous monitoring for VOCs will be conducted during all ground-intrusive activities, including soil boring advancement and groundwater monitoring well installation. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background concentrations. VOCs will be monitored continuously at the downwind perimeter of the exclusion zone. Monitoring will be conducted with a photoionization detector (PID) equipped with an 10.6 electron volt (eV) lamp capable of calculating 15-minute running average concentrations.

More frequent intervals of monitoring will be conducted if required as determined by the SSO. All PID readings will be recorded and available for NYSDEC and New York State Department of Health (NYSDOH) personnel to review. Instantaneous readings, if any, will also be recorded.

1.1.2 Community Air Monitoring Action Levels

VOC Action Levels

The following actions will be taken based on organic vapor levels measured:

- If total organic vapor levels exceed 5 ppm above background for the 15-minute average at the exclusion zone perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the exclusion zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the hot 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 above background for the 15-minute average.
- If the total organic vapor level is above 25 ppm at the perimeter of the exclusion zone, activities will be shutdown.

Major Vapor Emission Response Plan

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work Site, or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted or vapor controls must be implemented.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the exclusion zone, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If either of the following criteria is exceeded in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be implemented:

- Sustained organic vapor levels approaching 1 ppm above background for a period of more than 30 minutes; or
- Organic vapor levels greater than 5 ppm above background for any time period.

Upon activation, the following activities shall be undertaken as part of the Major Vapor Emission Response Plan:

- The NYSDEC, NYSDOH, and local police authorities will be immediately contacted by the SSO and advised of the situation;
- Frequent air monitoring will be conducted at 30-minute intervals within the 20-Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Site Health and Safety Officer; and
- All Emergency contacts will go into effect as appropriate.
- All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review.

Instrument	Action Level	Response Action
PID	Less than 5 ppm in breathing zone	Level D or D-Modified
	Between 5 ppm and 50 ppm	Level C
	More than 50 ppm	Stop work. Resume work when readings are less than 50 ppm.
ppm = parts per million		

2.7 Special Requirements CAMP

As the Site is located within 20 feet of potentially occupied structures, a Special Requirements CAMP will be implemented during activities involving subsurface disturbance. One of the two fixed CAMP stations will be located near potentially exposed individuals. Private residences are located southwest-adjacent to the Site.

The additional CAMP provisions included in the Special Requirements CAMP are as follows:

1. Use of engineering controls such as vapor/dust barriers or special ventilation devices will be considered; and

2. Special consideration will be given to implementing planned activities when potentially exposed populations are at a minimum.

The following Site-Specific CAMP provisions will be implemented at the Site, as necessary:

1. If total VOC concentrations near the outside walls or next to intake vents of the south-adjacent occupied structures exceed 1 ppm, air monitoring should occur within the occupied structures; and
2. If total particulate concentrations near the outside walls or next to intake vents of the south-adjacent occupied structures exceed 0.150 mg/m^3, work activities should be suspended until controls are implemented.

Additional information regarding the Special Requirements CAMP is provided in Attachment E.

2.8 Personal Protection Equipment

The PPE required for various kinds of investigation tasks are based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, Appendix B, "General Description and Discussion of the Levels of Protection and Protective Gear."

AKRF field personnel and other site personnel shall wear, at a minimum, Level D PPE. The protection will be based on the air monitoring described in Section 2.6.

Level D PPE includes donning of the following during drilling and sampling:

1. Steel Toed Boots
2. Hard Hat
3. Work Gloves
4. Safety Glasses
5. Ear Plugs
6. Nitrile Gloves
7. Tyvek Suit if NAPL is present

If PID readings exceed 5 ppm in the breathing zone, personnel will don Level C PPE, which includes Level D PPE and a half- or full-face respirator with a dual organic and particulate cartridge.

LEVEL OF PROTECTION & PPE		Excavation/ Sampling
Level D (**X**) Steel Toe Shoes (**X**) Hard Hat (within 25 ft of drill rig) (**X**) Work Gloves	(**X**) Safety Glasses ( ) Face Shield (**X**) Ear Plugs (within 25 ft of drill rig) (**X**) Nitrile Gloves (**X**) Tyvek for drill rig operator if NAPL present	Yes
Level C ***(in addition to Level D)*** (**X**) Half-Face Respirator OR (**X**) Full Face Respirator ( ) Full-Face PAPR	( ) Particulate Cartridge ( ) Organic Cartridge (**X**) Dual Organic/ Particulate Cartridge	If PID > 10 ppm (breathing zone)

LEVEL OF PROTECTION & PPE	Excavation/ Sampling
Comments: Cartridges to be changed out at least once per shift unless warranted beforehand (e.g., more difficult to breathe or any odors detected).	

2.9 General Work Practices

To protect the health and safety of the field personnel, 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 SSO.
- Workers must wash their hands 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. 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/cold stress.

3.0 EMERGENCY PROCEDURES AND EMERGENCY RESPONSE PLAN

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 SSO will determine the nature of the emergency and he/she 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, he/she should be taken to a hospital by on-site personnel. Directions to the hospital are provided below, and a hospital route map is provided as Figure 2.

3.1 Hospital Directions

Hospital Name:	Saint Barnabas Hospital
Phone Number:	718-518-2000
Address/Location:	4422 Third Avenue, Bronx, New York
Directions:	1. Head north onto Boston Road. 2. Boston Road turns left and becomes Bronx Park South. 3. Continue onto East 182nd Street. 4. Turn left onto Quarry Road. 5. Turn right on East 181st Street. 6. Turn right onto Third Avenue. 7. Saint Barnabas Hospital will be on the right.

3.2 Emergency Contacts

Company	Individual Name	Title	Contact Number
AKRF	Deborah Shapiro	Project Director	646-388-9544 (office)
	Ashutosh Sharma	Project Manager	646-388-9865 (office)
	Stephen Schmid	SSO	914-400-9736 (cell)
Boston Tremont HDFC, 2080 Boston Road Associates LLC, 2080 Boston Road Associates II, LLC, 2080 Boston Road HDFC, and Boston Tremont Apartments, LLC	Matthew Kelly	Owner Representative	212-243-9090 ext. 290 (office)
Ambulance, Fire Department & Police Department	-	-	911
NYSDEC Spill Hotline	-	-	800-457-7362

4.0 APPROVAL & ACKNOWLEDGMENTS OF HASP

APPROVAL

Signed: ______________________________ Date: ______________________________

AKRF Project Manager

Signed: ______________________________ Date: ______________________________

AKRF Health and Safety Officer

Below is an affidavit that must be signed by all workers who enter the site. A copy of the HASP must be on-site at all times and will be kept by the SSO.

AFFIDAVIT

I,_____________________(name), of__________________________(company name), have read the Health and Safety Plan (HASP) for the Lambert Houses Parcel 5 property located at 2080 and 2082 Boston Road in the Bronx, New York. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signed:		Company:		Date:	
Signed:		Company:		Date:	
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Signed:		Company:		Date:	
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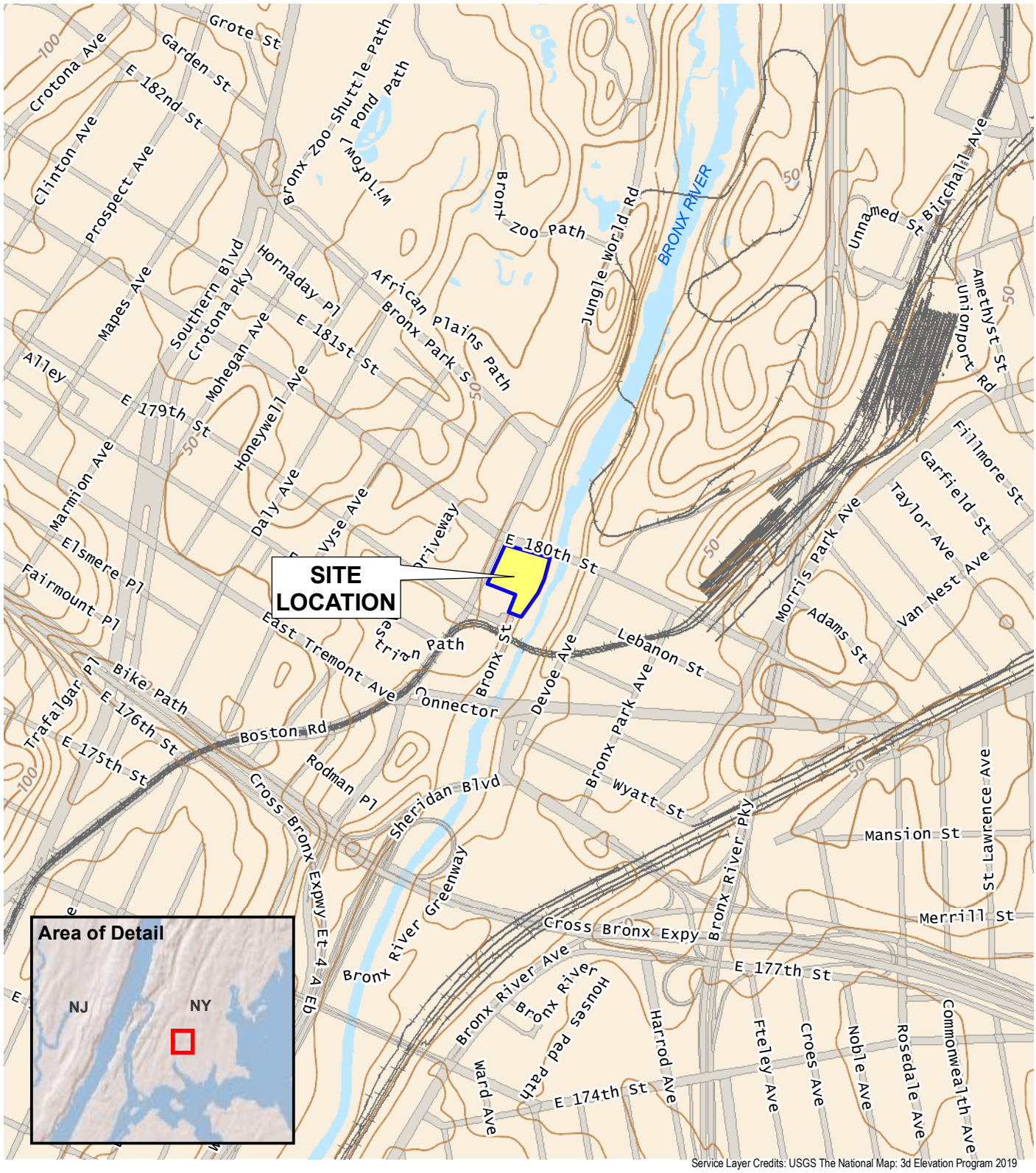
FIGURES



AKRF
440 Park Avenue South, New York, NY 10016

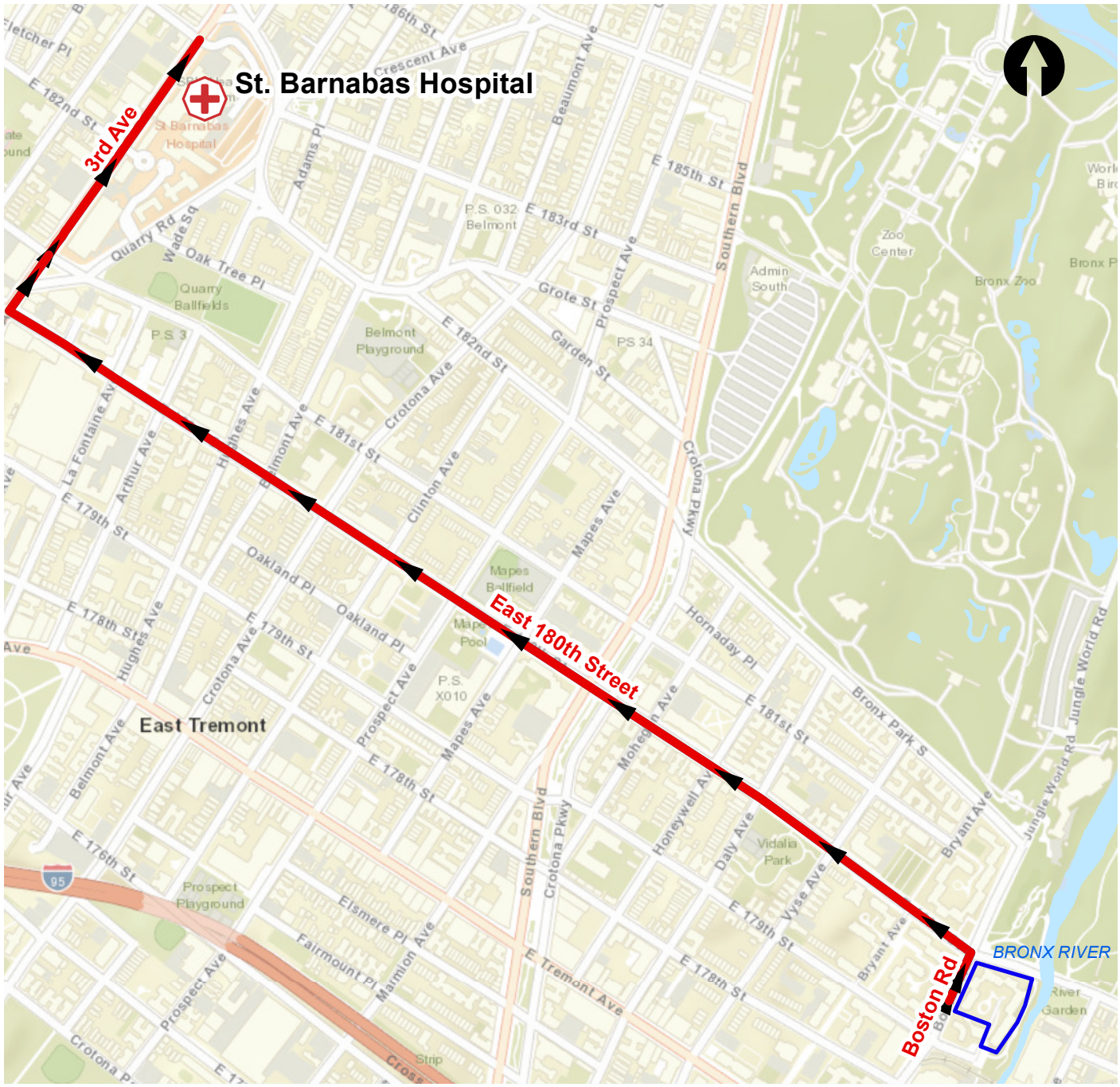
Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

BCP SITE LOCATION

DATE
12/16/2020

PROJECT NO.
190247

FIGURE
1



Service Layer Credits: ESRI World Street Map 2020

LEGEND

- PROJECT SITE BOUNDARY
- ROUTE TO HOSPITAL
- HOSPITAL LOCATION

Hospital address:
St. Barnabas Hospital
4422 3rd Ave,
Bronx, NY 10457
(718) 960-9000
ER Entrance on 3rd Avenue

0 1,000 2,000
Feet

AKRF
440 Park Avenue South, New York, NY 10016

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

HOSPITAL ROUTE MAP

DATE
2/14/2020
PROJECT NO.
190247
FIGURE
2

ATTACHMENT A

POTENTIAL HEALTH EFFECTS FROM ON-SITE CONTAMINANTS

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

1,1,1-TRICHLOROETHANE

CAS # 71-55-6

Division of Toxicology and Environmental Medicine ToxFAQs™ **July 2006**

This fact sheet answers the most frequently asked health questions (FAQs) about 1,1,1-trichloroethane. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to 1,1,1-trichloroethane usually occurs by breathing contaminated air. It is found in building materials, cleaning products, paints, and metal degreasing agents. You are not likely to be exposed to large enough amounts to cause adverse health effects. Inhaling high levels of 1,1,1-trichloroethane can cause you to become dizzy and lightheaded. Exposure to much higher levels can cause unconsciousness and other effects. This substance has been found in at least 823 of the 1,662 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is 1,1,1-trichloroethane?

1,1,1-Trichloroethane is a synthetic chemical that does not occur naturally in the environment. It also is known as methylchloroform, methyltrichloromethane, trichloromethylmethane, and α–trichloromethane. Its registered trade names are chloroethene NU® and Aerothene TT®.

No 1,1,1-trichloroethane is supposed to be manufactured for domestic use in the United States after January 1, 2002 because it affects the ozone layer. 1,1,1-Trichloroethane had many industrial and household uses, including use as a solvent to dissolve other substances, such as glues and paints; to remove oil or grease from manufactured metal parts; and as an ingredient of household products such as spot cleaners, glues, and aerosol sprays.

What happens to 1,1,1-trichloroethane when it enters the environment?

❑ Most of the 1,1,1-trichloroethane released into the environment enters the air, where it lasts for about 6 years.

❑ Once in the air, it can travel to the ozone layer where sunlight can break it down into chemicals that may reduce the ozone layer.

❑ Contaminated water from landfills and hazardous waste sites can contaminate surrounding soil and nearby surface water or groundwater.

❑ From lakes and rivers, most of the 1,1,1-trichloroethane evaporates quickly into the air.

❑ Water can carry 1,1,1-trichloroethane through the soil and into the groundwater where it can evaporate and pass through the soil as a gas, then be released to the air.

❑ Organisms living in soil or water may also break down 1,1,1-trichloroethane.

❑ It will not build up in plants or animals.

How might I be exposed to 1,1,1-trichloroethane?

❑ Breathing 1,1,1-trichloroethane in contaminated outdoor and indoor air. Because 1,1,1-trichloroethane was used so frequently in home and office products, you are likely to be exposed to higher levels indoors than outdoors or near hazardous waste sites. However, since 2002, 1,1,1-trichloroethane is not expected to be commonly used, and therefore, the likelihood of being exposed to it is remote.

❑ In the workplace, you could have been exposed to 1,1,1-trichloroethane while using some metal degreasing agents, paints, glues, and cleaning products.

❑ Ingesting contaminated drinking water and food.

How can 1,1,1-trichloroethane affect my health?

If you breathe air containing high levels of 1,1,1-trichloroethane for a short time, you may become dizzy and lightheaded and possibly lose your coordination. These effects rapidly disappear after you stop breathing contaminated air. If you breathe in much higher levels, you may become unconscious, your blood pressure may decrease, and your heart may stop beating. Whether breathing low levels of 1,1,1-trichloroethane for a long

time causes harmful effects is not known. Studies in animals show that breathing air that contains very high levels of 1,1,1-trichloroethane damages the breathing passages and causes mild effects in the liver, in addition to affecting the nervous system. There are no studies in humans that determine whether eating food or drinking water contaminated with 1,1,1-trichloroethane could harm health. Placing large amounts of 1,1,1-trichloroethane in the stomachs of animals has caused effects on the nervous system, mild liver damage, unconsciousness, and even death. If your skin contacts 1,1,1-trichloroethane, you might feel some irritation. Studies in animals suggest that repeated exposure of the skin might affect the liver and that very large amounts may cause death. These effects occurred only when evaporation was prevented.

How likely is 1,1,1-trichloroethane to cause cancer?

Available information does not indicate that 1,1,1-trichloroethane causes cancer. The International Agency for Research on Cancer (IARC) and the EPA have determined that 1,1,1-trichloroethane is not classifiable as to its carcinogenicity in humans.

How can 1,1,1-trichloroethane affect children?

Children exposed to large amounts of 1,1,1-trichloroethane probably would be affected in the same manner as adults. In animals, it has been shown that 1,1,1-trichloroethane can pass from the mother's blood into a fetus. When pregnant mice were exposed to high levels of 1,1,1-trichloroethane in air, their babies developed more slowly than normal and had some behavioral problems. However, whether similar effects occur in humans has not been demonstrated.

How can families reduce the risk of exposure to 1,1,1-trichloroethane?

Children can be exposed to 1,1,1-trichloroethane in household products, such as adhesives and cleaners. Parents should store household chemicals out of reach of young children to prevent accidental poisonings or skin irritation. Always store household chemicals in their original labeled containers. Never store household chemicals in containers that children would find attractive to eat or drink from, such as old soda bottles. Keep your Poison Control Center's number near the phone.

Sometimes older children sniff household chemicals in an attempt to get high. Your children may be exposed to 1,1,1-trichloroethane by inhaling products containing it. Talk with your children about the dangers of sniffing chemicals.

Is there a medical test to show whether I've been exposed to 1,1,1-trichloroethane?

Samples of your breath, blood, and urine can be tested to determine if you have recently been exposed to 1,1,1-trichloroethane. In some cases, these tests can estimate how much 1,1,1-trichloroethane has entered your body. To be of any value, samples of your breath or blood have to be taken within hours after exposure, and samples of urine have to be taken within 2 days after exposure. However, these tests will not tell you whether your health will be affected by exposure to 1,1,1-trichloroethane. The exposure tests are not routinely available in hospitals and clinics because they require special analytical equipment.

Has the federal government made recommendations to protect human health?

EPA regulates the levels of 1,1,1-trichloroethane that are allowable in drinking water. The highest level of 1,1,1-trichloroethane allowed in drinking water is 0.2 parts 1,1,1,-trichloroethane per 1 million parts of water (0.2 ppm).

The Occupational Safety and Health Administration (OSHA) has set a limit of 350 parts 1,1,1-trichloroethane per 1 million parts of air (350 ppm) in the workplace.

Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for 1,1,1-Trichloroethane (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

1,2-DICHLOROETHENE
CAS # 540-59-0, 156-59-2, and 156-60-5

This fact sheet answers the most frequently asked health questions (FAQs) about 1,2-dichloroethene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to 1,2-dichloroethene occurs mainly in workplaces where it is made or used. Breathing high levels of 1,2-dichloroethene can make you feel nauseous, drowsy, and tired. *cis*-1,2-Dichloroethene has been found in at least 146 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA). *trans*-1,2-Dichloroethene was found in at least 563 NPL sites. 1,2-Dichloroethene was found at 336 sites, but the isomer (*cis*- or *trans*-) was not specified.

What is 1,2-dichloroethene?

(Pronounced 1,2-dī-klôr′ ō-ĕth′ēn)

1,2-Dichloroethene, also called 1,2-dichloroethylene, is a highly flammable, colorless liquid with a sharp, harsh odor. It is used to produce solvents and in chemical mixtures. You can smell very small amounts of 1,2-dichloroethene in air (about 17 parts of 1,2-dichloroethene per million parts of air [17 ppm]).

There are two forms of 1,2-dichloroethene; one is called *cis*-1,2-dichloroethene and the other is called *trans*-1,2-dichloroethene. Sometimes both forms are present as a mixture.

What happens to 1,2-dichloroethene when it enters the environment?

- 1,2-Dichloroethene evaporates rapidly into air.
- In the air, it takes about 5-12 days for half of it to break down.
- Most 1,2-dichloroethene in the soil surface or bodies of water will evaporate into air.
- 1,2-Dichloroethene can travel through soil or dissolve in water in the soil. It is possible that it can contaminate groundwater.
- In groundwater, it takes about 13-48 weeks to break down.
- There is a slight chance that 1,2-dichloroethene will break down into vinyl chloride, a different chemical which is believed to be more toxic than 1,2-dichloroethene.

How might I be exposed to 1,2-dichloroethene?

- Breathing 1,2-dichloroethene that has leaked from hazardous waste sites and landfills.
- Drinking contaminated tap water or breathing vapors from contaminated water while cooking, bathing, or washing dishes.
- Breathing 1,2-dichloroethene, touching it, or touching contaminated materials in the workplace.

How can 1,2-dichloroethene affect my health?

Breathing high levels of 1,2-dichloroethene can make you feel nauseous, drowsy, and tired; breathing very high levels can kill you.

When animals breathed high levels of *trans*-1,2-dichloroethene for short or longer periods of time, their livers and lungs were damaged and the effects were more severe with longer exposure times. Animals that breathed very high

levels of *trans*-1,2-dichloroethene had damaged hearts.

Animals that ingested extremely high doses of *cis*- or *trans*-1,2-dichloroethene died.

Lower doses of *cis*-1,2-dichloroethene caused effects on the blood, such as decreased numbers of red blood cells, and also effects on the liver.

The long-term (365 days or longer) human health effects after exposure to low concentrations of 1,2-dichloroethene aren't known. One animal study suggested that an exposed fetus may not grow as quickly as one that hasn't been exposed.

Exposure to 1,2-dichloroethene hasn't been shown to affect fertility in people or animals.

How likely is 1,2-dichloroethene to cause cancer?

The EPA has determined that *cis*-1,2-dichloroethene is not classifiable as to its human carcinogenicity.

No EPA cancer classification is available for *trans*-1,2-dichloroethene.

Is there a medical test to show whether I've been exposed to 1,2-dichloroethene?

Tests are available to measure concentrations of the breakdown products of 1,2-dichloroethene in blood, urine, and tissues. However, these tests aren't used routinely to determine whether a person has been exposed to this compound. This is because after you are exposed to 1,2-dichloroethene, the breakdown products in your body that are detected with these tests may be the same as those that come from exposure to other chemicals. These tests aren't available in most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum allowable level of *cis*-1,2-dichloroethene in drinking water at 0.07 milligrams per liter of water (0.07 mg/L) and *trans*-1,2-dichloroethene at 0.1 mg/L.

The EPA requires that any spills or accidental release of 1,000 pounds or more of 1,2-dichloroethene must be reported to the EPA.

The Occupational Health Safety and Health Administration (OSHA) has set the maximum allowable amount of 1,2-dichloroethene in workroom air during an 8-hour workday in a 40-hour workweek at 200 parts of 1,2-dichloroethene per million parts of air (200 ppm).

Glossary

Carcinogenicity: Ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Fertility: Ability to reproduce.

Ingest: To eat or drink something.

Milligram (mg): One thousandth of a gram.

ppm: Parts per million.

Solvent: A chemical that can dissolve other substances.

References

This ToxFAQs information is taken from the 1996 Toxicological Profile for 1,2-Dichloroethene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

ARSENIC
CAS # 7440-38-2

Division of Toxicology ToxFAQs™ December 2003

This fact sheet answers the most frequently asked health questions (FAQs) about arsenic. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to higher than average levels of arsenic occurs mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. At high levels, inorganic arsenic can cause death. Exposure to lower levels for a long time can cause a discoloration of the skin and the appearance of small corns or warts. Arsenic has been found at 1,014 of the 1,598 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is arsenic?

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds.

Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants.

What happens to arsenic when it enters the environment?

❑ Arsenic cannot be destroyed in the environment. It can only change its form.
❑ Arsenic in air will settle to the ground or is washed out of the air by rain.
❑ Many arsenic compounds can dissolve in water.
❑ Fish and shellfish can accumulate arsenic, but the arsenic in fish is mostly in a form that is not harmful.

How might I be exposed to arsenic?

❑ Eating food, drinking water, or breathing air containing arsenic.
❑ Breathing contaminated workplace air.
❑ Breathing sawdust or burning smoke from wood treated with arsenic.
❑ Living near uncontrolled hazardous waste sites containing arsenic.
❑ Living in areas with unusually high natural levels of arsenic in rock.

How can arsenic affect my health?

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. Ingesting high levels of inorganic arsenic can result in death. Lower levels of arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the

appearance of small "corns" or "warts" on the palms, soles, and torso.

Skin contact with inorganic arsenic may cause redness and swelling.

Organic arsenic compounds are less toxic than inorganic arsenic compounds. Exposure to high levels of some organic arsenic compounds may cause similar effects as inorganic arsenic.

How likely is arsenic to cause cancer?

Several studies have shown that inorganic arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. The World Health Organization (WHO), the Department of Health and Human Services (DHHS), and the EPA have determined that inorganic arsenic is a human carcinogen.

How can arsenic affect children?

We do not know if exposure to arsenic will result in birth defects or other developmental effects in people. Birth defects have been observed in animals exposed to inorganic arsenic.

It is likely that health effects seen in children exposed to high amounts of arsenic will be similar to the effects seen in adults.

How can families reduce the risk of exposure to arsenic?

❑ If you use arsenic-treated wood in home projects, you should wear dust masks, gloves, and protective clothing to decrease exposure to sawdust.
❑ If you live in an area with high levels of arsenic in water or soil, you should use cleaner sources of water and limit contact with soil.

Is there a medical test to show whether I've been exposed to arsenic?

There are tests to measure the level of arsenic in blood, urine, hair, or fingernails. The urine test is the most reliable test for arsenic exposure within the last few days. Tests on hair and fingernails can measure exposure to high levels or arsenic over the past 6-12 months. These tests can determine if you have been exposed to above-average levels of arsenic. They cannot predict how the arsenic levels in your body will affect your health.

Has the federal government made recommendations to protect human health?

EPA has set limits on the amount of arsenic that industrial sources can release to the environment and has restricted or canceled many uses of arsenic in pesticides. EPA has set a limit of 0.01 parts per million (ppm) for arsenic in drinking water.

The Occupational Safety and Health Administration has set limits of 10 μg arsenic per cubic meter of workplace air (10 $\mu g/m^3$) for 8 hour shifts and 40 hour work weeks.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological Profile for Arsenic. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html . ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

BENZENE
CAS # 71-43-2

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 813 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is benzene?

(Pronounced bĕn′zēn′)

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Indoor air generally contains higher levels of benzene from products that contain it such as glues, paints, furniture wax, and detergents.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Leakage from underground storage tanks or from hazardous waste sites containing benzene can result in benzene contamination of well water.
- People working in industries that make or use benzene may be exposed to the highest levels of it.
- A major source of benzene exposures is tobacco smoke.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

The major effect of benzene from long-term (365 days or longer) exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.

Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men.

Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How likely is benzene to cause cancer?

The Department of Health and Human Services (DHHS) has determined that benzene is a known human carcinogen. Long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.

Is there a medical test to show whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood, however, since benzene disappears rapidly from the blood, measurements are accurate only for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 0.005 milligrams per liter (0.005 mgL). The EPA requires that spills or accidental releases into the environment of 10 pounds or more of benzene be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit of 1 part of benzene per million parts of air (1 ppm) in the workplace during an 8-hour workday, 40-hour workweek.

Glossary

Anemia: A decreased ability of the blood to transport oxygen.

Carcinogen: A substance with the ability to cause cancer.

CAS: Chemical Abstracts Service.

Chromosomes: Parts of the cells responsible for the development of hereditary characteristics.

Metabolites: Breakdown products of chemicals.

Milligram (mg): One thousandth of a gram.

Pesticide: A substance that kills pests.

References

This ToxFAQs information is taken from the 1997 Toxicological Profile for Benzene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-498-0093. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

ETHYLBENZENE
CAS # 100-41-4

Agency for Toxic Substances and Disease Registry ToxFAQs **June 1999**

This fact sheet answers the most frequently asked health questions (FAQs) about ethylbenzene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Ethylbenzene is a colorless liquid found in a number of products including gasoline and paints. Breathing very high levels can cause dizziness and throat and eye irritation. Ethylbenzene has been found in at least 731 of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is ethylbenzene?

(Pronounced ĕth′ əl bĕn′ zēn′)

Ethylbenzene is a colorless, flammable liquid that smells like gasoline. It is found in natural products such as coal tar and petroleum and is also found in manufactured products such as inks, insecticides, and paints.

Ethylbenzene is used primarily to make another chemical, styrene. Other uses include as a solvent, in fuels, and to make other chemicals.

What happens to ethylbenzene when it enters the environment?

- Ethylbenzene moves easily into the air from water and soil.
- It takes about 3 days for ethylbenzene to be broken down in air into other chemicals.
- Ethylbenzene may be released to water from industrial discharges or leaking underground storage tanks.
- In surface water, ethylbenzene breaks down by reacting with other chemicals found naturally in water.
- In soil, it is broken down by soil bacteria.

How might I be exposed to ethylbenzene?

- Breathing air containing ethylbenzene, particularly in areas near factories or highways.
- Drinking contaminated tap water.
- Working in an industry where ethylbenzene is used or made.
- Using products containing it, such as gasoline, carpet glues, varnishes, and paints.

How can ethylbenzene affect my health?

Limited information is available on the effects of ethylbenzene on people's health. The available information shows dizziness, throat and eye irritation, tightening of the chest, and a burning sensation in the eyes of people exposed to high levels of ethylbenzene in air.

Animals studies have shown effects on the nervous system, liver, kidneys, and eyes from breathing ethylbenzene in air.

How likely is ethylbenzene to cause cancer?

The EPA has determined that ethylbenzene is not classifiable as to human carcinogenicity.

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

No studies in people have shown that ethylbenzene exposure can result in cancer. Two available animal studies suggest that ethylbenzene may cause tumors.

How can ethylbenzene affect children?

Children may be exposed to ethylbenzene through inhalation of consumer products, including gasoline, paints, inks, pesticides, and carpet glue. We do not know whether children are more sensitive to the effects of ethylbenzene than adults.

It is not known whether ethylbenzene can affect the development of the human fetus. Animal studies have shown that when pregnant animals were exposed to ethylbenzene in air, their babies had an increased number of birth defects.

How can families reduce the risk of exposure to ethylbenzene?

Exposure to ethylbenzene vapors from household products and newly installed carpeting can be minimized by using adequate ventilation.

Household chemicals should be stored out of reach of children to prevent accidental poisoning. Always store household chemicals in their original containers; never store them in containers children would find attractive to eat or drink from, such as old soda bottles. Gasoline should be stored in a gasoline can with a locked cap.

Sometimes older children sniff household chemicals, including ethylbenzene, in an attempt to get high. Talk with your children about the dangers of sniffing chemicals.

Is there a medical test to show whether I've been exposed to ethylbenzene?

Ethylbenzene is found in the blood, urine, breath, and some body tissues of exposed people. The most common way to test for ethylbenzene is in the urine. This test measures substances formed by the breakdown of ethylbenzene. This test needs to be done within a few hours after exposure occurs, because the substances leave the body very quickly.

These tests can show you were exposed to ethylbenzene, but cannot predict the kind of health effects that might occur.

Has the federal government made recommendations to protect human health?

The EPA has set a maximum contaminant level of 0.7 milligrams of ethylbenzene per liter of drinking water (0.7 mg/L).

The EPA requires that spills or accidental releases into the environment of 1,000 pounds or more of ethylbenzene be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set an occupational exposure limit of 100 parts of ethylbenzene per million parts of air (100 ppm) for an 8-hour workday, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological profile for ethylbenzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

LEAD

CAS # 7439-92-1

Division of Toxicology and Environmental Medicine ToxFAQs™ **August 2007**

This fact sheet answers the most frequently asked health questions (FAQs) about lead. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to lead can happen from breathing workplace air or dust, eating contaminated foods, or drinking contaminated water. Children can be exposed from eating lead-based paint chips or playing in contaminated soil. Lead can damage the nervous system, kidneys, and reproductive system. Lead has been found in at least 1,272 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is lead?

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing.

Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years. The use of lead as an additive to gasoline was banned in 1996 in the United States.

What happens to lead when it enters the environment?

- ❏ Lead itself does not break down, but lead compounds are changed by sunlight, air, and water.
- ❏ When lead is released to the air, it may travel long distances before settling to the ground.
- ❏ Once lead falls onto soil, it usually sticks to soil particles.
- ❏ Movement of lead from soil into groundwater will depend on the type of lead compound and the characteristics of the soil.

How might I be exposed to lead?

- ❏ Eating food or drinking water that contains lead. Water pipes in some older homes may contain lead solder. Lead can leach out into the water.
- ❏ Spending time in areas where lead-based paints have been used and are deteriorating. Deteriorating lead paint can contribute to lead dust.
- ❏ Working in a job where lead is used or engaging in certain hobbies in which lead is used, such as making stained glass.
- ❏ Using health-care products or folk remedies that contain lead.

How can lead affect my health?

The effects of lead are the same whether it enters the body through breathing or swallowing. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

How likely is lead to cause cancer?

We have no conclusive proof that lead causes cancer in humans. Kidney tumors have developed in rats and mice that had been given large doses of some kind of lead compounds. The Department of Health and Human Services

(DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens and the EPA has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans and that there is insufficient information to determine whether organic lead compounds will cause cancer in humans.

How can lead affect children?

Small children can be exposed by eating lead-based paint chips, chewing on objects painted with lead-based paint, or swallowing house dust or soil that contains lead.

Children are more vulnerable to lead poisoning than adults. A child who swallows large amounts of lead may develop blood anemia, severe stomachache, muscle weakness, and brain damage. If a child swallows smaller amounts of lead, much less severe effects on blood and brain function may occur. Even at much lower levels of exposure, lead can affect a child's mental and physical growth.

Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common if the mother or baby was exposed to high levels of lead. Some of these effects may persist beyond childhood.

How can families reduce the risks of exposure to lead?

❏ Avoid exposure to sources of lead.

❏ Do not allow children to chew or mouth surfaces that may have been painted with lead-based paint.

❏ If you have a water lead problem, run or flush water that has been standing overnight before drinking or cooking with it.

❏ Some types of paints and pigments that are used as make-up or hair coloring contain lead. Keep these kinds of products away from children

❏ If your home contains lead-based paint or you live in an area contaminated with lead, wash children's hands and faces often to remove lead dusts and soil, and regularly clean the house of dust and tracked in soil.

Is there a medical test to determine whether I've been exposed to lead?

A blood test is available to measure the amount of lead in your blood and to estimate the amount of your recent exposure to lead. Blood tests are commonly used to screen children for lead poisoning. Lead in teeth or bones can be measured by X-ray techniques, but these methods are not widely available. Exposure to lead also can be evaluated by measuring erythrocyte protoporphyrin (EP) in blood samples. EP is a part of red blood cells known to increase when the amount of lead in the blood is high. However, the EP level is not sensitive enough to identify children with elevated blood lead levels below about 25 micrograms per deciliter (μg/dL). These tests usually require special analytical equipment that is not available in a doctor's office. However, your doctor can draw blood samples and send them to appropriate laboratories for analysis.

Has the federal government made recommendations to protect human health?

The Centers for Disease Control and Prevention (CDC) recommends that states test children at ages 1 and 2 years. Children should be tested at ages 3–6 years if they have never been tested for lead, if they receive services from public assistance programs for the poor such as Medicaid or the Supplemental Food Program for Women, Infants, and Children, if they live in a building or frequently visit a house built before 1950; if they visit a home (house or apartment) built before 1978 that has been recently remodeled; and/or if they have a brother, sister, or playmate who has had lead poisoning. CDC considers a blood lead level of 10 μg/dL to be a level of concern for children.

EPA limits lead in drinking water to 15 μg per liter.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for lead (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

MERCURY
CAS # 7439-97-6

This fact sheet answers the most frequently asked health questions (FAQs) about mercury. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to mercury occurs from breathing contaminated air, ingesting contaminated water and food, and having dental and medical treatments. Mercury, at high levels, may damage the brain, kidneys, and developing fetus. This chemical has been found in at least 714 of 1,467 National Priorities List sites identified by the Environmental Protection Agency.

What is mercury?

(Pronounced mŭr′kyə-rē)

Mercury is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is a colorless, odorless gas.

Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also combines with carbon to make organic mercury compounds. The most common one, methylmercury, is produced mainly by microscopic organisms in the water and soil. More mercury in the environment can increase the amounts of methylmercury that these small organisms make.

Metallic mercury is used to produce chlorine gas and caustic soda, and is also used in thermometers, dental fillings, and batteries. Mercury salts are sometimes used in skin lightening creams and as antiseptic creams and ointments.

What happens to mercury when it enters the environment?

- Inorganic mercury (metallic mercury and inorganic mercury compounds) enters the air from mining ore deposits, burning coal and waste, and from manufacturing plants.
- It enters the water or soil from natural deposits, disposal of wastes, and volcanic activity.
- Methylmercury may be formed in water and soil by small organisms called bacteria.
- Methylmercury builds up in the tissues of fish. Larger and older fish tend to have the highest levels of mercury.

How might I be exposed to mercury?

- Eating fish or shellfish contaminated with methylmercury.
- Breathing vapors in air from spills, incinerators, and industries that burn mercury-containing fuels.
- Release of mercury from dental work and medical treatments.
- Breathing contaminated workplace air or skin contact during use in the workplace (dental, health services, chemical, and other industries that use mercury).
- Practicing rituals that include mercury.

How can mercury affect my health?

The nervous system is very sensitive to all forms of mercury. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea,

vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

How likely is mercury to cause cancer?

There are inadequate human cancer data available for all forms of mercury. Mercuric chloride has caused increases in several types of tumors in rats and mice, and methylmercury has caused kidney tumors in male mice. The EPA has determined that mercuric chloride and methylmercury are possible human carcinogens.

How can mercury affect children?

Very young children are more sensitive to mercury than adults. Mercury in the mother's body passes to the fetus and may accumulate there. It can also can pass to a nursing infant through breast milk. However, the benefits of breast feeding may be greater than the possible adverse effects of mercury in breast milk.

Mercury's harmful effects that may be passed from the mother to the fetus include brain damage, mental retardation, incoordination, blindness, seizures, and inability to speak. Children poisoned by mercury may develop problems of their nervous and digestive systems, and kidney damage.

How can families reduce the risk of exposure to mercury?

Carefully handle and dispose of products that contain mercury, such as thermometers or fluorescent light bulbs. Do not vacuum up spilled mercury, because it will vaporize and increase exposure. If a large amount of mercury has been spilled, contact your health department. Teach children not to play with shiny, silver liquids.

Properly dispose of older medicines that contain mercury. Keep all mercury-containing medicines away from children.

Pregnant women and children should keep away from rooms where liquid mercury has been used.

Learn about wildlife and fish advisories in your area from your public health or natural resources department.

Is there a medical test to show whether I've been exposed to mercury?

Tests are available to measure mercury levels in the body. Blood or urine samples are used to test for exposure to metallic mercury and to inorganic forms of mercury. Mercury in whole blood or in scalp hair is measured to determine exposure to methylmercury. Your doctor can take samples and send them to a testing laboratory.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 2 parts of mercury per billion parts of drinking water (2 ppb).

The Food and Drug Administration (FDA) has set a maximum permissible level of 1 part of methylmercury in a million parts of seafood (1 ppm).

The Occupational Safety and Health Administration (OSHA) has set limits of 0.1 milligram of organic mercury per cubic meter of workplace air (0.1 mg/m^3) and 0.05 mg/m^3 of metallic mercury vapor for 8-hour shifts and 40-hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological profile for mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

Agency for Toxic Substances and Disease Registry ToxFAQs **September 1996**

This fact sheet answers the most frequently asked health questions (FAQs) about polycyclic aromatic hydrocarbons (PAHs). For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to polycyclic aromatic hydrocarbons usually occurs by breathing air contaminated by wild fires or coal tar, or by eating foods that have been grilled. PAHs have been found in at least 600 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are polycyclic aromatic hydrocarbons?

(Pronounced pŏl′ĭ-sī′klĭk ăr′ə-măt′ĭk hī′drə-kar′bənz)

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

What happens to PAHs when they enter the environment?

- PAHs enter the air mostly as releases from volcanoes, forest fires, burning coal, and automobile exhaust.
- PAHs can occur in air attached to dust particles.
- Some PAH particles can readily evaporate into the air from soil or surface waters.
- PAHs can break down by reacting with sunlight and other chemicals in the air, over a period of days to weeks.
- PAHs enter water through discharges from industrial and wastewater treatment plants.
- Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers.
- Microorganisms can break down PAHs in soil or water after a period of weeks to months.
- In soils, PAHs are most likely to stick tightly to particles; certain PAHs move through soil to contaminate underground water.
- PAH contents of plants and animals may be much higher than PAH contents of soil or water in which they live.

How might I be exposed to PAHs?

- Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.
- Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke.
- Coming in contact with air, water, or soil near hazardous waste sites.
- Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods.
- Drinking contaminated water or cow's milk.

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

- Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk.

How can PAHs affect my health?

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people.

How likely are PAHs to cause cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Is there a medical test to show whether I've been exposed to PAHs?

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 mg/m^3). The OSHA Permissible Exposure Limit (PEL) for mineral oil mist that contains PAHs is 5 mg/m^3 averaged over an 8-hour exposure period.

The National Institute for Occupational Safety and Health (NIOSH) recommends that the average workplace air levels for coal tar products not exceed 0.1 mg/m^3 for a 10-hour workday, within a 40-hour workweek. There are other limits for workplace exposure for things that contain PAHs, such as coal, coal tar, and mineral oil.

Glossary

Carcinogen: A substance that can cause cancer.

Ingest: Take food or drink into your body.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for polycyclic aromatic hydrocarbons. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

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TRICHLOROETHYLENE

CAS # 79-01-6

Division of Toxicology ToxFAQs™ **July 2003**

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is a colorless liquid which is used as a solvent for cleaning metal parts. Drinking or breathing high levels of trichloroethylene may cause nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death. Trichloroethylene has been found in at least 852 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers.

Trichloroethylene is not thought to occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene dissolves a little in water, but it can remain in ground water for a long time.
- Trichloroethylene quickly evaporates from surface water, so it is commonly found as a vapor in the air.
- Trichloroethylene evaporates less easily from the soil than from surface water. It may stick to particles and remain for a long time.
- Trichloroethylene may stick to particles in water, which will cause it to eventually settle to the bottom sediment.
- Trichloroethylene does not build up significantly in plants and animals.

How might I be exposed to trichloroethylene?

- Breathing air in and around the home which has been contaminated with trichloroethylene vapors from shower water or household products such as spot removers and typewriter correction fluid.
- Drinking, swimming, or showering in water that has been contaminated with trichloroethylene.
- Contact with soil contaminated with trichloroethylene, such as near a hazardous waste site.
- Contact with the skin or breathing contaminated air while manufacturing trichloroethylene or using it at work to wash paint or grease from skin or equipment.

How can trichloroethylene affect my health?

Breathing small amounts may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating.

Breathing large amounts of trichloroethylene may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage.

ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html

Drinking large amounts of trichloroethylene may cause nausea, liver damage, unconsciousness, impaired heart function, or death.

Drinking small amounts of trichloroethylene for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear.

Skin contact with trichloroethylene for short periods may cause skin rashes.

How likely is trichloroethylene to cause cancer?

Some studies with mice and rats have suggested that high levels of trichloroethylene may cause liver, kidney, or lung cancer. Some studies of people exposed over long periods to high levels of trichloroethylene in drinking water or in workplace air have found evidence of increased cancer. Although, there are some concerns about the studies of people who were exposed to trichloroethylene, some of the effects found in people were similar to effects in animals.

In its 9th Report on Carcinogens, the National Toxicology Program (NTP) determined that trichloroethylene is "reasonably anticipated to be a human carcinogen." The International Agency for Research on Cancer (IARC) has determined that trichloroethylene is "probably carcinogenic to humans."

Is there a medical test to show whether I've been exposed to trichloroethylene?

If you have recently been exposed to trichloroethylene, it can be detected in your breath, blood, or urine. The breath test, if it is performed soon after exposure, can tell if you have been exposed to even a small amount of trichloroethylene.

Exposure to larger amounts is assessed by blood and urine tests, which can detect trichloroethylene and many of its breakdown products for up to a week after exposure. However, exposure to other similar chemicals can produce the same breakdown products, so their detection is not absolute proof of exposure to trichloroethylene. This test isn't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has set a maximum contaminant level for trichloroethylene in drinking water at 0.005 milligrams per liter (0.005 mg/L) or 5 parts of TCE per billion parts water.

The EPA has also developed regulations for the handling and disposal of trichloroethylene.

The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 100 parts of trichloroethylene per million parts of air (100 ppm) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: The ability of a substance to cause cancer.
CAS: Chemical Abstracts Service.
Evaporate: To change into a vapor or gas.
Milligram (mg): One thousandth of a gram.
Nonflammable: Will not burn.
ppm: Parts per million.
Sediment: Mud and debris that have settled to the bottom of a body of water.
Solvent: A chemical that dissolves other substances.

References

This ToxFAQs information is taken from the 1997 Toxicological Profile for Trichloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html . ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

TETRACHLOROETHYLENE
CAS # 127-18-4

Agency for Toxic Substances and Disease Registry ToxFAQs **September 1997**

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing. Exposure to very high concentrations of tetrachloroethylene can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Tetrachloroethylene has been found in at least 771 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is tetrachloroethylene?

(Pronounced tĕt′rə-klôr′ ō-ĕth′ə-lēn′)

Tetrachloroethylene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products.

Other names for tetrachloroethylene include perchloroethylene, PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part tetrachloroethylene per million parts of air (1 ppm) or more, although some can smell it at even lower levels.

What happens to tetrachloroethylene when it enters the environment?

- Much of the tetrachloroethylene that gets into water or soil evaporates into the air.
- Microorganisms can break down some of the tetrachloroethylene in soil or underground water.
- In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain.
- It does not appear to collect in fish or other animals that live in water.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it.

How can tetrachloroethylene affect my health?

High concentrations of tetrachloroethylene (particularly in closed, poorly ventilated areas) can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death.

Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally exposed to high concentrations or have intentionally used tetrachloroethylene to get a "high."

In industry, most workers are exposed to levels lower than those causing obvious nervous system effects. The health effects of breathing in air or drinking water with low levels of tetrachloroethylene are not known.

Results from some studies suggest that women who work in dry cleaning industries where exposures to tetrachloroethyl-

ene can be quite high may have more menstrual problems and spontaneous abortions than women who are not exposed. However, it is not known if tetrachloroethylene was responsible for these problems because other possible causes were not considered.

Results of animal studies, conducted with amounts much higher than those that most people are exposed to, show that tetrachloroethylene can cause liver and kidney damage. Exposure to very high levels of tetrachloroethylene can be toxic to the unborn pups of pregnant rats and mice. Changes in behavior were observed in the offspring of rats that breathed high levels of the chemical while they were pregnant.

How likely is tetrachloroethylene to cause cancer?

The Department of Health and Human Services (DHHS) has determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen. Tetrachloroethylene has been shown to cause liver tumors in mice and kidney tumors in male rats.

Is there a medical test to show whether I've been exposed to tetrachloroethylene?

One way of testing for tetrachloroethylene exposure is to measure the amount of the chemical in the breath, much the same way breath-alcohol measurements are used to determine the amount of alcohol in the blood.

Because it is stored in the body's fat and slowly released into the bloodstream, tetrachloroethylene can be detected in the breath for weeks following a heavy exposure.

Tetrachloroethylene and trichloroacetic acid (TCA), a breakdown product of tetrachloroethylene, can be detected in the blood. These tests are relatively simple to perform. These tests aren't available at most doctors' offices, but can be performed at special laboratories that have the right equipment.

Because exposure to other chemicals can produce the same breakdown products in the urine and blood, the tests for breakdown products cannot determine if you have been exposed to tetrachloroethylene or the other chemicals.

Has the federal government made recommendations to protect human health?

The EPA maximum contaminant level for the amount of tetrachloroethylene that can be in drinking water is 0.005 milligrams tetrachloroethylene per liter of water (0.005 mg/L).

The Occupational Safety and Health Administration (OSHA) has set a limit of 100 ppm for an 8-hour workday over a 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) recommends that tetrachloroethylene be handled as a potential carcinogen and recommends that levels in workplace air should be as low as possible.

Glossary

Carcinogen: A substance with the ability to cause cancer.

CAS: Chemical Abstracts Service.

Milligram (mg): One thousandth of a gram.

Nonflammable: Will not burn.

References

This ToxFAQs information is taken from the 1997 Toxicological Profile for Tetrachloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone:1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

TOLUENE
CAS # 108-88-3

Division of Toxicology ToxFAQs™ **February 2001**

This fact sheet answers the most frequently asked health questions (FAQs) about toluene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to toluene occurs from breathing contaminated workplace air, in automobile exhaust, some consumer products paints, paint thinners, fingernail polish, lacquers, and adhesives. Toluene affects the nervous system. Toluene has been found at 959 of the 1,591 National Priority List sites identified by the Environmental Protection Agency

What is toluene?

Toluene is a clear, colorless liquid with a distinctive smell. Toluene occurs naturally in crude oil and in the tolu tree. It is also produced in the process of making gasoline and other fuels from crude oil and making coke from coal.

Toluene is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber and in some printing and leather tanning processes.

What happens to toluene when it enters the environment?

❑ Toluene enters the environment when you use materials that contain it. It can also enter surface water and groundwater from spills of solvents and petrolieum products as well as from leasking underground storage tanks at gasoline stations and other facilities.

❑ When toluene-containing products are placed in landfills or waste disposal sites, the toluene can enter the soil or water near the waste site.

❑ Toluene does not usually stay in the environment long.

❑ Toluene does not concentrate or buildup to high levels in animals.

How might I be exposed to toluene?

❑ Breathing contaminated workplace air or automobile exhaust.

❑ Working with gasoline, kerosene, heating oil, paints, and lacquers.

❑ Drinking contaminated well-water.

❑ Living near uncontrolled hazardous waste sites containing toluene products.

How can toluene affect my health?

Toluene may affect the nervous system. Low to moderate levles can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, and

hearing and color vision loss. These symptoms usually disappear when exposure is stopped.

Inhaling High levels of toluene in a short time can make you feel light-headed, dizzy, or sleepy. It can also cause unconsciousness, and even death.

High levels of toluene may affect your kidneys.

How likely is toluene to cause cancer?

Studies in humans and animals generally indicate that toluene does not cause cancer.

The EPA has determined that the carcinogenicity of toluene can not be classified.

How can toluene affect children?

It is likely that health effects seen in children exposed to toluene will be similar to the effects seen in adults. Some studies in animals suggest that babies may be more sensitive than adults.

Breathing very high levels of toluene during pregnancy can result in children with birth defects and retard mental abilities, and growth. We do not know if toluene harms the unborn child if the mother is exposed to low levels of toluene during pregnancy.

How can families reduce the risk of exposure to toluene?

❑ Use toluene-containing products in well-ventilated areas.

❑ When not in use, toluene-containing products should be tightly covered to prevent evaporation into the air.

Is there a medical test to show whether I've been exposed to toluene?

There are tests to measure the level of toluene or its breakdown products in exhaled air, urine, and blood. To determine if you have been exposed to toluene, your urine or blood must be checked within 12 hours of exposure. Several other chemicals are also changed into the same breakdown products as toluene, so some of these tests are not specific for toluene.

Has the federal government made recommendations to protect human health?

EPA has set a limit of 1 milligram per liter of drinking water (1 mg/L).

Discharges, releases, or spills of more than 1,000 pounds of toluene must be reported to the National Response Center.

The Occupational Safety and Health Administration has set a limit of 200 parts toluene per million of workplace air (200 ppm).

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological Profile for Toluene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html . ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

XYLENE
CAS # 1330-20-7

This fact sheet answers the most frequently asked health questions (FAQs) about xylene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to xylene occurs in the workplace and when you use paint, gasoline, paint thinners and other products that contain it. People who breathe high levels may have dizziness, confusion, and a change in their sense of balance. This substance has been found in at least 658 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is xylene?

(Pronounced zī′lēn)

Xylene is a colorless, sweet-smelling liquid that catches on fire easily. It occurs naturally in petroleum and coal tar and is formed during forest fires. You can smell xylene in air at 0.08–3.7 parts of xylene per million parts of air (ppm) and begin to taste it in water at 0.53–1.8 ppm.

Chemical industries produce xylene from petroleum. It's one of the top 30 chemicals produced in the United States in terms of volume.

Xylene is used as a solvent and in the printing, rubber, and leather industries. It is also used as a cleaning agent, a thinner for paint, and in paints and varnishes. It is found in small amounts in airplane fuel and gasoline.

What happens to xylene when it enters the environment?

- Xylene has been found in waste sites and landfills when discarded as used solvent, or in varnish, paint, or paint thinners.
- It evaporates quickly from the soil and surface water into the air.
- In the air, it is broken down by sunlight into other less harmful chemicals.
- It is broken down by microorganisms in soil and water.
- Only a small amount of it builds up in fish, shellfish, plants, and animals living in xylene-contaminated water.

How might I be exposed to xylene?

- Breathing xylene in workplace air or in automobile exhaust.
- Breathing contaminated air.
- Touching gasoline, paint, paint removers, varnish, shellac, and rust preventatives that contain it.
- Breathing cigarette smoke that has small amounts of xylene in it.
- Drinking contaminated water or breathing air near waste sites and landfills that contain xylene.
- The amount of xylene in food is likely to be low.

How can xylene affect my health?

Xylene affects the brain. High levels from exposure for short periods (14 days or less) or long periods (more than 1 year) can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure of

people to high levels of xylene for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and even death at very high levels.

Studies of unborn animals indicate that high concentrations of xylene may cause increased numbers of deaths, and delayed growth and development. In many instances, these same concentrations also cause damage to the mothers. We do not know if xylene harms the unborn child if the mother is exposed to low levels of xylene during pregnancy.

How likely is xylene to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that xylene is not classifiable as to its carcinogenicity in humans.

Human and animal studies have not shown xylene to be carcinogenic, but these studies are not conclusive and do not provide enough information to conclude that xylene does not cause cancer.

Is there a medical test to show whether I've been exposed to xylene?

Laboratory tests can detect xylene or its breakdown products in exhaled air, blood, or urine. There is a high degree of agreement between the levels of exposure to xylene and the levels of xylene breakdown products in the urine. However, a urine sample must be provided very soon after exposure ends because xylene quickly leaves the body. These tests are not routinely available at your doctor's office.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 10 ppm of xylene in drinking water.

The EPA requires that spills or accidental releases of xylenes into the environment of 1,000 pounds or more must be reported.

The Occupational Safety and Health Administration (OSHA) has set a maximum level of 100 ppm xylene in workplace air for an 8-hour workday, 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH) also recommend exposure limits of 100 ppm in workplace air.

NIOSH has recommended that 900 ppm of xylene be considered immediately dangerous to life or health. This is the exposure level of a chemical that is likely to cause permanent health problems or death.

Glossary

Evaporate: To change from a liquid into a vapor or a gas.

Carcinogenic: Having the ability to cause cancer.

CAS: Chemical Abstracts Service.

ppm: Parts per million.

Solvent: A liquid that can dissolve other substances.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for xylenes (update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone:1-888-422-8737, FAX: 404-498-0093. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHEMENT B

WEST NILE VIRUS/ST. LOUIS ENCEPHALITIS PREVENTION

WEST NILE VIRUS/ST. LOUIS ENCEPHALITIS PREVENTION

The following section is based upon information provided by the CDC Division of Vector-Borne Infectious Diseases. Symptoms of West Nile Virus include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands, with most infections being mild. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death. Most infections of St. Louis encephalitis are mild without apparent symptoms other than fever with headache. More severe infection is marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, occasional convulsions (especially infants) and spastic (but rarely flaccid) paralysis. The only way to avoid infection of West Nile Virus and St. Louis encephalitis is to avoid mosquito bites. To reduce the chance of mosquito contact:

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET (N, N-diethyl-meta-toluamide), since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET. DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's directions for use, as printed on the product.

ATTACHMENT C

REPORT FORMS

WEEKLY SAFETY REPORT FORM

Week Ending: _____ Project Name/Number: _____

Report Date: _____ Project Manager Name: _____

Summary of any violations of procedures occurring that week:

_____

_____

_____

Summary of any job related injuries, illnesses, or near misses that week:

_____

_____

_____

_____

Summary of air monitoring data that week (include and sample analyses, action levels exceeded, and actions taken):

_____

_____

_____

Comments:

_____

_____

_____

Name: _____ Company: _____

Signature: _____ Title: _____

INCIDENT REPORT FORM

Date of Report: _____

Injured: _____

Employer: _____

Site: _____ Site Location: _____

Report Prepared By: _____ _____
Signature Title

ACCIDENT/INCIDENT CATEGORY (check all that applies)

___Injury	___ Illness	___ Near Miss
__ Property Damage	___ Fire	___ Chemical Exposure
__ On-site Equipment	___ Motor Vehicle	___ Electrical
__ Mechanical	___ Spill	___ Other

DATE AND TIME OF ACCIDENT/INCIDENT: Narrative report of Accident/Incident: Identify: 1) actions leading to or contributing to the accident/incident; 2) the accident/incident occurrence; and 3) actions following the accident/incident.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

WITNESS TO ACCIDENT/INCIDENT:

Name:	_____	Company:	_____
Address:	_____	Address:	_____
Phone No.:	_____	Phone No.:	_____
Name:	_____	Company:	_____
Address:	_____	Address:	_____
Phone No.:	_____	Phone No.:	_____

INJURED - ILL:

Name: _____ SSN: _____

Address: _____ Age: _____

Length of Service: _____ Time on Present Job: _____

Time/Classification: _____

SEVERITY OF INJURY OR ILLNESS:

____ Disabling ___ Non-disabling ___ Fatality

____ Medical Treatment ___ First Aid Only

ESTIMATED NUMBER OF DAYS AWAY FROM JOB: _____

NATURE OF INJURY OR ILLNESS: _____

_____

_____

_____

CLASSIFICATION OF INJURY:

__ Abrasions _____ Dislocations ____ Punctures

__ Bites _____ Faint/Dizziness ____ Radiation Burns

__ Blisters _____ Fractures ____ Respiratory Allergy

__ Bruises _____ Frostbite ____ Sprains

__ Chemical Burns _____ Heat Burns ____ Toxic Resp. Exposure

__ Cold Exposure _____ Heat Exhaustion ____ Toxic Ingestion

__ Concussion _____ Heat Stroke ____ Dermal Allergy

__ Lacerations

Part of Body Affected: _____

Degree of Disability: _____

Date Medical Care was Received: _____

Where Medical Care was Received: _____

Address (if off-site): _____

(If two or more injuries, record on separate sheets)

PROPERTY DAMAGE:

Description of Damage: _____

_____

Cost of Damage: $ _____

ACCIDENT/INCIDENT LOCATION: _____

ACCIDENT/INCIDENT ANALYSIS: Causative agent most directly related to accident/incident (Object, substance, material, machinery, equipment, conditions)

_____

_____

_____

_____

Was weather a factor?:_____

_____

Unsafe mechanical/physical/environmental condition at time of accident/incident (Be specific):

_____

_____

_____

Personal factors (Attitude, knowledge or skill, reaction time, fatigue):

_____

_____

ON-SITE ACCIDENTS/INCIDENTS:

Level of personal protection equipment required in Site Safety Plan:

_____

_____

Modifications:

_____

Was injured using required equipment?:

_____

_____

If not, how did actual equipment use differ from plan?:

_____

_____

ACTION TAKEN TO PREVENT RECURRENCE: (Be specific. What has or will be done? When will it be done? Who is the responsible party to insure that the correction is made?

_____

_____

_____

_____

_____

ACCIDENT/INCIDENT REPORT REVIEWED BY:

_____ _____

SSO Name Printed SSO Signature

OTHERS PARTICIPATING IN INVESTIGATION:

_____ _____

Signature Title

_____ _____

Signature Title

_____ _____

Signature Title

ACCIDENT/INCIDENT FOLLOW-UP: Date: _____

Outcome of accident/incident: _____

_____

_____

_____

Physician's recommendations: _____

_____

_____

_____

Date injured returned to work: _____

Follow-up performed by:

_____ _____

Signature Title

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

ATTACHMENT D

EMERGENCY HAND SIGNALS

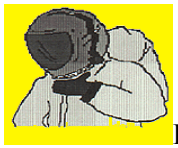
EMERGENCY SIGNALS

In most cases, field personnel will carry portable radios for communication. If this is the case, a transmission that indicates an emergency will take priority over all other transmissions. All other site radios will yield the frequency to the emergency transmissions.

Where radio communications is not available, the following air-horn and/or hand signals will be used:

EMERGENCY HAND SIGNALS

OUT OF AIR, CAN'T BREATHE!



Hand gripping throat

LEAVE AREA IMMEDIATELY, NO DEBATE!

(No Picture) Grip partner's wrist or place both hands around waist

NEED ASSISTANCE!

Hands on top of head

OKAY! – I'M ALL RIGHT!

- I UNDERSTAND!

Thumbs up

NO! - NEGATIVE!

Thumbs down

ATTACHMENT E

SPECIAL REQUIREMENTS CAMP

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

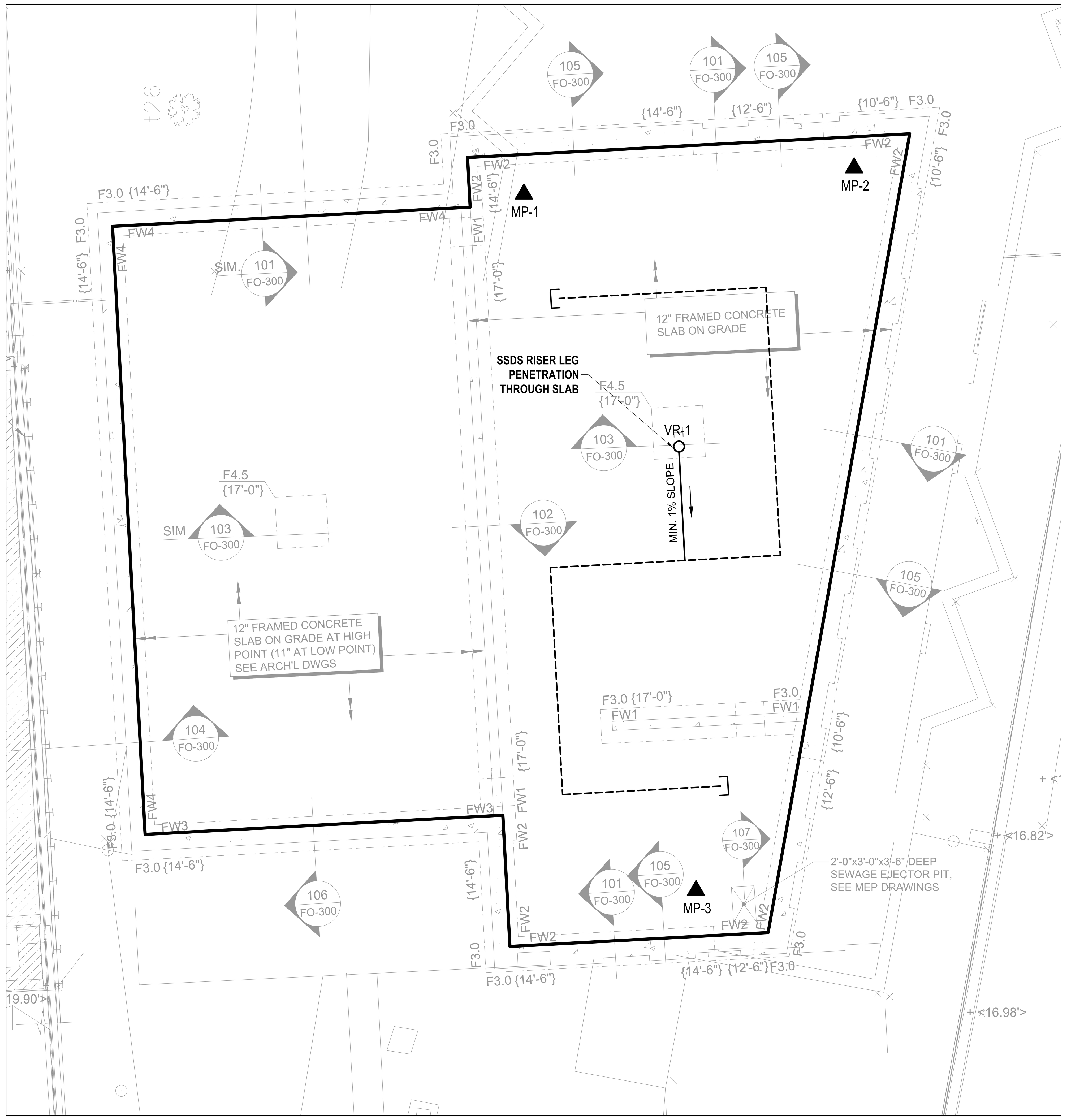
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m^3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work With Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

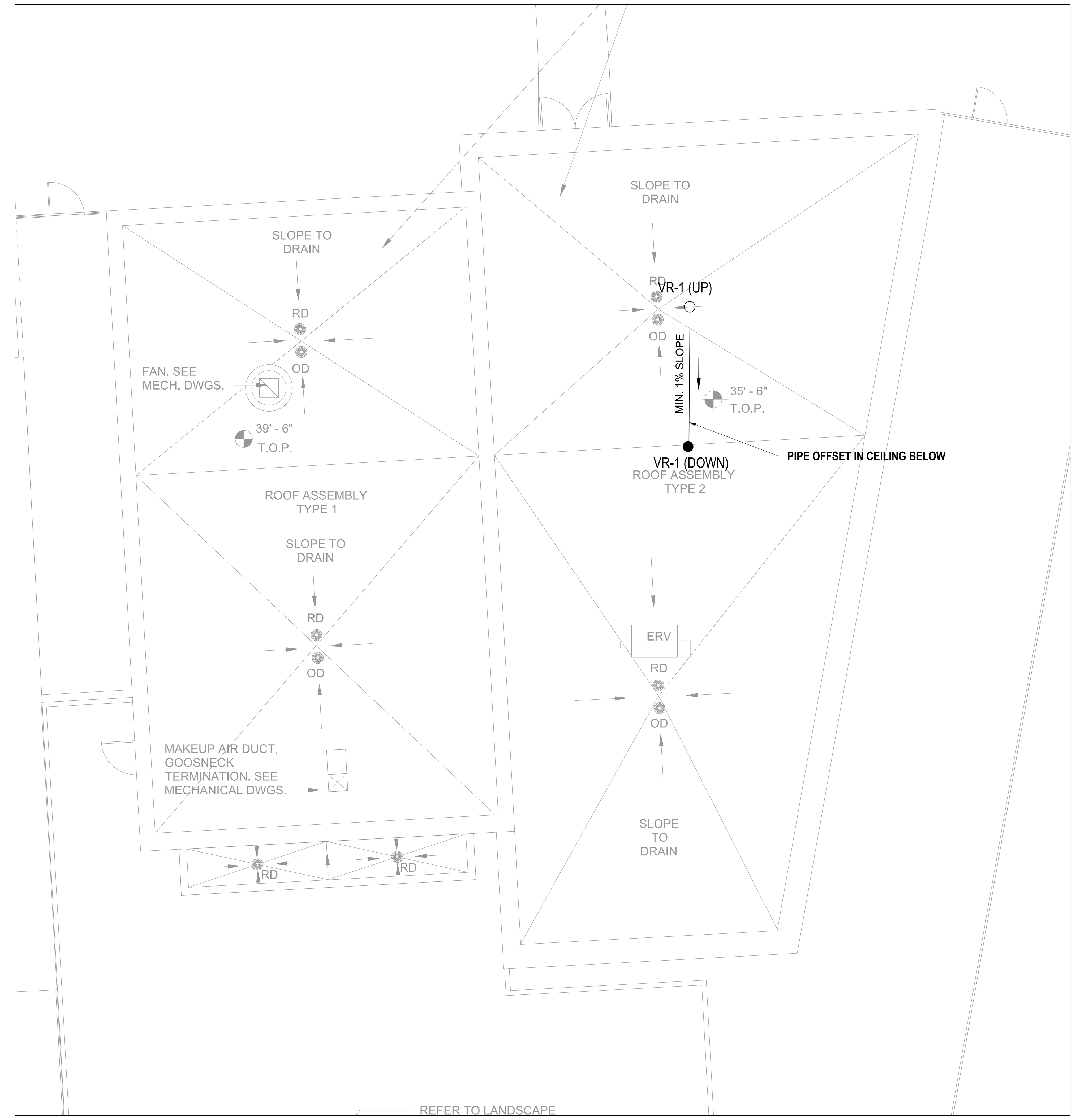
APPENDIX E
AS-BUILTS FOR PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEMS



Source:
Dattner Architects "Accessory Building Foundation Plan", FO-100.00, Dated 3-1-2021.

1 ENV-100 SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT

SCALE: 1" = 5'-0"



Source:
Dattner Architects "Accessory Building Plans", A-100.00, Dated 2-26-2021.

NOTE:
EXHAUST STACK LOCATED AT LEAST 25 FEET FROM ANY OPERABLE WINDOWS OR INTAKES ON THE ROOF OF THE BUILDING.

2 ENV-100 ROOF LAYOUT

SCALE: 1" = 5'-0"

LEGEND

EXTENT OF VAPOR BARRIER AND GAS PERMEABLE AGGREGATE LAYER

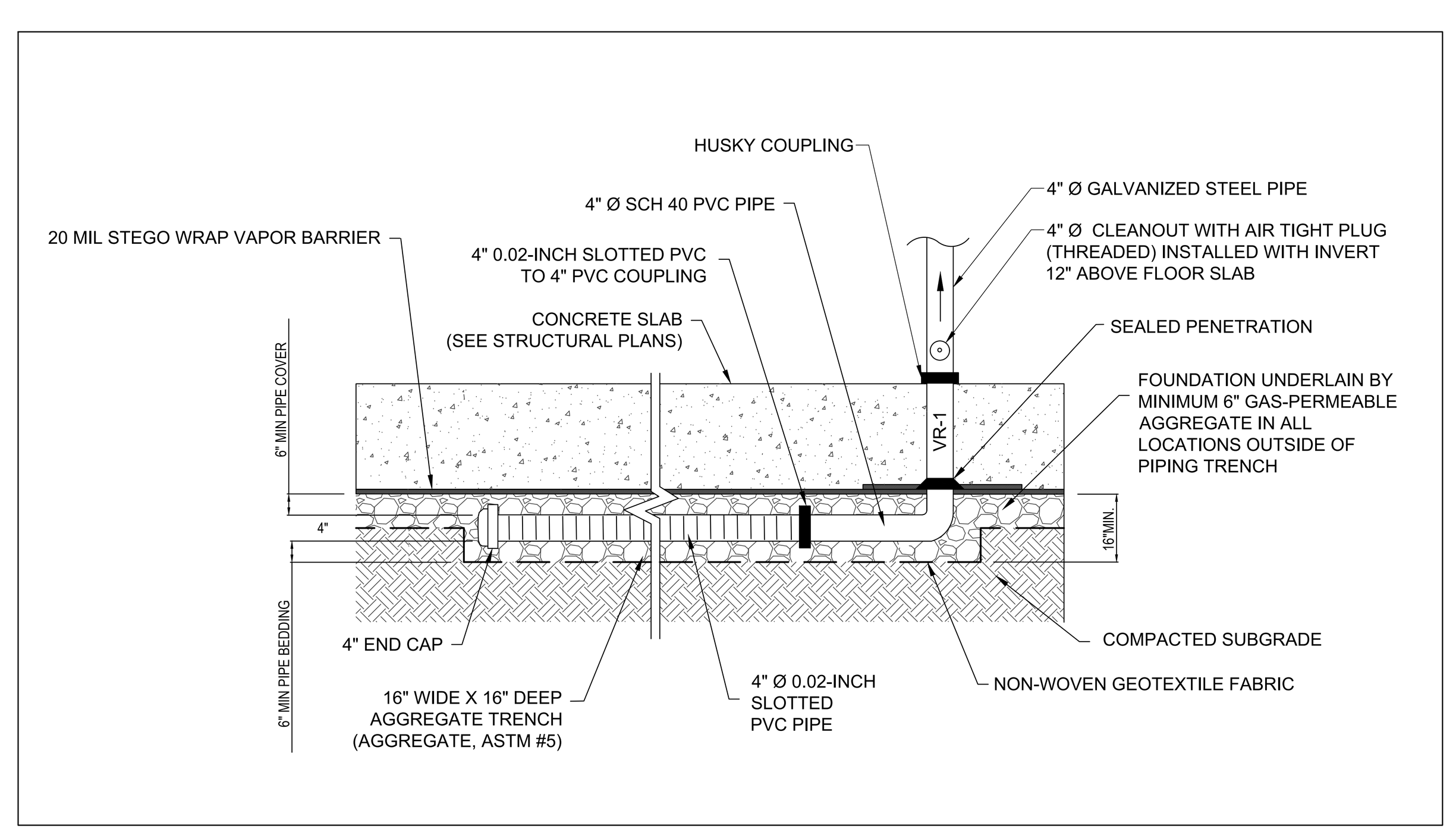
SOLID 4" SCHEDULE 40 PVC PIPE

SLOTTED 4" SCHEDULE 40 PVC PIPE WITH PVC END CAP

VR-1 — VERTICAL RISER PENETRATION LOCATION WITH IDENTIFICATION

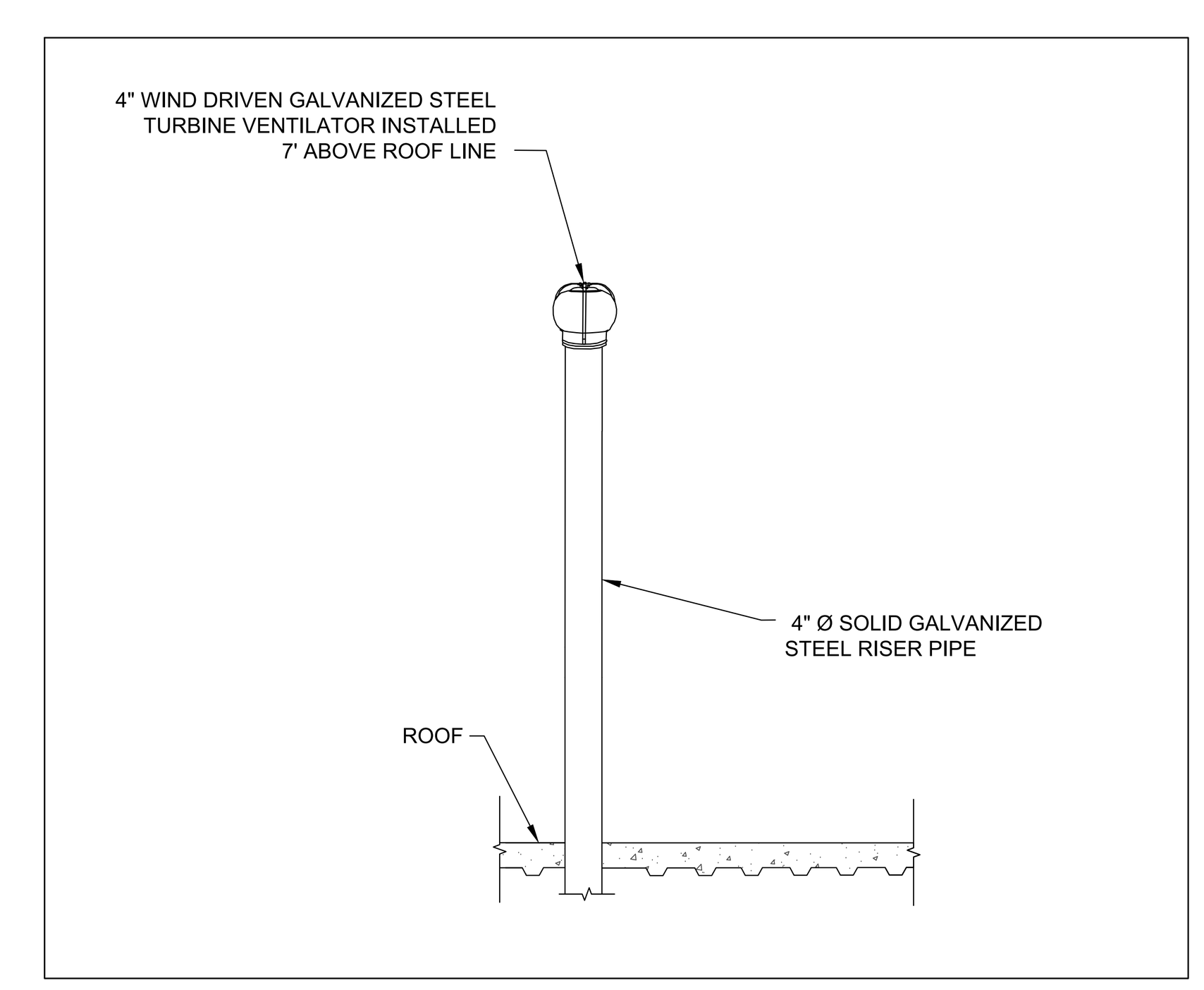
MP-1 — MONITORING POINT LOCATION

VR-1 (UP) — VR-1 (DOWN) — PIPE OFFSET AT ROOF



3 ENV-100 SSDS PIPING PROFILE AT VR-1

NOT TO SCALE



4 ENV-100 PASSIVE EXHAUST STACK MOUNTING DETAIL

NOT TO SCALE

MONITORING POINT LOCATIONS	
ID	ROOM
MP-1	MAINTENANCE STORAGE (NORTHWEST CORNER)
MP-2	MAINTENANCE STORAGE (NORTHEAST CORNER)
MP-3	WATER METER ROOM

CODE COMPLIANCE NOTES:

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2014 NYC MECHANICAL CODE SECTION 512, "SUB-SLAB SOIL EXHAUST SYSTEMS.
2. THE SSDS IS NOT A "HAZARDOUS EXHAUST SYSTEM" AS DEFINED IN THE 2014 NYC MECHANICAL CODE SECTION 510.
3. IN ACCORDANCE WITH 2014 NYC MECHANICAL CHAPTER 6 "DUCT SYSTEMS," PARAGRAPH 601.4, "CONTAMINATION PREVENTATION", SSDS RISERS WHICH ARE NOT UNDER PRESSURE ARE NOT SUBJECT TO THIS CODE REQUIREMENT.
4. 2014 NYC MECHANICAL CODE CHAPTER 6 "DUCT SYSTEMS," PARAGRAPH 607.5.5.2, "LIMITATIONS" DOES NOT APPLY TO THE SSDS RISERS.

Lambert 5 - Accessory Building

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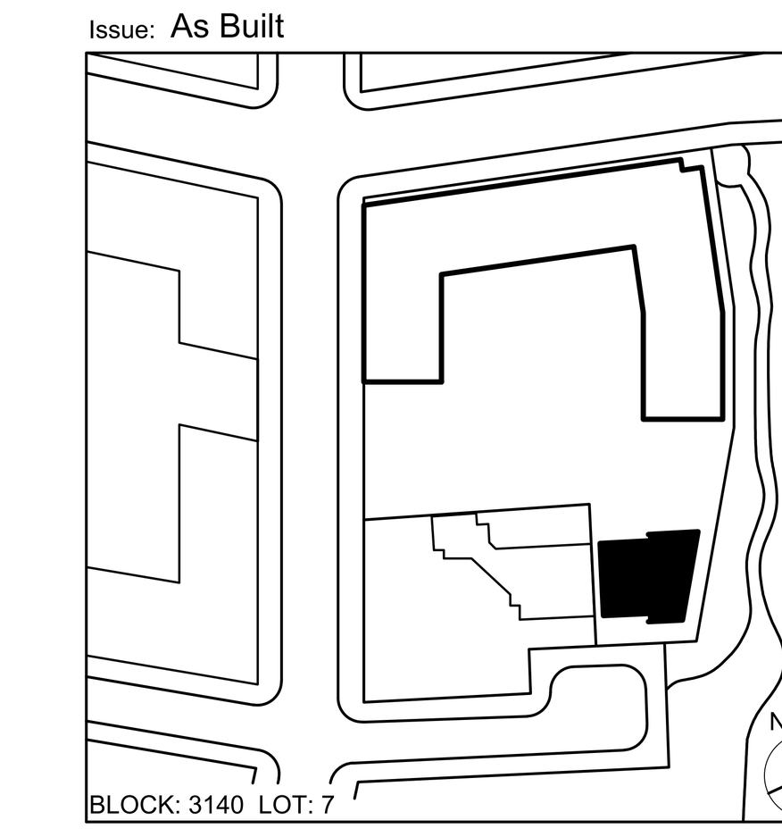
Civil/Environmental Engineers
AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016

Revisions

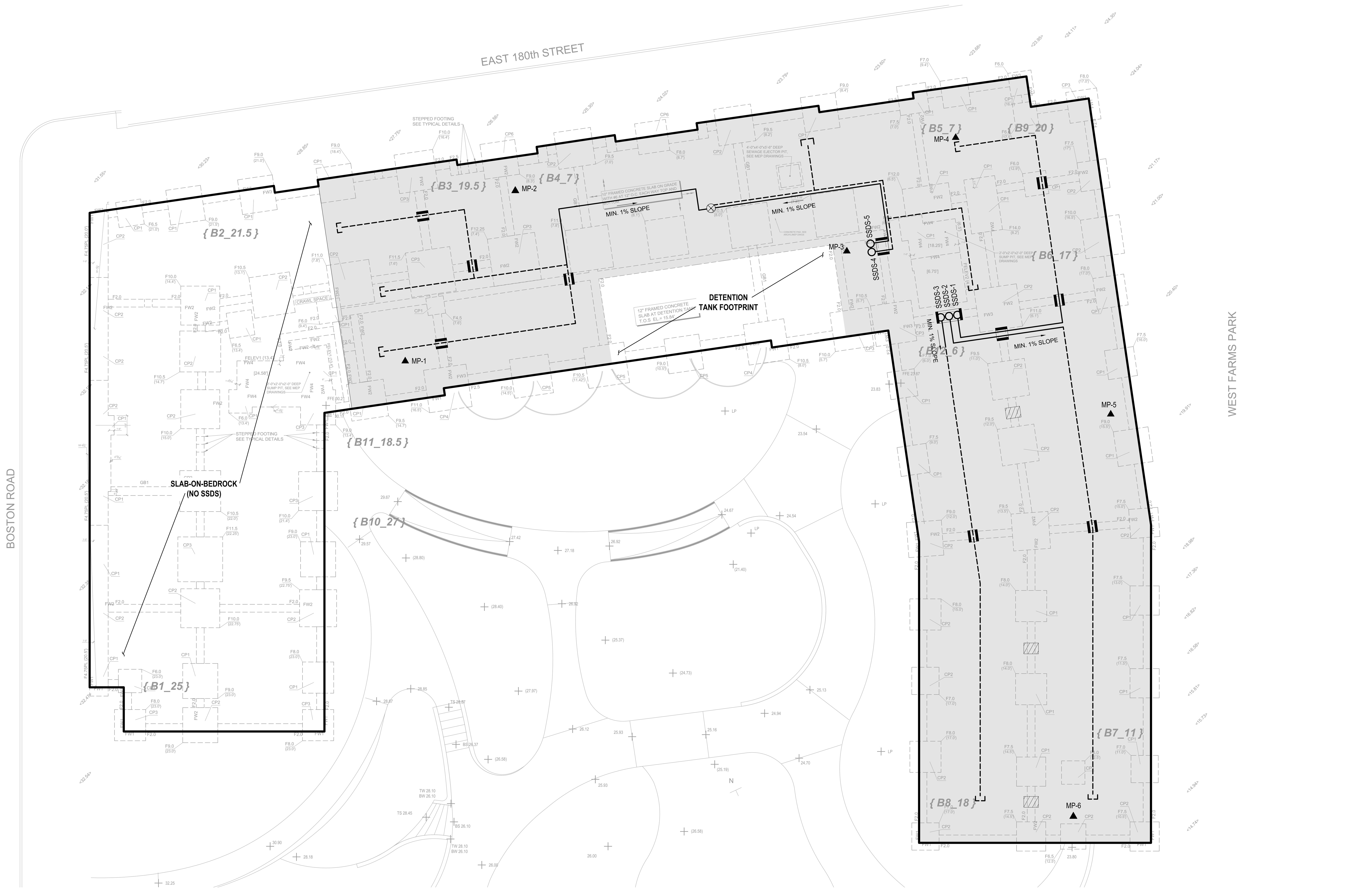
Issue: As Built



Key Plan

SSDS UNDERGROUND PIPING AND RISER PLAN

Date	10/11/23
Scale	
Drawn By	MRV
Checked By	RK
Project No.	1907
Sheet No.:	ENV-100



Source:
Dattner Architects "Accessory Building Foundation Plan", FO-100.00, Dated 3-1-2021.

1 ENV-100 SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT

SCALE: 1" = 10'-0"

LEGEND

- EXTENT OF GAS PERMEABLE AGGREGATE
- EXTENT OF VAPOR BARRIER/WATERPROOFING
- SOLID 4" SCHEDULE 40 PVC PIPE
- SLOTTED 4" SCHEDULE 40 PVC PIPE WITH PVC END CAP
- SSDS-1 — PIPE PENETRATION LOCATION WITH IDENTIFICATION
- PIPE SLEEVE THROUGH GRADE BEAM OR WALL
- COMMUNICATION SLEEVE THROUGH FOUNDATION ELEMENT
- MP-1 — MONITORING POINT LOCATION
- CONDENSATE DRAIN

MONITORING POINT LOCATIONS	
ID	ROOM
MP-1	FIRST FLOOR, MEN'S LOCKER ROOM
MP-2	CELLAR, ELECTRICAL PANEL ROOM
MP-3	CELLAR, MANIFOLD EQUIPMENT ROOM
MP-4	FIRST FLOOR, MANAGEMENT SUITE
MP-5	FIRST FLOOR, 5B LAUNDRY ROOM
MP-6	FIST FLOOR, UNIT 1V

Lambert Building 5

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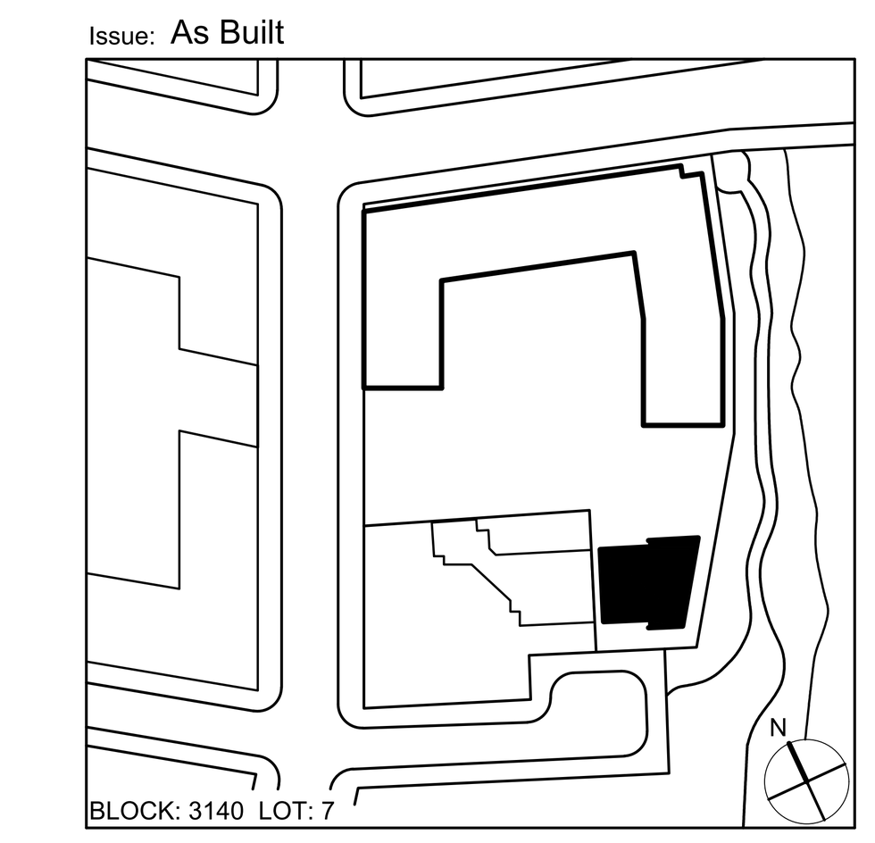


Key Plan

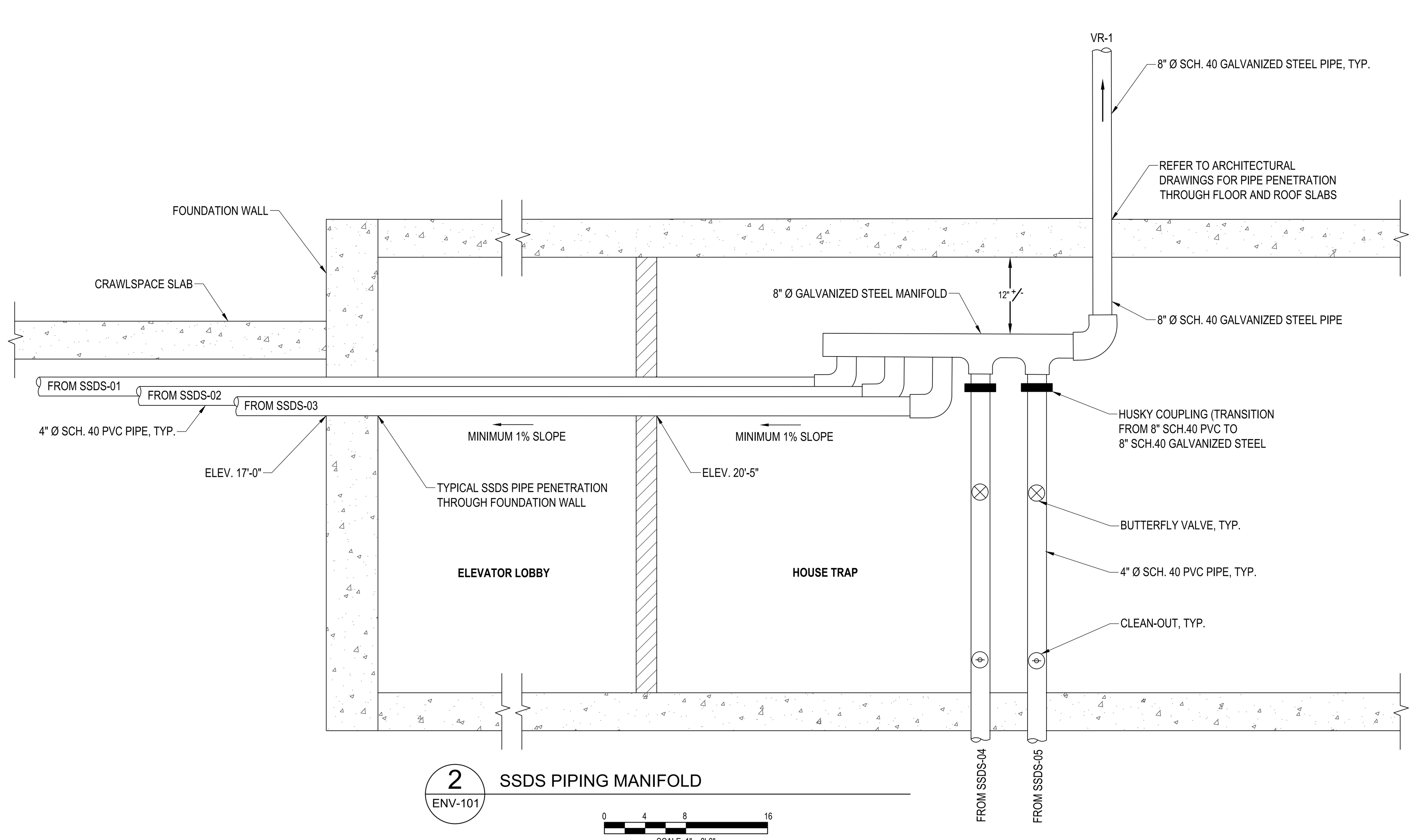
SSDS UNDERGROUND PIPING AND RISER PLAN

Date 10/11/23
Scale
Drawn By MRV
Checked By RK
Project No. 1907
Sheet No.: ENV-100

STATE OF NEW YORK · REBECCA A. KINAL · 082046-1 · LICENSED PROFESSIONAL ENGINEER

1 CELLAR PLAN (ENV-101)

SCALE: 1" = 8'-0"



2 SSDS PIPING MANIFOLD (ENV-101)

SCALE: 1" = 8'-0"

LEGEND

- SOLID 4" SCHEDULE 40 PVC PIPE
- VR-1 — VERTICAL RISER LOCATION WITH IDENTIFICATION
- VR-1 (UP) / VR-1 (DOWN) — PIPE OFFSET
- MP-1 — MONITORING POINT LOCATION

MONITORING POINT LOCATIONS	
ID	ROOM
MP-1	FIRST FLOOR, MEN'S LOCKER ROOM
MP-2	CELLAR, ELECTRICAL PANEL ROOM
MP-3	CELLAR, MANIFOLD EQUIPMENT ROOM
MP-4	FIRST FLOOR, MANAGEMENT SUITE
MP-5	FIRST FLOOR, 5B LAUNDRY ROOM
MP-6	FIST FLOOR, UNIT 1V

Lambert Building 5

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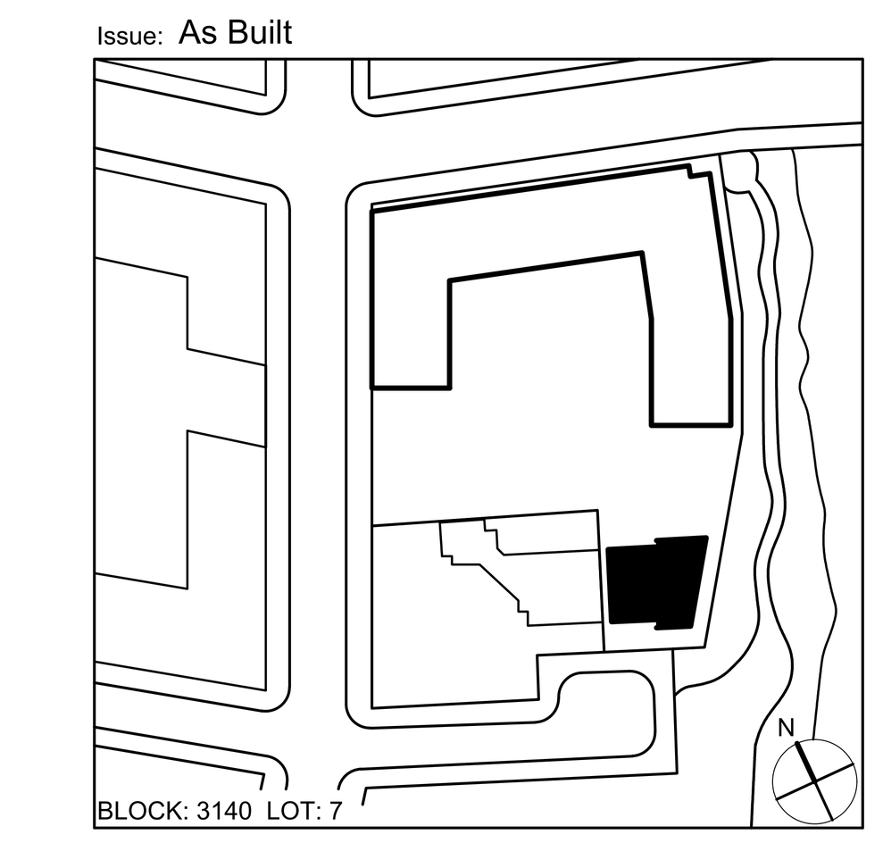

Key Plan

SSDS CELLAR PIPING AND RISER PLAN

Date	10/11/23
Scale	
Drawn By	MRV
Checked By	RK
Project No.	1907
Sheet No.:	ENV-101

1 ENV-102 FIRST FLOOR

SCALE: 1" = 8'-0"

LEGEND

SOLID 4" SCHEDULE 40 PVC PIPE

VR-1 — VERTICAL RISER LOCATION WITH IDENTIFICATION

VR-1 (UP) — VR-1 (DOWN) — PIPE OFFSET

MP-1 — MONITORING POINT LOCATION

MONITORING POINT LOCATIONS	
ID	ROOM
MP-1	FIRST FLOOR, MEN'S LOCKER ROOM
MP-2	CELLAR, ELECTRICAL PANEL ROOM
MP-3	CELLAR, MANIFOLD EQUIPMENT ROOM
MP-4	FIRST FLOOR, MANAGEMENT SUITE
MP-5	FIRST FLOOR, 5B LAUNDRY ROOM
MP-6	FIST FLOOR, UNIT 1V

Lambert Building 5

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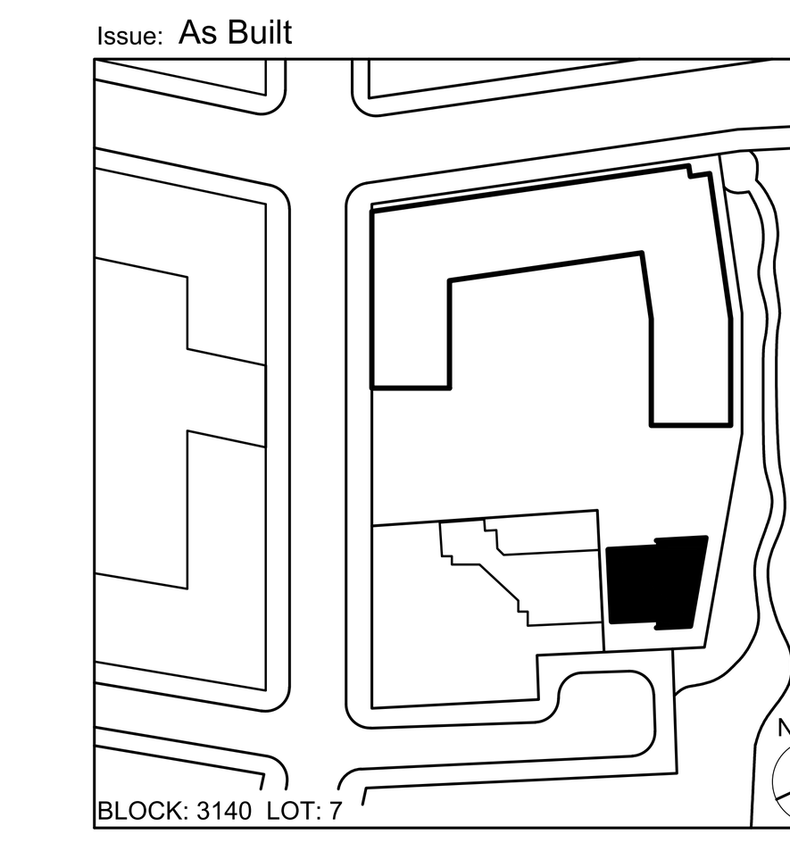
Issue: As Built

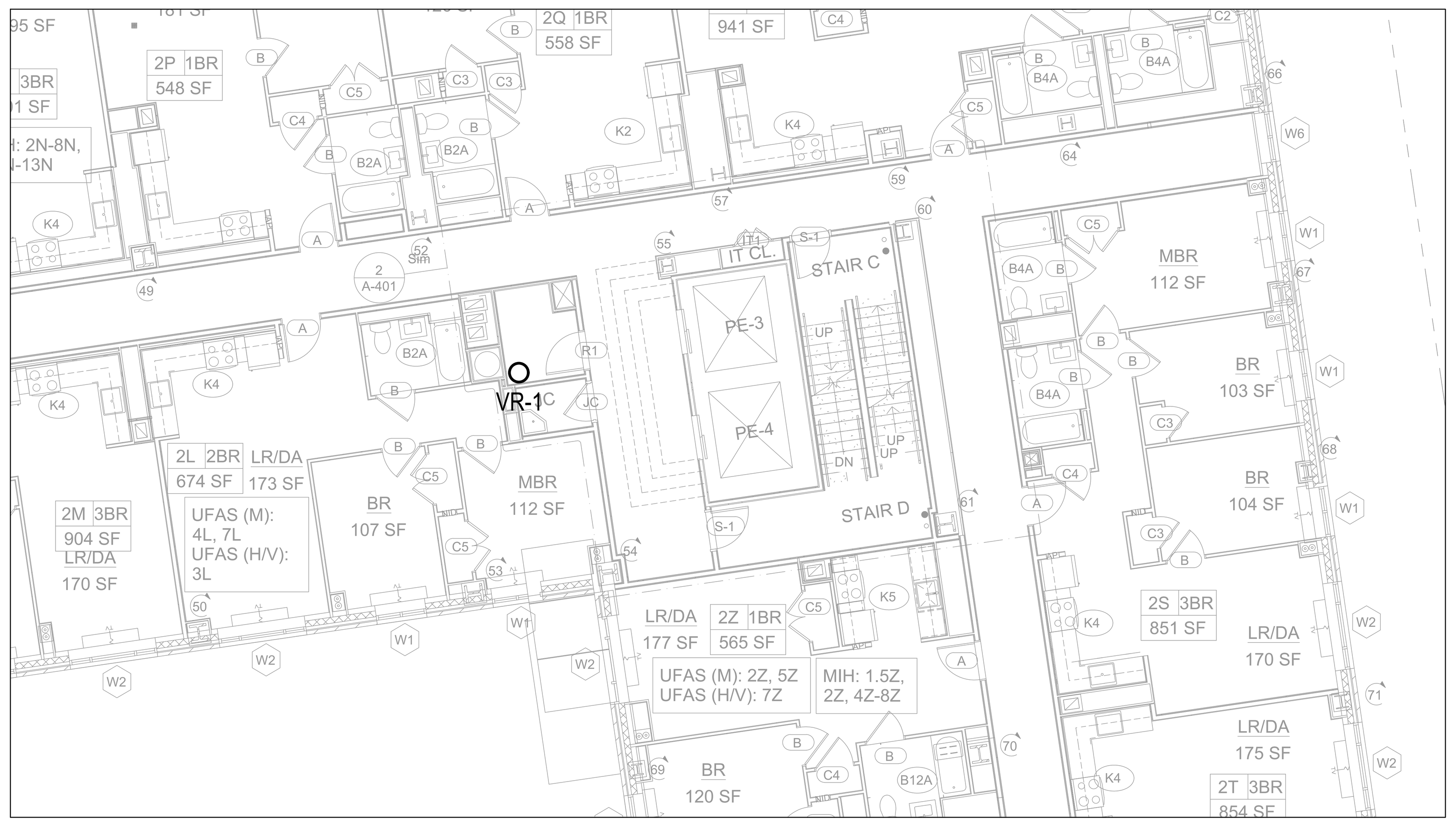


Key Plan

SSDS FIRST FLOOR PIPING AND RISER PLAN

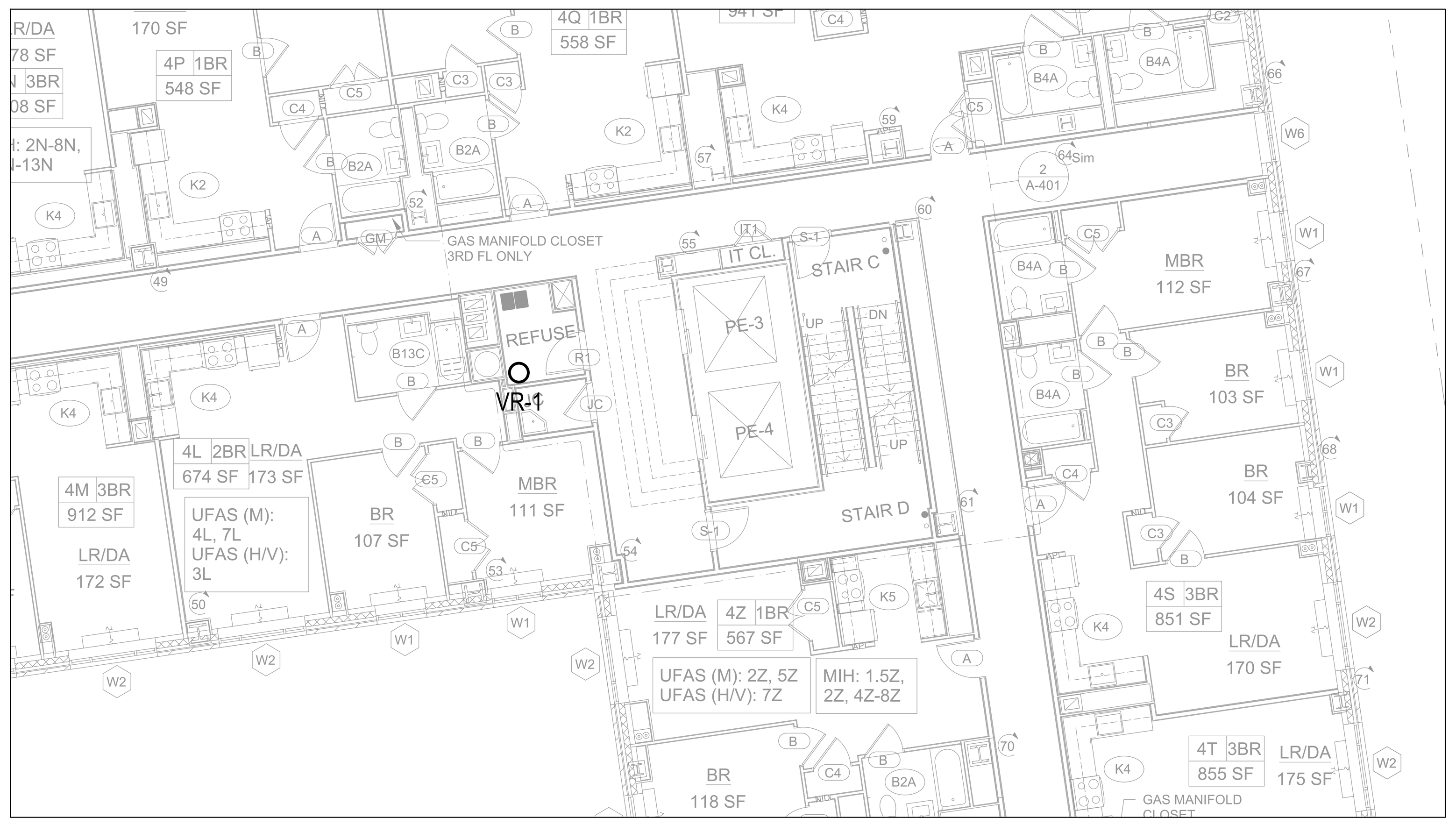
Date 10/11/23
Scale
Drawn By MRV
Checked By RK
Project No. 1907
Sheet No.: ENV-102

STATE OF NEW YORK — REBECCA A. KINAL — 082046-1 — LICENSED PROFESSIONAL ENGINEER



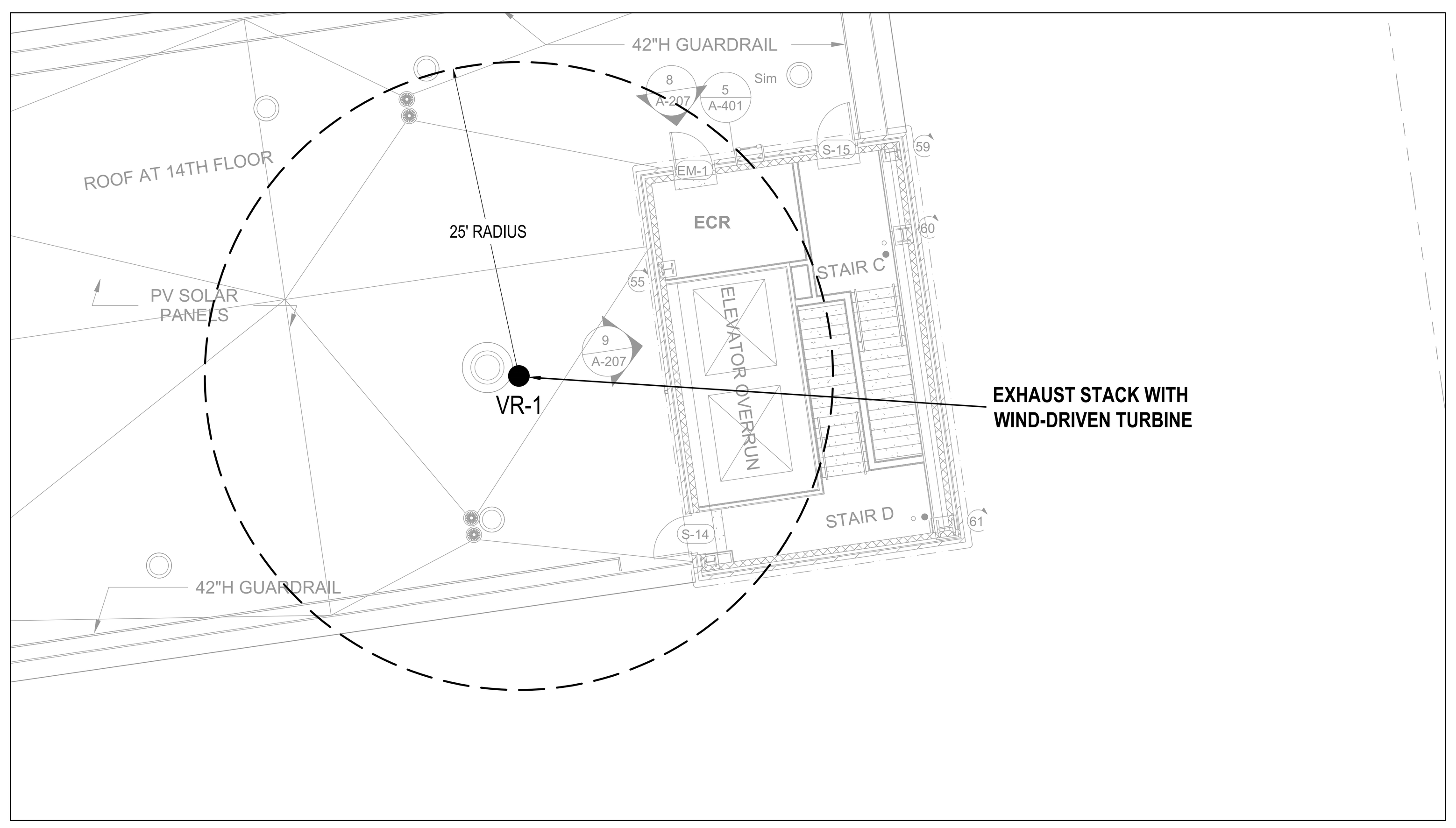
3 ENV-101 SECOND FLOOR

SCALE: 1" = 8'-0"



4 ENV-101 THIRD THROUGH THIRTEENTH FLOORS

SCALE: 1" = 8'-0"



5 ENV-101 FOURTEENTH FLOOR AND ROOF

SCALE: 1" = 8'-0"

CODE COMPLIANCE NOTES:

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2014 NYC MECHANICAL CODE SECTION 512, "SUB-SLAB SOIL EXHAUST SYSTEMS.
2. THE SSDS IS NOT A "HAZARDOUS EXHAUST SYSTEM" AS DEFINED IN THE 2014 NYC MECHANICAL CODE SECTION 510.
3. IN ACCORDANCE WITH 2014 NYC MECHANICAL CHAPTER 6 "DUCT SYSTEMS," PARAGRAPH 601.4, "CONTAMINATION PREVENTATION", SSDS RISERS WHICH ARE NOT UNDER PRESSURE ARE NOT SUBJECT TO THIS CODE REQUIREMENT.
4. 2014 NYC MECHANICAL CODE CHAPTER 6 "DUCT SYSTEMS," PARAGRAPH 607.5.5.2, "LIMITATIONS" DOES NOT APPLY TO THE SSDS RISERS.

LEGEND

	SOLID 4" SCHEDULE 40 PVC PIPE
VR-1	VERTICAL RISER LOCATION WITH IDENTIFICATION
VR-1 (UP) VR-1 (DOWN)	PIPE OFFSET

Lambert Building 5

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Revisions

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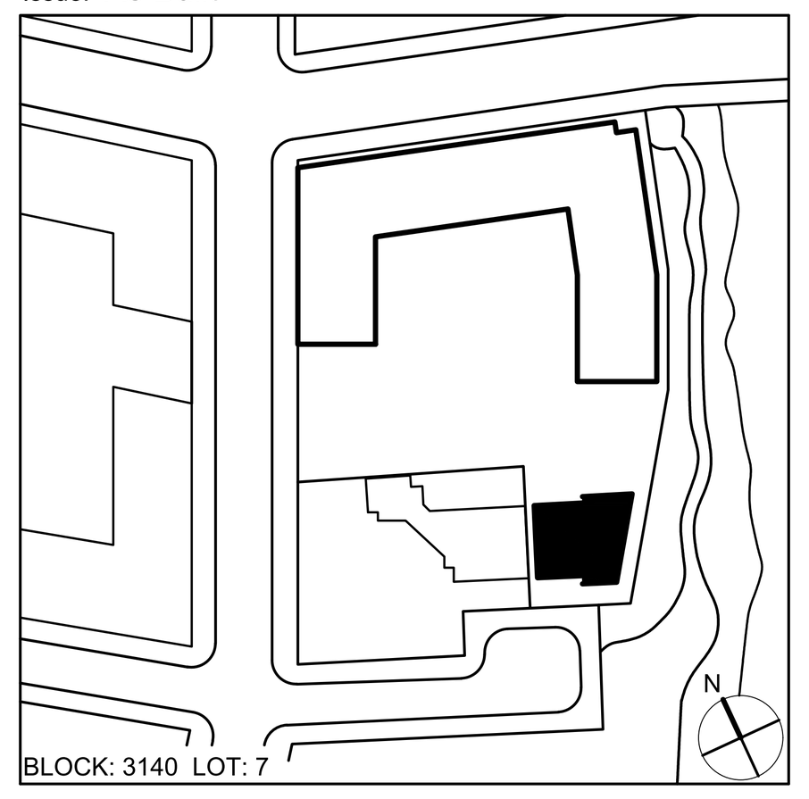

Key Plan

SSDS SECOND FLOOR THROUGH ROOF PIPING AND RISER PLAN

Date 10/11/23
Scale
Drawn By MRV
Checked By RK
Project No. 1907
Sheet No.: ENV-103

APPENDIX F
QUALITY ASSURANCE PROJECT PLAN

LAMBERT HOUSES PARCEL 5
2080 AND 2082 BOSTON ROAD
BRONX, NEW YORK

Quality Assurance Project Plan

AKRF Project Number: 190247
BCP Site Number: C203126

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau B
625 Broadway, 12th Floor
Albany, New York 12233

On Behalf Of:

Boston Tremont Housing Development Fund Corporation
2080 Boston Road Housing Development Fund Corporation
2080 Boston Road Associates, LLC
Boston Tremont Apartments, LLC
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DECEMBER 2023

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ATTACHMENTS

Attachment A – Resumes for Project Director, Quality Assurance Officer, Project Manager, Project Manager Alternates, and Field Team Leaders

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) describes the protocols and procedures that will be followed during implementation of the Site Management Plan (SMP) at the Lambert Houses Parcel 5 site, located at 2080 and 2082 Boston Road, in the Bronx, New York, hereafter referred to as the Site. The legal definition of the Site is Bronx Borough Tax Block 3140, Lot 7. The Site is bounded by East 180th Street followed by River Park and the Bronx Zoo to the north; the Bronx River followed by River Garden and automotive, commercial, and industrial properties to the east; residential buildings and East 179th Street followed by the elevated 2 and 5 Metropolitan Transit Authority (MTA) subway tracks to the south; and Boston Road followed by residential apartment buildings to the west. A Site Location Plan is provided as Figure 1.

The objective of this QAPP is to provide for Quality Assurance (QA) and maintain Quality Control (QC) (during sampling performed under the SMP) for BCP Site No. C203136. Adherence to the QAPP will ensure that defensible data will be obtained to confirm the successful operation and maintenance of remedial systems or other engineering controls.

2.0 PROJECT TEAM

The project team will be drawn from AKRF professional and technical personnel, and AKRF's subcontractors. All field personnel and subcontractors will have completed a 40-hour training course and updated 8-hour refresher course that meet the Occupational Safety and Health Administration (OSHA) requirements of 29 CFR Part 1910. The following sections describe the key project personnel and their responsibilities.

2.1 PROJECT DIRECTOR

The project director will be responsible for the general oversight of all aspects of the project, including scheduling, budgeting, data management, and field program decision-making. The project director will communicate regularly with all members of the AKRF project team and the NYSDEC to ensure a smooth flow of information between involved parties. Deborah Shapiro will serve as the project director for the SMP. Ms. Shapiro's resume is included in Attachment A.

2.2 REMEDIAL ENGINEER

The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the SMP. The Remedial Engineer will certify in the Periodic Review Reports which summarize that the engineering controls were monitored, maintained, and remain effective. The Remedial Engineer will certify that the Site management activities were conducted by qualified environmental professionals under her supervision and that the remediation requirements set forth in the SMP and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. The Remedial Engineer for this project will be Rebecca Kinal, P.E. Ms. Kinal's resume is included in Attachment A.

2.3 PROJECT MANAGER

The project manager will be responsible for directing and coordinating all elements of the SMP. The project manager will prepare reports and participate in meetings with the Site owner/BCP Requestor, and/or the NYSDEC. Ashutosh Sharma will serve as the project manager for the SMP. Mr. Sharma's resume is included in Attachment A.

2.4 FIELD TEAM LEADER, FIELD TECHNICIAN, AND SITE SAFETY OFFICER, AND ALTERNATES

The field team leader will be responsible for conducting routine operations maintenance and monitoring and health and safety activities in the field and will ensure adherence to the SMP and Health and Safety Plan (HASP), included in Appendix D of the SMP. The field team leader will also act as the field technician and Site safety officer (SSO) and will report to the project manager or project manager alternate on a regular basis regarding daily progress and any deviations from the work plan. The field team leader will be a qualified and responsible person able to act professionally and promptly during environmental work at the Site. Stephen Schmid will act as the field team leader. The field team leader alternate is Antonio Cardenas. Resumes for Mr. Schmid and Mr. Cardenas are included in Attachment A.

2.5 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) OFFICER

The laboratory QA/QC officer will be responsible for quality control procedures and checks in the laboratory and ensuring adherence to laboratory protocols. The QA/QC officer will track the movement of samples from the time they are checked in at the laboratory to the time that analytical results are issued, and will conduct a final check on the analytical calculations and sign

off on the laboratory reports. The laboratory QA/QC officer will be Carl Armbruster of Eurofins Environment Testing (Eurofins), the New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory being employed for all environmental sampling at the Site.

2.6 LABORATORY DATA VALIDATOR

The laboratory data validator will be responsible for third party data validation and preparation of Data Usability Summary Reports (DUSRs). The third-party laboratory data validator will be Lori Beyer of L.A.B. Validation Corp.

3.0 STANDARD OPERATING PROCEDURES (SOPS)

The following sections describe the SOPs for the monitoring activities included in the SMP. During these operations, safety monitoring will be performed as described in the HASP, included as Appendix F of the SMP. SMP implementation will include routine inspection of the passive sub-slab depressurization systems (SSDS), soil sampling (as needed), and soil vapor intrusion evaluation for new buildings (once after building completion and then as needed).

3.1 SOIL SAMPLING

No soil sampling or drilling work is expected or planned. However, if required, the sampling will be performed as follows:

3.1.1 Soil Screening

Soils will be inspected by AKRF field personnel for evidence of contamination (i.e., separate phase liquid, staining, sheening and/or odors) and field-screened using a photoionization detector (PID) calibrated at the start of each day in accordance with the manufacturer's instructions. In the event that contamination is discovered during Site work, the excavation will be expanded laterally and in depth until there is no evidence of contamination. If a release is documented, soil exhibiting evidence of contamination will be removed in the same manner as contamination excavation areas.

3.1.2 Soil Sampling

Depending upon conditions encountered during construction and monitoring of the Site, soil sampling may be required. Soil sampling will be conducted according to the following procedures:

- Characterize the sample according to the modified Burmister soil classification system.
- Collect an aliquot of soil from each sampling location and place in labeled sealable plastic bags. The bag should be labeled with the soil boring number and the depth the sample was collected. Place the plastic bags in a chilled cooler to await selection of samples for laboratory analysis.
- After selecting which samples will be analyzed in the laboratory, fill the required laboratory-supplied sample jars with the soil from the selected sampling location or labeled sealable plastic bags. Seal and label the sample jars as described in Section 4.5.1.1 of this QAPP and place in an ice-filled cooler.
- Decontaminate any soil sampling equipment between sample locations as described in Section 3.4 of this QAPP.
- Record boring number, sample depth and sample observations (evidence of contamination, PID readings, soil classification) in field log book and boring log data sheet, if applicable.

3.1.3 Sub-Slab Soil Vapor and Indoor Air Sampling

Soil vapor intrusion evaluation sampling will be conducted in accordance with New York State Department of Health (NYSDOH) Final Guidance on Soil Vapor Intrusion, October 2006. Samples will be collected in batch-certified SUMMA® canisters. A pre-sampling inspection will be conducted prior to the sampling to document interior Site building characteristics, building occupancy, air flow patterns, utilities, building operations,

chemical and maintenance product inventory, and any other known factors that may affect indoor air quality. The building slabs will be visually inspected to confirm their integrity. Sub-slab soil vapor samples will be collected from the SSDS vapor monitoring points installed during the remediation and co-located indoor air samples will be collected at breathing zone level (minimum of 3- to 5-feet above the ground floor) adjacent to the monitoring point locations.

3.2 EXCAVATION BACKFILL

All imported soil (if any) will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d). Approval will also be based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria. Soil will be considered appropriate for use as on-site imported backfill if contaminant concentrations are below the lesser of the 6 NYCRR Part 375 Restricted Residential and Groundwater Protection Soil Cleanup Objectives (SCOs). Soil 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.

Native material from a virgin quarry source will not be sampled prior to use as backfill on the Site. All other imported material (if any) will be tested via collection of one composite sample per 1,000 cubic yards of material from each source. Samples will be analyzed for volatile organic compounds (VOCs) using EPA Method 8260, semi-volatile organic compounds (SVOCs) using EPA Method 8270, taget analyte list (TAL) metals using EPA Method 6000/7000 series, polychlorinated biphenyls (PCBs) using EPA Method 8082, pesticides using EPA Method 8081, 1,4-dioxane via EPA Method 8270, and per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633.

3.3 MATERIALS REUSE ON-SITE

Organic matter (wood, roots, stumps, etc.) or other solid waste is prohibited for reuse on-site. Soil that does not exhibit evidence of contamination during field screening, and is free of demolition debris will be stockpiled and tested at a frequency of one sample per 1,000 cubic yards and characterized for reuse. Each sample will be tested for target compounds list (TCL) volatile organic compounds (VOCs) by EPA Method 8260, TCL semi-volatile organic compounds (SVOCs) by EPA Method 8270, polychlorinated biphenyls (PCBs) by EPA Method 8082, pesticides by EPA Method 8081, target analyte list (TAL) metals by EPA Method 6000/7000 series, 1,4-dioxane via EPA Method 8270, and per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633. Samples will be shipped to the laboratory with appropriate chain of custody documentation. The samples will be analyzed in a laboratory following New York State Department of Health (NYSDOH) Analytical Services Protocol (ASP) Category B deliverables. Soil from representative samples that meet the Site Specific SCOs (identified in the RAWP) can be reused on-site as backfill.

3.4 DECONTAMINATION OF SAMPLING EQUIPMENT

All sampling equipment (augers, drilling rods, split spoon samplers, probe rods, pumps, etc.) will be either dedicated or decontaminated between sampling locations. Decontamination will be conducted on plastic sheeting (or equivalent) that is bermed to prevent discharge to the ground. The decontamination procedure will be as follows:

1. Scrub using tap water/Simple Green® mixture and bristle brush.
2. Rinse with tap water.

3. Scrub again with tap water/Simple Green® mixture and bristle brush.
4. Rinse with tap water.
5. Rinse with distilled water.
6. Air-dry the equipment, if possible.

3.5 MANAGEMENT OF INVESTIGATION DERIVED WASTE (IDW)

IDW will be containerized in New York State Department of Transportation (NYSDOT)-approved 55-gallon drums during the site management activities. The drums will be sealed at the end of each work day and labeled with the date, the boring location(s), the type of waste e.g., drill cuttings, excavated trenching material), and the name and phone number of an AKRF point-of-contact. All IDW collected into drums will be sampled and disposed of or treated according to applicable local, state, and federal regulations.

4.0 SAMPLING AND LABORATORY PROCEDURES

4.1 SOIL SAMPLING

Depending upon conditions encountered during construction and monitoring of the Site, soil sampling may be required. Soil sampling will be conducted according to the following procedures:

- Field screening for evidence of contamination (e.g., odors, staining, elevated PID measurements). Using a hand auger or sampling spoon, remove a small amount of soil from the bottom or sidewall of the excavation. A grab sample can also be collected from the excavator bucket after targeted soil removal from the excavation. Place the soil in a zip-lock bag and insert the PID through the sealed bag to obtain an organic vapor concentration measurement.
- After selecting which samples will be analyzed in the laboratory, fill the required laboratory-supplied sample jars with the soil from the selected sampling location or labeled sealable plastic bags. Seal and label the sample jars as described in Section 4.5.1.1 of this QAPP and place in an ice-filled cooler.
- Decontaminate any soil sampling equipment between sample locations as described in Section 3.4 of this QAPP.
- Record boring number, sample depth and sample observations (evidence of contamination, PID readings, soil classification) in field log book and boring log data sheet, if applicable.

4.2 SUB-SLAB SOIL VAPOR and INDOOR AIR SAMPLING

Sub-slab soil vapor and indoor air sampling, as needed in the future, will be conducted using Summa canisters with 24-hour flow regulators. Samples will be collected using the following procedures:

4.2.1 Sample Set-up

1. Conduct a pre-sampling inspection and record chemical inventory of the Site building.
2. Install flexible hose to a Gilian GilAir plus (or equivalent) sampling pump and connect the Teflon sample tubing to the hose. Connect the other end (discharge end) of the flexible tubing to a 1-liter Tedlar bag. Purge the soil gas sampler of approximately three sampler volumes by activating the pump to fill the Tedlar bag to near capacity. The air withdrawal flow rate shall be 0.2 liters/minute or less.
3. The Tedlar bag will be analyzed in the field using a PID calibrated to the manufacturer's specifications to check for levels of VOCs in the sub-slab soil vapor.
4. Disconnect the sample tubing from the Gilian GilAir plus (or equivalent) pump and connect it to the inlet of a labeled 6-liter Summa canister.
5. Place labeled Summa canisters at the breathing zone level (minimum of 3- to 5-feet above the ground floor) adjacent to the monitoring point locations for collection of co-located indoor air (IA) samples from the cellar level, and place canisters at select locations on the first-floor space for collection of IA samples over a 24-hour period.
6. Repeat procedure for all sampling locations.

4.2.2 Sample Collection

1. After Summa canisters are set up at all sampling locations, record the vacuum reading from the vacuum gauge on the canister at the beginning of the 24-hour sampling period. Open the valve of the canister and record the time in the field book.
2. At the end of the 24-hour sampling period, close the valve, remove the flow-rate controllers and vacuum gauges, install caps on canisters, and record the time at the end of the sampling period.
3. Place the sub-slab soil vapor and co-located IA sample, the first floor IA sample, and ambient air canister in shipping containers for transportation to laboratory.
4. Repeat procedure for all sampling locations.

4.3 LABORATORY METHODS

Table 1 summarizes the laboratory methods that will be used to analyze field samples and the sample container type, preservation, and applicable holding times. Eurofins Environment Testing America - Edison of Edison, New Jersey, a NYSDOH ELAP-certified laboratory subcontracted to AKRF, will be used for all chemical analyses in accordance with the Division of Environmental Remediation (DER)-10 2.1(b) and 2.1(f) with Category B Deliverables.

Table 1
Laboratory Analytical Methods

Matrix	Analysis	EPA Method	Bottle Type	Preservative	Hold Time
Soil	Volatile Organic Compounds (VOCs)	8260C	EnCore® samplers (3) and 2 oz. plastic jar	≤ 6 ºC	48 hours to extract; 14 days to analyze
	Semivolatile Organic Compounds (SVOCs)	8270D	8 oz. Glass Jar	≤ 6 ºC	14 days to extract; 40 days to analyze
	1,4-Dioxane	8270D; 0.1 mg/kg RL	4 oz. Glass Jar	≤ 6 ºC	14 days to extract; 40 days to analyze
	Total Analyte List (TAL) Metals, and Hexavalent Chromium	6000/7000 Series, 6010C, and 7196A	8 oz. Glass Jar	≤ 6 ºC	6 months holding time; Mercury 28 days holding time; Hexavalent chromium 30 days to extract, 7 days to analyze
	Pesticides	8081B	8 oz. Glass Jar	≤ 6 ºC	14 days to extract; 40 days to analyze
	Polychlorinated Biphenyls (PCBs)	8082A	8 oz. Glass Jar	≤ 6 ºC	14 days to extract; 40 days to analyze
	Per- and Polyfluorinated Compounds (PFAS)	Modified 537.1; 0.2 ng/L RL	4 oz. HDPE Plastic Container	≤ 6 ºC	14 days to extract; 40 days to analyze
Sub-Slab Soil Vapor/Indoor Air/Ambient Air	VOCs	TO-15	6L Summa Canisters (24-hr flow controllers)	None	30 days

Notes:
EPA - Environmental Protection Agency
HDPE – High Density Poly Ethylene

4.4 QUALITY CONTROL (QC) SAMPLING

In addition to the laboratory analysis of the samples, additional analysis will be included for QC measures, as required by the Category B sampling techniques. These samples will include field blank, trip blank, matrix spike/matrix spike duplicate (MS/MSD), and blind duplicate samples at a frequency of one sample per 20 field soil samples collected. QC samples will be analyzed for the same parameters as the accompanying samples, with the exception of any trip blanks, which

will be analyzed for the VOC list only. An ambient air sample will be collected for QC measure during IA sampling.

Table 2
Field Sample and QC Sample Quantities

Sample Type	Parameters	EPA Method[1]	Field Samples	QC Samples			
				Duplicate[3]	MS/MSD[3]	Field Blank	Trip Blank[2]
Soil	VOCs	EPA 8260C	TBD	1/20 (TBD)	1/20 (TBD)	1/20 (TBD)	1 (Laboratory-Supplied)
	SVOCs, TAL Metals, Mercury, PCBs, Pesticides, and PFAS	EPA 8270D, 6010C/7471B, 8082A, 8081B, and 537.1	TBD	1/20 (TBD)	1/20 (TBD)	1/20 (TBD)	NA
Sub-Slab Soil Vapor	VOCs	TO-15	TBD	NA	NA	NA	NA
Indoor Air	VOCs	TO-15	TBD	NA	NA	NA	1 Ambient Air

Notes:
MS/MSD - matrix spike/matrix spike duplicate
TBD – To be determined based on planned work activities
NA – Not Applicable
[1] - NYSDEC July 2005 ASP Category B deliverables
[2] – One trip blank per shipment with VOC analyses
[3] - One MS/MSD and Duplicate sample per twenty field soil samples or sample shipment

4.5 SAMPLE HANDLING

4.5.1 Sample Identification

All samples will be consistently identified in all field documentation, chain-of-custody (COC) documents, and laboratory reports. All samples will be amended with a collection date at the end of the sample same in a year, month, day (YYYYMMDD) format. Blind duplicate sample nomenclature will consist of the sample type, followed by an "X"; MS/MSD samples nomenclature will consist of the parent sample name, followed by "MS/MSD"; and trip and field blanks will consist of "TB-" and "FB-", respectively, followed by a sequential number of the trip/field blanks collected within the SDG. Special characters, including primes/apostrophes (’), will not be used for sample nomenclature.

4.5.1.1. Site Management Sample Identification

All samples will be consistently identified in all field documentation, chain-of-custody documents and laboratory reports using an alpha-numeric code. The field duplicate samples will be labeled with a dummy sample location to ensure that they are submitted as blind samples to the laboratory. Trip blanks and field blanks will be identified with "TB" and "FB", respectively. Table 3 provides examples of the sampling identification scheme for samples collected during the Site management activities.

Table 3
Sample Nomenclature

Sample Description	Sample Designation
Sub-slab soil vapor sample collected from sub-slab soil vapor point MP-01 on February 1, 2024	MP-01_20240201
Indoor air sample collected from the cellar of the building on February 1, 2024	IA-01_20240201
Soil sample (if needed) collected from 3 to 4 feet below grade on August 1, 2024	SS-01_3-4_20240801

Sample Labeling and Shipping

All sample containers will be provided with labels containing the following information:

- Project identification, including Site name, BCP Site number, Site address
- Sample identification
- Date and time of collection
- Analysis(es) to be performed
- Sampler's initials

Once the samples are collected and labeled, they will be placed in chilled coolers (except for sub-slab soil vapor or IA samples) and stored in a cool area away from direct sunlight to await shipment to the laboratory. All samples will be shipped to the laboratory at least twice per week. At the start and end of each workday, field personnel will add ice to the cooler(s) as needed.

The samples will be prepared for shipment by placing each sample in laboratory-supplied glassware, then wrapping each container in bubble wrap to prevent breakage, and adding freezer packs and/or fresh ice in sealable plastic bags. The COC form will be properly completed by the sampler in ink, and all sample shipment transactions will be documented with signatures, and the date and time of custody transfer. Samples will be shipped overnight (e.g., Federal Express) or transported by a laboratory courier. All coolers shipped to the laboratory will be sealed with mailing tape and a COC seal to ensure that the samples remain under strict COC protocol.

Sample Custody

Field personnel will be responsible for maintaining the sample coolers in a secured location until they are picked up and/or sent to the laboratory. The record of possession of samples from the time they are obtained in the field to the time they are delivered to the laboratory or shipped off-site will be documented on COC forms. The COC forms will contain the following information: project name; names of sampling personnel; sample number; date and time of collection and matrix; and signatures of individuals involved in sample transfer, and the dates and times of transfers. Laboratory personnel will note the condition of the custody seal and sample containers at sample check-in.

4.6 FIELD INSTRUMENTATION

Field personnel will be trained in the proper operation of all field instruments at the start of the field program. Instruction manuals for the equipment will be on file at the Site for referencing proper operation, maintenance, and calibration procedures. The equipment will be calibrated according to manufacturer specifications at the start of each day of fieldwork. If an instrument fails calibration, the project manager or QA/QC officer will be contacted immediately to obtain a replacement instrument. A calibration log will be maintained to record the date of each calibration, any failure to calibrate and corrective actions taken. The PID will be equipped with a 10.6 electron volt (eV) lamp and will be calibrated each day using 100 parts per million (ppm) isobutylene standard gas in accordance with the manufacturer's standards.

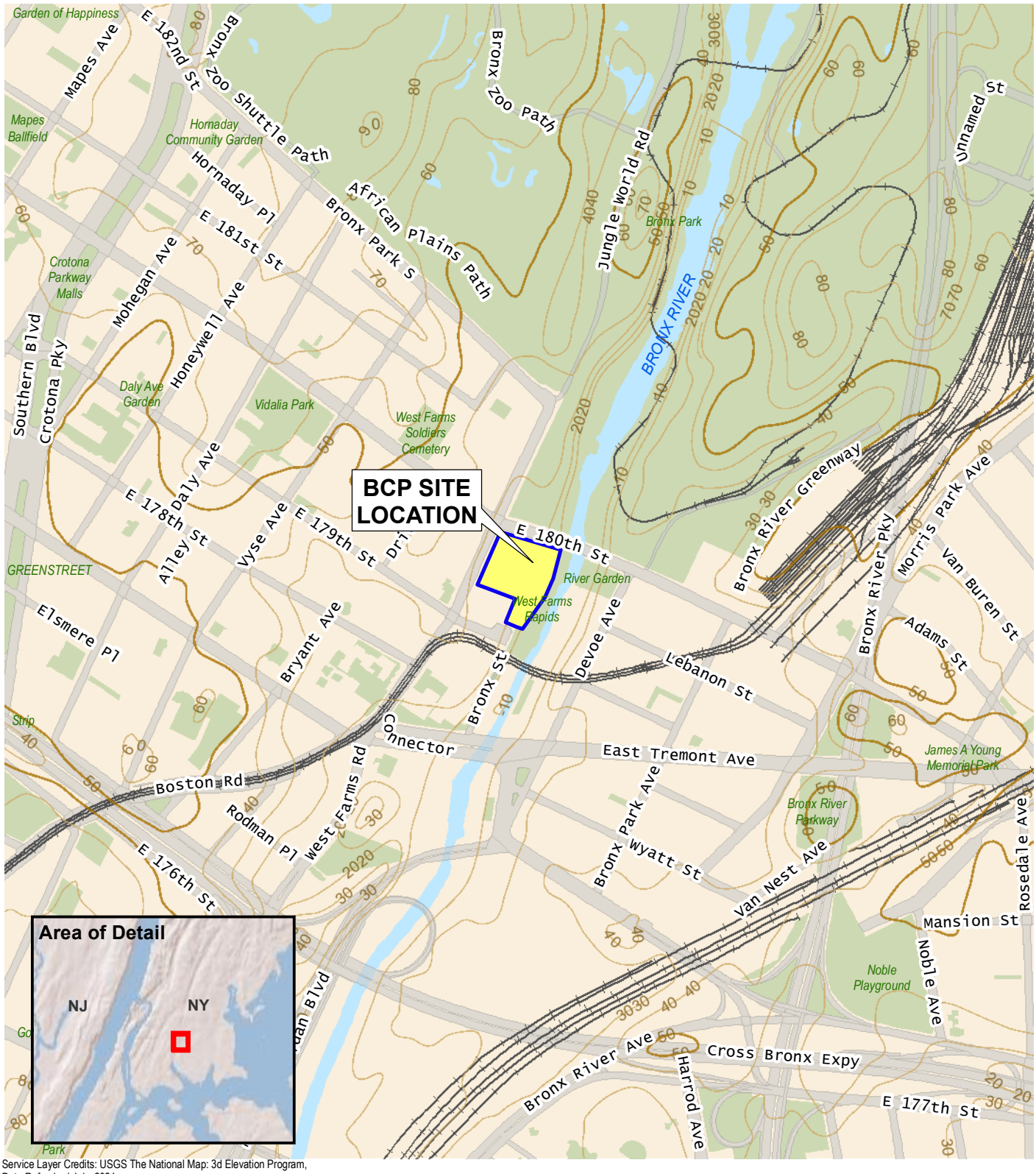
4.7 QUALITY ASSURANCE (QA)

All laboratory analytical data will be reviewed by a third-party validator and a Data Usability Summary Report (DUSR) will be prepared to document the usability and validity of the data. The objective of the third-party validator is to provide an unbiased review to confirm that the laboratory followed all method and reporting requirements, and to provide a basis for making decisions about the minimum quality of environmental data that is sufficient to support risk assessment remedial performance decisions. The quarterly reports will include a detailed description of sampling activities, data summary tables, concentration map showing sample locations and concentrations, DUSR, and laboratory reports.

4.8 REPORTING OF DATA

All data generated during the monitoring activities will be submitted in the appropriate EQuIS™ EDD format.

FIGURES



Service Layer Credits: USGS The National Map: 3d Elevation Program, Data Refreshed July, 2021

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SCALE IN FEET

N

AKRF

440 Park Avenue South, New York, NY 10016

Lambert Houses Parcel 5
Block 3140, Lot 7
Bronx, New York

BCP SITE LOCATION

DATE
10/9/2023

PROJECT NO.
190247

FIGURE
1

ATTACHMENT A

RESUMES OF PROJECT DIRECTOR, PROJECT MANAGER, PROJECT MANAGER ALTERNATE, AND FIELD TEAM LEADER

DEBORAH G. SHAPIRO, QEP

SENIOR VICE PRESIDENT

Deborah Shapiro, QEP is a Senior Vice President with experience in the assessment and remediation of hazardous waste issues. Ms. Shapiro supervises project teams and manages all aspects of assessment and remediation projects. Ms. Shapiro works with developers, non-profit organizations, architects, local community groups, local businesses, and government agencies. Her projects fall under the regulatory oversight of New York State Department of Environmental Conservation (NYSDEC), New York City Department of Environmental Protection (NYCDEP), and New York City Office of Environmental Remediation (NYCOER) including the New York State Brownfield Cleanup Program (BCP), New York City Voluntary Cleanup Program (VCP), NYSDEC petroleum spills program, Resource Conservation and Recovery Act (RCRA)/Underground Injection Control (UIC) closures, and NYCOER's E-designation program. Ms. Shapiro has also assisted commercial and industrial property owners with maintaining the integrity of their portfolios by providing compliance related cleanup and chemical storage management services.

Ms. Shapiro manages all aspects of redevelopment projects from the initial Phase I ESA, Phase II, and remediation through post-remedial site management. In addition, her experience includes groundwater investigations, monitoring, and sampling programs; Brownfield and hazardous waste site investigations; In-Situ Chemical Oxidation; underground storage tank studies, including soil contamination delineation, classification, removal and disposal; waste characterization sampling; exposure assessments; on-going remedial action (especially air sparging (AS)/soil vapor extraction (SVE)), and permitting.

BACKGROUND

Education

MS, American University, Environmental Science, 2001
BA, American University, Environmental Studies, 1998

Licenses/Certifications

Health and Safety Operations at Hazardous Materials Sites 29 CFR 1910.120
OSHA 10 Hour Construction Safety & Health Course
OSHA 40 Hour HAZWOPER
OSHA 8 Hour Refresher
OSHA 8 Hour Supervisor
Qualified Environmental Professional, Institute of Professional Environmental Practice

Professional Memberships

Past President, New York City Brownfield Partnership,
Board Member, Residents Forward,
Member, Institute of Professional Environmental Practice,

Years of Experience

22 years in the industry
7 years with AKRF

RELEVANT EXPERIENCE

New York City Office of Environmental Remediation, OER On Call Contract, Various Locations, NY

The work has included conducting Phase I environmental site assessments (ESAs) and multi-media sampling of soil, groundwater, and soil vapor for various sites funded by EPA grants. The work plans and investigation reports were completed in accordance with OER and EPA requirements. AKRF also implemented a remedial plan for capping a

park site in Staten Island. In addition, AKRF provided support to OER and an affordable housing developer to expedite an application for entry into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), as well as preparation and implementation of the remedial investigation and remedial plan.

As Project Manager, Ms. Shapiro is managing an on-call contract with the OER for brownfields environmental assessment and remediation.

Brook 156 HDFC, Brook 156, Bronx, NY

AKRF was retained to provide environmental consulting services in connection with the purchase and development of the Site. AKRF prepared a Phase I Environmental Site Assessment (ESA) of the NYC-owned former gasoline service station and a former railroad. A Tier 1 Vapor Encroachment Screening was also conducted to satisfy HUD's vapor intrusion requirements. AKRF prepared a Remedial Investigation Work Plan (RIWP) and conducted a Remedial Investigation (RI) at the site, which included the collection and analysis of soil, soil vapor, and groundwater. The results of the RI, which were documented in a Remedial Investigation Report (RIR), were used to prepare a New York City Brownfield Cleanup Program (NYCBCP) application. The site was accepted into the New York State Brownfield Cleanup Program (NYSBCP). AKRF prepared a Citizen Participation Plan (CPP), distributed public notices, and conducted multiple Remedial Investigations to further investigate soil, soil vapor, and groundwater at the site prior to redevelopment. The results of the investigations were used to prepare a Remedial Action Work Plan (RAWP), which is undergoing review and approval by NYSDEC. The proposed remedy includes excavation of soil, design and installation of a soil vapor extraction system and sub-slab depressurization system, contingent groundwater treatment program, and installation of a vapor barrier and composite cover system.

AS Project Manager, Ms. Shapiro is responsible for managing all technical components of the project, communication with NYSDEC and the Client, and managing the budget.

Elton Crossing - Melrose Commons North Site C, Bronx, NY

AKRF provided environmental consulting services in connection with the purchase and redevelopment of the Elton Crossing site at 899 Elton Avenue in the Bronx, NY. The work initially involved the preparation of a Phase II subsurface investigation including soil and soil vapor testing to determine if the site would be eligible for the New York State Brownfield Cleanup Program (NYSBCP). Upon completion of the investigation, AKRF prepared a NYCBCP Application and the site was accepted into the NYSBCP. AKRF managed all aspects of the brownfield cleanup including; development of Investigation Work Plans, performing Remedial Investigations and Reports, preparation of Phase I ESAs, preparation of a Citizen Participation Plan, distribution of public notices, preparation and implementation of a Remedial Action Work Plan (RAWP), design of a sub-slab depressurization system, preparation of the Final Engineering Report and Site Management Plan, and sampling and management of soil disposal. AKRF is in the midst of implementing the Site Management Plan.

As Project Manager, Ms. Shapiro was responsible for managing all technical components of the project, communication with NYSDEC and the Client, and managing the budget.

Bradhurst Cornerstone II Residences, New York, NY

AKRF, Inc. prepared a Part 58 Environmental Assessment (EA) and a NYC CEQR Environmental Assessment Statement for the Bradhurst Cornerstone II Apartments project. This project, which required conveyance of City-owned property to the applicant and HOME funding from the HUD, will result in the construction of 31 units of affordable

housing on four sites in the Harlem neighborhood of Manhattan. The New York City Department of Housing Preservation & Development (HPD) served as lead agency for the review and has issued a Negative Declaration for the project. Issues of concern for the environmental review included the identification of project commitments for certain of the four sites related to historic resources, hazardous materials, air quality, and building attenuation. As part of the mitigation of hazardous materials, AKRF conducted a Phase II investigation and prepared a RAP and CHASP.

AKRF prepared a Construction Protection Plan that was reviewed and approved by the New York City Landmarks Preservation Commission and the New York State Office of Parks, Recreation and Historic Preservation. This plan was implemented during construction to protect the Wadleigh Secondary School for the Performing and Visual Arts, a New York City Landmark that is also eligible for listing on the State and National Registers.

As Project Manager, Ms. Shapiro was responsible for managing all technical components of the hazardous materials portion of the project, communication with the regulatory agency and the Client, and managing the budget.

Lambert Houses Redevelopment, Bronx, NY

AKRF performed an Environmental Impact Statement (EIS) of the Lambert Houses affordable housing complex located in the West Farms section of the Bronx, NY. Lambert Houses consisted of multi-story apartment buildings, parking garage, and a multi-tenant retail/commercial building alongside the elevated NYC subway. AKRF also conducted a Phase I ESA with a vapor intrusion screen of the Property to satisfy U.S. Department of Housing and Urban Development (HUD)'s vapor intrusion requirements. The Phase I and vapor intrusion screens were prepared in accordance with ASTM E1527-05, ASTM E2600, and U.S. Environmental Protection Agency (EPA)'s All Appropriate Inquiry (AAI) rule. After completion of the EIS, an E-designation for hazardous materials was placed on the site. A subsurface investigation was conducted and a Remedial Action Work Plan (RAWP) was prepared under New York City Office of Environmental Remediation (OER) oversight. The site was subsequently entered in the NYC Voluntary Cleanup Program. AKRF is in the midst of implementing the RAWP, which includes remediation of a hydraulic oil spill.

Ms. Shapiro was responsible for managing all technical components of the hazardous materials portion of the project, communication with the regulatory agency and the Client, and managing the budget.

New York City Office of Environmental Remediation, Second Farms, Bronx, NY

AKRF, Inc. was initially contracted by the New York City Office of Environmental Remediation (NYCOER) to conduct a subsurface investigation of a 1.12-acre parcel in the Bronx, New York under the United States Environmental Protection Agency (USEPA) Brownfield Assessment Grant program. The investigation included a geophysical survey and utility mark-outs, and the collection and analysis of soil, groundwater, soil vapor, indoor air and ambient air samples. AKRF continued working on the project for the developer by preparing a Remedial Action Plan and Environmental Assessment Statement. AKRF is in the midst of implementing the remedy.

As Project Manager, Ms. Shapiro was responsible for managing all technical components of the project, communication with OER, NYCDEP, and the Client, and managing the budget.

3301 Atlantic Avenue, Brooklyn, NY

AKRF was retained to provide environmental consulting services in connection with the purchase and redevelopment of former burned manufacturing buildings encompassing an entire city block in Brooklyn, New York. As part of due diligence, AKRF prepared a Phase I Environmental Site Assessment (ESA) Report for the property. After acquisition, the property was divided into three separate sites (3264 Fulton Street, 235 Chestnut Street, and 3301 Atlantic Avenue).

AKRF prepared a Subsurface (Phase II) Investigation Work Plans and conducted Phase IIs at each of the sites, which included the collection and analysis of soil, soil vapor, and groundwater samples. Based on the results of the Phase IIs, which were documented in Subsurface (Phase II) Reports, New York State Brownfield Cleanup Program (NYSBCP) applications were prepared for each of the sites. After acceptance into the NYSBCP, AKRF prepared Citizen Participation Plans (CPPs) and distributed public notices. AKRF prepared Remedial Investigation (RI) Work Plans (RIWPs) and implemented numerous Remediation Investigations for each of the sites to further investigate contaminated media at the site prior to redevelopment, and prepared the RI Reports (RIRs). AKRF is in the midst of preparing Interim Remedial Work Plans for each Site, which include installation of a Soil Vapor Extraction to prevent the off-site migration of contaminants.

As Project Manager, Ms. Shapiro was responsible for managing all technical components of the project, communication with NYSDEC and the Client, and managing the budget.

Atlantic Chestnut Lots 1, 2 & 3, Brooklyn, NY

AKRF was retained to provide environmental consulting services in connection with the purchase and redevelopment of former burned manufacturing buildings encompassing an entire city block in Brooklyn, New York. As part of due diligence, AKRF prepared a Phase I Environmental Site Assessment (ESA) Report for the property. After acquisition, the property was divided into three separate sites (3264 Fulton Street, 235 Chestnut Street, and 3301 Atlantic Avenue). AKRF prepared a Subsurface (Phase II) Investigation Work Plans and conducted Phase IIs at each of the sites, which included the collection and analysis of soil, soil vapor, and groundwater samples. Based on the results of the Phase IIs, which were documented in Subsurface (Phase II) Reports, New York State Brownfield Cleanup Program (NYSBCP) applications were prepared for each of the sites. After acceptance into the NYSBCP, AKRF prepared Citizen Participation Plans (CPPs) and distributed public notices. AKRF prepared Remedial Investigation (RI) Work Plans (RIWPs) for each of the sites to further investigate contaminated media prior to redevelopment, conducted the RIs, and is in the process of preparing the RI Reports (RIRs).

As Project Manager, Ms. Shapiro was responsible for managing all technical components of the project, communication with NYSDEC and the Client, and managing the budget.

ANTONIO CARDENAS

ENVIRONMENTAL SCIENTIST

Mr. Cardenas is an Environmental Scientist in the AKRF, Inc. Site Assessment and Remediation Group. His experience includes Phase I Environmental Site Assessments, soil, groundwater, and soil gas sampling, and environmental monitoring of construction sites.

BACKGROUND

Education

B.S., Geology, City College of the City University of New York, NY, 2017

Certifications

OSHA 40-hour Health & Safety Training for Hazardous Waste Operations

OSHA 10-hour Health & Safety Training for Hazardous Waste Operations

USEPA Air Monitoring for Emergency Response Training Program, AMFER Certificate

Years of experience

Year started in company: 2018

Year started in the industry: 2018

RELEVANT EXPERIENCE – AKRF

85 Jay Street, Brooklyn, NY – NYS Brownfield Redevelopment

Remediation of a former lead smelter is being conducted under the New York State Brownfield Cleanup Program (BCP). AKRF completed a Phase II Subsurface Investigation, Remedial Investigation, and prepared a Remedial Action Work Plan (RAWP) to address subsurface contamination during site redevelopment including in-situ stabilization of lead impacted soil. For this project, Mr. Cardenas served as an on-site environmental monitor who conducted work zone and community air monitoring, and oversaw excavation and export of soil. Additionally, Mr. Cardenas collected confirmatory soil samples at the bottom of excavation and throughout soil stabilization. The project is in the midst of remediation, and Mr. Cardenas assists in overseeing the soil conditioning program, the excavation monitoring (CAMP and CHASP), and the daily reporting obligation to NYSDEC. The project anticipates a 12-month construction period and is projected to achieve a Track 1 cleanup in 2019.

Rego Park Home Depot, Queens, NY

Solvent contamination was encountered during retail development of a former industrial property in Rego Park, Queens, New York. The site work included an extensive investigation and a multi-phase remediation performed under the NYSDEC Voluntary Cleanup Program (VCP). Remediation included removal of aboveground and underground storage tanks (ASTs and USTs) and hotspot soil removal. An Air Sparging/Soil Vapor Extraction (AS/SVE) groundwater remediation system designed by AKRF was installed as part of the building construction. Continued remediation work included upgrading and expanding the AS/SVE system after the store was opened. AKRF continues operations, maintenance, and monitoring under the NYSDEC-approved Site Management Plan. Mr. Cardenas performed low flow sampling as part this process.

Manhattan West, Manhattan, NY

AKRF is providing environmental consulting services to Brookfield Office Properties in connection with the Manhattan West development site, which encompasses an entire city-block above the Amtrak approach to Penn Station. The four towers that comprise the Manhattan west development site are being remediated as four different sites under the New York City Office of Environmental Remediation (NYCOER), due to an E-Designation for hazardous materials, air quality, and noise attenuation. Mr. Cardenas provided environmental oversight.

34 Berry Street, Brooklyn, NY

AKRF was retained to prepare close-out documentation for this former industrial/warehouse facility in Williamsburg, which was remediated under the NYCOER E-designation and NYSDEC Spills programs. The closure report, which was based on documentation provided by the environmental contractor, was prepared on an expedited basis so that the developer could obtain a Certificate of Occupancy in time for the scheduled opening of the new building. AKRF is currently providing on-going remediation monitoring services to fulfill NYSDEC Spill closure requirements. For this project, Mr. Cardenas performed soil sampling.

Queens Animal Shelter Site, Queens, NY

The Queens Animal Shelter Site is currently an automobile wrecking facility. AKRF is assisting the Client in taking the Site into the BCP to investigate and remediate the property as part of redevelopment into a new state-of-the-art animal shelter and care facility. For this project, Mr. Cardenas performed low flow sampling for laboratory analyses as part of the Remedial Investigation at the Site.

RELEVANT EXPERIENCE – OTHER

Interior Management Inc. (2011-2013)

Before joining AKRF, Mr. Cardenas worked in the maintenance department of Interior Management Inc. He learned how to manage a work site, detect and report leaks, identify building damages, and foster a positive work environment for employees.

REBECCA KINAL, P.E.

VICE PRESIDENT

Rebecca Kinal has over 20 years of experience in the assessment and remediation of soil and groundwater contamination and other hazardous/non-hazardous waste problems. Ms. Kinal's experience includes environmental due diligence, soil and groundwater investigations, leaking underground storage tank studies, soil gas/vapor intrusion surveys, and oversight of small- and large-scale remediation programs, including design of groundwater remediation systems and vapor mitigation systems. She has directed numerous Phase I and Phase II investigations and remediation programs, many of them in conjunction with commercial/residential developers, law firms, lending institutions, and public agencies. She is experienced in the cleanup of contaminated properties under New York State Brownfield Cleanup Program (BCP) regulations and the New York City "E-designation" program. As a part of this work, her duties have included technical and report review, proposal writing, scheduling, budgeting, and acting as liaison between clients and regulatory agencies, and project coordination with federal, state, and local authorities.

BACKGROUND

Education

M.S., Hydrogeology, Rensselaer Polytechnic Institute, 1995

B.S., Civil Engineering, Lafayette College, 1992

Licenses/Certifications

State of New York, P.E. Registration No. 082046, 2004

Years of Experience

Year started in company: 2000

Year started in industry: 1996

RELEVANT EXPERIENCE

White Plains Mall/Hamilton Green

Ms. Kinal managed environmental due diligence and remediation planning for the project, which included Phase I and II environmental assessments, a petroleum Spill investigation, preparation of remediation cost estimates, and application to the NYSDEC BCP.

New York City School Construction Authority On-Call Contracts for Environmental Consulting Services, Various Sites, NY

Ms. Kinal serves as the project manager for AKRF's on-call hazardous materials consulting contract with the New York City School Construction Authority for over 8 years. For potential new school sites, assignments include initial due diligence, Phase I environmental site assessments, (ESAs) and subsurface investigation of soil, groundwater, and soil vapor to determine the suitability of a site for development as a school, likely remediation requirements, and associated costs. For sites undergoing design and development, assignments include preparation of remediation plan, contract specifications, and design drawings. The work has also included conducting indoor air quality testing, vapor intrusion assessments, preparation of specifications, supervision of storage tank removals, and investigation and remediation of spills for existing schools. Due to the sensitivity of school sites, work under this contract is often conducted on short notice and during non-school hours.

USTA National Tennis Center, Queens, NY

AKRF prepared an EIS for the New York City Departments of City Planning (DCP) and Environmental Protection (DEP) as co-lead agencies to analyze the expansion of the National Tennis Center, which includes multiple improvements and construction projects at the USTA campus over several years. As part of the EIS requirements, AKRF prepared a Remedial Action Plan for implementation during the proposed project's construction. In accordance with the RAP, vapor mitigation systems were incorporated into the design for several of the proposed structures at the facility, including two new stadiums, a new transportation center, and several practice court facilities. Ms. Kinal prepared the specifications and design drawings for the vapor mitigation and is providing on-going construction support to review contractor submittals and inspect the vapor barrier and sub-slab depressurization system installations.

Montefiore Medical Center, Various Locations, NY

Ms. Kinal provides due diligence assistance to Montefiore Medical Center (MMC) for the ongoing expansion of their facilities, primarily in the Bronx and Westchester County. She conducts and manages environmental due diligence tasks related to their property transactions, including Phase I Environmental Site Assessments (ESAs), Phase II investigations, and geophysical surveys. She also assists MMC in making decisions with respect to environmental risk issues.

Queens West Development Project, Long Island City, NY

For over 20 years, AKRF has played a key role in advancing the Queens West development, which promises to transform an underused industrial waterfront property into one of largest and most vibrant mixed-use communities just across the East River from the United Nations. AKRF has prepared an Environmental Impact Statement that examines issues pertaining to air quality, land use and community character, economic impacts, historic and archaeological resources, and infrastructure. As part of the project, AKRF also undertook the largest remediation ventures completed to date under the NYSDEC Brownfields Cleanup Program (BCP). Ms. Kinal helped prepare the Remedial Work Plan (RWP) and oversaw the remediation of Parcel 9, a 1.8-acre former industrial site. Remediation includes installation of a sheet pile containment wall, excavation of coal tar- and petroleum-contaminated soil under a temporary structure to control odors during remediation, vapor mitigation for the future buildings, and institutional controls. Upon completion of the remediation activities, Ms. Kinal managed the preparation of a Final Engineering Report (FER) to document the clean-up activities. The NYSDEC issued a Certificate of Completion (COC) for the Parcel 9 site in December 2006. Ms. Kinal continues to oversee post-remediation monitoring and site management activities to ensure that the remedy remains in-place and effective.

Roosevelt Union Free School District, Roosevelt, NY

Ms. Kinal managed environmental investigation and remediation activities for the sites of three new elementary schools and a new middle school in Roosevelt, New York. Remediation activities include removal/closure of contaminated dry wells and underground petroleum storage tanks, and excavation and off-site disposal of petroleum- and pesticide-contaminated soil. Remediation of the new middle school site, which also included a sub-slab depressurization system, was conducted through coordination with the NYSDEC, NYSDOH, New York State Education Department (NYSED), and the local school district. Upon completion of the remediation and school construction, Ms. Kinal managed confirmatory indoor air testing and preparation of a Final Engineering Report to document the site clean-up. The NYSDEC issued a Certificate of Completion and the school was open for the Fall 2008 semester as planned.

Proposed NYC Public School Campus, Bronx, NY

Ms. Kinal provided environmental consulting services to the selected environmental remediation contractor for this former manufactured gas plant in the Mott Haven neighborhood of the Bronx, which was remediated under the NYSDEC BCP. These services included: preparation of an in situ sampling plan and excavation plan for waste

characterization and disposal; supervision of waste characterization sampling activities; development and implementation of a community air monitoring program during all remediation activities; and daily reporting to the NYC School Construction Authority.

National Grid – Halesite Manufactured Gas Plant Site, Town of Huntington, NY

Ms. Kinal served as the project manager for the remedial design and engineering work associated with remediation of National Grid's former manufactured gas plant (MGP) located in the Town of Huntington. The site is situated in a sensitive location along the waterfront, surround by commercial and residential properties, and half the property where the remediation was conducted is a steep slope. The remedy consisted of soil removal, oxygen injection, and non-aqueous phase liquid recovery. Ms. Kinal developed the remedial work plans, design/construction documents, and managed environmental oversight of the remedial work, including waste characterization and tracking, confirmatory endpoint sampling, air monitoring, and reporting to the NYSDEC. After the remediation work was completed, Ms. Kinal prepared appropriate close-out documentation in accordance with NYSDEC requirements.

Shell Service Station, Millwood, NY

Ms. Kinal planned and oversaw a Phase I Environmental Site Assessment and Phase II Subsurface Investigation of this active gasoline station in northern Westchester County. The Phase I/Phase II investigations were performed for the potential buyer of the property who wished to redevelop it with a more modern service station and convenience store. Ms. Kinal also prepared a conceptual remediation plan to address several areas of petroleum contamination identified during the Phase II. The plan, which was approved by NYSDEC, will be implemented in conjunction with the site redevelopment activities to achieve closure for several spills reported at the site.

Pelham Plaza Shopping Center Site Investigation & Remediation, Pelham Manor, NY

Ms. Kinal managed a Site Investigation at Pelham Plaza, an approximately ten-acre site that formerly contained a manufactured gas plant. The site was investigated under a voluntary clean-up agreement entered into with the NYSDEC by the site owner. The site investigation included advancing over 100 soil borings with continuous soil sampling to bedrock, installing monitoring and recovery wells, and conducting test pitting both indoor and outdoor locations to collect soil and groundwater samples and determine the extent of Non-Aqueous Phase Liquid (NAPL). The investigation also included: soil gas sampling to determine contaminant concentrations in the vapors beneath the foundation of an on-site retail store; sediment sampling in an adjacent creek to identify off-site impacts; and a tidal survey to determine tidal influence on groundwater levels at the site. Ms. Kinal also oversaw interim remedial measures, which include biweekly pumping of recovery wells to remove dense NAPL (DNAPL) from the site subsurface.

Shaws Supermarket Redevelopment Project, New Fairfield, CT

Ms. Kinal managed the Remedial Investigation (RI) for an approximately nine-acre shopping center site that was contaminated by releases from former dry cleaning operations. The site was being redeveloped with a new supermarket and separate retail stores. The investigation included the installation of monitoring wells in the intermediate overburden aquifer and bedrock aquifer, sampling of existing and newly installed wells, geophysical logging in bedrock wells, and pump testing in intermediate and bedrock wells. Ms. Kinal prepared a Remedial Action Work Plan (RAWP) based on results from the RI, which included a groundwater pump and treat system to contain a plume of perchlorethylene (PCE)-contaminated groundwater, and excavation and disposal of contaminated soil in the presumed source area. Following CTDEP approval of the RAWP, Ms. Kinal prepared bid specifications for soil excavation and remediation system installation, and oversaw their implementation. Ms. Kinal also prepared NPDES permit applications for discharges from construction dewatering and the groundwater remediation system, and conducted associated discharge monitoring.

Yankee Stadium, Bronx, NY

Ms. Kinal performed the hazardous materials analysis for the Draft Environmental Impact Statement for the proposed new Yankee Stadium. The analysis included a Phase I Environmental Site Assessment of the entire project area and Subsurface (Phase II) Investigation in areas where environmental conditions were identified. The Phase II investigation included geophysical surveys to search for potential underground storage tanks; and soil, soil gas, and groundwater sampling at over 40 locations to determine potential environmental impacts during and after the proposed construction. Ms. Kinal also developed an extensive community air monitoring plan and oversaw its implementation during deconstruction of the old Yankee Stadium.

Avalon on the Sound, New Rochelle, NY

Ms. Kinal oversaw environmental investigation and soil remediation during the construction of two luxury high-rise apartment buildings and an associated parking garage. Investigation activities included an electromagnetic survey to search for possible underground storage tanks, and subsurface sampling to characterize soil and groundwater. Remediation activities included removing underground storage tanks, excavating and disposing of soil contaminated with volatile and semi-volatile organic compounds, and collecting end-of-excavation confirmation samples.

Davids Island Environmental Audit, New Rochelle, NY

Ms. Kinal managed the hazardous materials portion of the audit of this undeveloped island site, including a Phase I Environmental Site Assessment (ESA) and Subsurface (Phase II) Investigation in areas where environmental conditions were identified. The Phase II investigation included collecting soil samples from more than 100 locations and analyzing them for targeted compounds, including volatile organic compounds, semi-volatile compounds, metals, pesticides, and polychlorinated biphenyls (PCBs). Ms. Kinal also oversaw an electromagnetic (EM) survey conducted to identify the location of suspected underground storage tanks on the island. Based on soil sample results, Ms. Kinal estimated the volume of contaminated soil requiring remediation and prepared cost estimates for soil excavation and for transportation and disposal of contaminated soil and hazardous materials.

Outlet City Site Investigation, Queens, NY

Ms. Kinal prepared a work plan for remedial investigation of the Outlet City site, a property in Long Island City that was formerly occupied by a manufacturer of industrial cleaners and pharmaceuticals. The site is being investigated and remediated under the NYSDEC voluntary clean-up program. In preparing the work plan, Ms. Kinal evaluated results from several previous investigations and conducted a limited groundwater sampling program to determine future data needs for designing remediation of creosote-contaminated soil and groundwater. The work plan included additional soil and groundwater sampling, a tidal survey to determine tidal influence on groundwater levels, and pilot free product recovery testing. Ms. Kinal also helped design a venting system for an on-site basement and performed exposure calculations for the vented vapors.

Yonkers Waterfront Redevelopment Project, Yonkers, NY

For this redevelopment along Yonkers' Hudson River waterfront, Ms. Kinal supervised the remediation of Parcels H and I that were contaminated with hazardous soil. During the remediation process, she reviewed the subcontractor health and safety plans, delineated the areas of excavation, and oversaw field activities to ensure compliance with the specifications and appropriate regulations. This property was remediated under the NYSDEC Environmental Restoration Program (ERP).

STEPHEN SCHMID

ENVIRONMENTAL SCIENTIST

Stephen Schmid is an Environmental Scientist in AKRF's Hazardous Materials Department with five years of experience. He has experience in Phase I and II site assessments, asbestos surveying and monitoring, and construction/remediation. Mr. Schmid is a 2011 graduate from the University of New Hampshire, where he studied marine and freshwater biology, and environmental conservation. Prior to joining AKRF Mr. Schmid conducted fieldwork, water sampling and analysis in addition to assisting in a study of lakes in the North Eastern United States.

BACKGROUND

Education

BS Marine & Freshwater Biology, University of New Hampshire, Durham, NH

Licenses/Certifications

40 Hour OSHA HAZWOPER

10 Hour OSHA Construction Health and Safety

NYS DEC Erosion and Sediment Control Certificate

Asbestos Project Monitor, Air Sampling Technician, Inspector and Investigator

Years of Experience

Year started in company: 2012

Year started in industry: 2011

RELEVANT EXPERIENCE

Willets Point, Queens, NY

AKRF supported the New York City Economic Development Corporation (EDC) with Phase 1 of the Willets Point Redevelopment Plan, which includes the demolition of existing structures. Mr. Schmid performed pre-demolition asbestos-containing materials and universal waste surveys of approximately 70 structures throughout the 23-acre area site in Queens along with an AKRF licensed NYC asbestos investigator.

Adelaar, Monticello, NY

The project is a multi-phase development consisting of approximately 1,700 acres. The project site has been developed with a mixed-use residential-commercial hotel, casino, water park and entertainment village. AKRF provided acquisition and development support, including performing Phase I and II environmental site assessments. Mr. Schmid provided assistance with Phase I assessments, oversight during remedial soil handling activities and conducted inspections in accordance with the Stormwater Pollution and Prevention Plans.

NYCHA Randolph Houses, W 114th Street, Harlem, NY

AKRF was directed to survey 14 five story affordable housing apartment buildings for potential asbestos containing materials prior to the renovation of the buildings. Mr. Schmid along with AKRF licensed NYC asbestos investigators performed the collection of bulk samples throughout the building's main floors, basements and roofs to confirm the presence of asbestos in some of the building materials.

25 Broad Street, Manhattan, NY

AKRF was contracted by LCOR during the demolition of a residential building on a property which will eventually be redeveloped. AKRF was responsible for creating and implementing a community air monitoring program during demolition activities. As the environmental scientist Mr. Schmid was the on-site monitor responsible for calibrating equipment and monitoring levels of volatile organic compounds and particulate matter for the surrounding area and construction personnel. Reports of the daily activity including data collected throughout the day were prepared for submittal to the client.

Kent Avenue, Brooklyn, NY (AKA Northside Piers and 1 North 4th Place)

The project was a multi-phase development consisting of a waterfront block in the Williamsburg Rezoning Area. The project site has been developed with a mixed-use residential-commercial high rise towers with an esplanade and a pier along the East River. AKRF provided acquisition and development support, including performing Phase I and II environmental site assessments, and preparation of Remedial Action Plans (RAPs) and Construction Health and Safety Plan (CHASPs) for approval by DEP and OER. As the environmental scientist Mr. Schmid provided assistance with construction oversight during soil handling activities and managing the Community Air Monitoring Plan (CAMP) activities.

250 North 10th Street, LLC., Residential Redevelopment Site, Brooklyn, NY

AKRF was retained to investigate and remediate this former industrial property in the Williamsburg section of Brooklyn, New York in connection with site redevelopment. The site is approximately 50,000 square feet, and redevelopment included a six story residential building and parking garage. The work was completed to satisfy the requirements of the NYC E-designation Program and NYC Voluntary Cleanup Program (NYC VCP). AKRF completed a Remedial Investigation (RI) to evaluate the nature and extent of site contamination, and developed a Remedial Action Work Plan (RAWP) to properly address site contamination during redevelopment. Remediation included removal of underground storage tanks, more than 7,500 tons of contaminated soil, and installation of a vapor barrier and site cap across the entire property. The remediation was completed under oversight of the NYC Office of Environmental Remediation (OER), and in a manner that has rendered the Site protective of public health and the environment consistent with residential use of the property. As the environmental scientist Mr. Schmid conducted construction oversight and community air monitoring during the removal of contaminated soil.

Pier 40, 353 West Street, New York, NY

AKRF was directed to survey the property for potential asbestos containing materials prior to renovations and upgrades to multiple rooms. As the environmental scientist Mr. Schmid collected bulk samples to test for asbestos along with an AKRF licensed NYC asbestos investigator. Results confirmed the presence of asbestos in some of the rooms and Mr. Schmid subsequently provided project monitoring and the collection of air samples during the abatement.

137-44 94th Avenue, Queens, NY

AKRF was contracted to survey the building for potential asbestos containing materials prior to demolition. As the environmental scientist Mr. Schmid collected bulk samples to test for asbestos along with an AKRF licensed NYC asbestos investigator. Results confirmed the presence of asbestos in an office, trailer and the roof. During abatement Mr. Schmid served as the project monitor and collected daily air samples.

The Home Depot, Rego Park, NY

AKRF has designed, installed and performed upgrades to an air sparging and soil vapor extraction system being used to remediate tetrachloroethene contamination at this site under the NYSDEC Voluntary Cleanup Program. As the environmental scientist Mr. Schmid has performed low flow, indoor air and effluent sampling as part of ongoing monitoring activities to assess the progress of the cleanup.

AP-Williamsburg, LLC, 50 North 5th Street Development, Brooklyn, NY

AKRF directed the remedial program at a 55,000-square foot site located in the Williamsburg section of Brooklyn, New York. The site had an industrial and manufacturing history for over 100 years that included a barrel making factory, use of kilns, and a carpet and flooring materials warehouse. AKRF completed a Remedial Investigation (RI) to evaluate the nature and extent of site contamination, and developed a Remedial Action Work Plan (RAWP) to properly address site contamination during redevelopment. Remediation included removal of more than 5,000 tons of contaminated soil, and installation of a vapor barrier and sub-slab depressurization system (SSDS) beneath the site building. The remediation was completed in a manner that has rendered the Site protective of public health and the environment consistent with commercial and residential use of the property, and in accordance with the requirements of the NYC OER E-designation program. The site includes a seven story residential apartment building with street level retail space and a parking garage. As the environmental scientist Mr. Schmid provided oversight and community air monitoring during construction activities.

Gedney Way Leaf and Yard Waste Composting Facility, White Plains, NY

AKRF directed the remediation and landfill closure project at the existing composting facility. The project included investigation to document disposal history, extent of landfill materials and a solvent plume, preparation of a landfill closure plan, and management of landfill closure and cap construction. The landfill investigation and closure activities were completed to satisfy the requirements of a New York State Department of Environmental Conservation's (NYSDEC) consent order, and were completed in compliance with NYSDEC DER-10 and 6NYCRR Part 360. As the environmental scientist Mr. Schmid performed construction oversight and low-flow groundwater sampling during construction activities.

443 Greenwich Street, New York, NY

AKRF was retained to investigate and remediate this property in the Tribeca section of Manhattan, New York in connection with site redevelopment for a multi-story residential building. AKRF completed a Remedial Investigation (RI) to evaluate the nature and extent of site contamination, and developed a Remedial Action Work Plan (RAWP) to properly address site contamination during redevelopment. Remediation included removal of contaminated soil and installation of a vapor barrier. The remediation was completed under oversight of the NYC Office of Environmental Remediation (OER), and in a manner that has rendered the Site protective of public health and the environment consistent with residential use of the property. As the environmental scientist Mr. Schmid conducted construction oversight and community air monitoring during the removal of contaminated soil.

606 W 57th Street, New York, NY

AKRF was retained to investigate and remediate this property in Manhattan, New York in connection with site redevelopment for a multi-story residential structure. The work is being completed to satisfy the requirements of the NYC E-designation Program. AKRF completed a Remedial Investigation (RI) to evaluate the nature and extent of site contamination, and developed a Remedial Action Work Plan (RAWP) to properly address site contamination during redevelopment. Remediation includes removal of underground storage tanks and contaminated soil. The remediation is being completed under oversight of the NYC Office of Environmental Remediation (OER), and in a manner that has rendered the Site protective of public health and the environment consistent with residential use of the property. As the environmental scientist Mr. Schmid conducted construction oversight and community air monitoring during the removal of contaminated soil.

NYCEDC Office of Environmental Remediation (OER) On-Call Environmental Consulting Services

Second Farms, Bronx, NY

AKRF, Inc. was contracted by OER to conduct a subsurface investigation of a 1.12-acre parcel in the Bronx, New York under the United States Environmental Protection Agency (USEPA) Brownfield Assessment Grant program.

As the environmental scientist Mr. Schmid assisted in the investigation which included a geophysical survey and utility mark-outs, and the collection and analysis of soil, groundwater, soil vapor, indoor air and ambient air samples.

Former Nelson Foundry, Long Island City, NY

AKRF, Inc. was contracted by OER to conduct a subsurface investigation around the perimeter of a former foundry property in Long Island City, New York under the USEPA Brownfield Assessment Grant program. The work included preparation of a rigorous investigation work plan, Quality Assurance Project Plan, and Health and Safety Plan. The investigation will include a geophysical survey and utility mark-outs and the collection and analysis of soil, groundwater, soil vapor, and ambient air samples. The project also requires careful coordination of investigation-derived waste due to lack of on-site storage and daily drum pick-ups. As the environmental scientist Mr. Schmid conducted low flow sampling for the analysis of groundwater.

Ashutosh Sharma

Senior Environmental Professional

Ashutosh Sharma is an Environmental Scientist with over 10 years of experience in the environmental consulting field. He has managed and implemented investigations and remedial measures for various properties, including those under different regulatory programs such as the New York State Department of Environmental Conservation's (NYSDEC) Voluntary Cleanup Program and Brownfield Cleanup Program, New York State's Spill Response Program, the Mayor's Office of Environmental Remediation (OER) E-Designation Program. Mr. Sharma has extensive experience in Phase I and Phase II (subsurface) site assessment and remedial investigation, remediation and cleanup of contaminated sites, and construction oversight. He has experience with subsurface soil, groundwater and sub-slab air/vapor sampling procedures, coordinating and running Community Air Monitoring Plans (CAMP) and is familiar with relevant United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), and New York City Department of Environmental Protection (NYCDEP) environmental laws and regulations.

Background

Education

M.S., Environmental Science, New Jersey Institute of Technology, 2007
B.Tech, Dr. B.R. Ambedkar National Institute of Technology, India, 2005

Years of Experience

Year started in industry: 2007
Year started in company: 2007

Relevant Experience

New York City School Construction Authority: On Call Environmental Consulting
Under an on-call contract, AKRF provides the New York City School Construction Authority (NYCSCA) with hazardous materials consulting services. Mr. Sharma has provided assistance with various environmental assessment tasks including Phase II (Subsurface) Environmental Site Investigations (soil, groundwater and soil gas investigations); Indoor Air Quality (IAQ) and Vapor Intrusion (VI) Assessments; and Underground Storage Tank (UST) investigations. He evaluates the results of the investigations in the context of applicable environmental regulations to assist the project manager and/or project engineer in developing recommendations for remedial actions. Mr. Sharma also provided assistance with the lead in drinking water and plumbing disinfection tasks under the current on-call contract. AKRF also oversees plumbing disinfection work, which is required prior to new plumbing being placed into service. The assignments involve reviewing and commenting on disinfection plans, supervision of the disinfection and confirmation testing, and preparation of reports documenting the work was conducted in accordance with the specifications and applicable requirements. Due to the sensitivity of school sites, work under this contract is often conducted on short notice and during non-school hours.

RXR Realty, NY: Multiple Projects

AKRF has worked with RXR Realty on multiple projects and provided services for completion of Phase I Environmental Site Assessments (ESAs), implemented Phase II Environmental Site Investigations (ESI) and soil waste characterization sampling. Mr. Sharma acted as project manager, overseeing field personnel

implementing the Phase I ESA site reconnaissance the subsurface investigations, as well as completing reports for delivery to the client.

Larkin Plaza, Yonkers, NY

RXR SoYo Exalta LLC enrolled in the New York State Brownfield Cleanup Program (NYS BCP) to investigate and remediate the property located at 25 Warburton Avenue in Yonkers, NY. Mr. Sharma assisted the client in preparing the application to enroll the site in the NYS BCP program.. Mr. Sharma acted as the project manager for the project and prepared the Remedial Investigation Work Plan (RIWP). the Remedial Investigation Report (RIR), the Interim Remedial Measure Work Plan (IRMWP), the Remedial Action Work Plan (RAWP), the Interim Remedial Measures Construction Completion Report and the Site Management Plan (SMP) for the BCP site. Mr. Sharma also managed the field implementation of the remedial investigation and site cleanup activities during the development. Mr. Sharma maintained constant communication with the NYS Department of Environmental Conservation (NYSDEC) project manager and the client during the site redevelopment.

810 Fulton Street, Brooklyn, NY

RXR 810 Fulton Owner LLC developed the property located at 810 Fulton Street in Brooklyn. Mr. Sharma acted as project manager, overseeing field personnel implementing the requirements of the NYC Office of Environmental Remediation (OER)-approved Remedial Action Plan (RAP). Mr. Sharma also coordinated with the OER on behalf of the client on the day to day activities during the remedial action. Mr. Sharma also completed reports for delivery to the client and OER.

Lambert Houses, Bronx, NY

988 East 180th Street Housing Development Fund Corporation enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate the property located at 988 East 180th Street in the Bronx. Mr. Sharma acted as the deputy project manager overseeing field personnel implementing the construction oversight during site redevelopment, and coordinated with the client and their subcontractors. Mr. Sharma prepared the spill investigation work plan, coordinated spill cleanup and prepared the spill closure report to address the petroleum spill encountered during site redevelopment.

Melrose Commons Site C, Bronx, NY

The Bridge Inc. enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate the property located at 988 East 18th Street in the Bronx. Mr. Sharma acted as the deputy project manager overseeing field personnel implementing the construction oversight during site redevelopment, and coordinated with the client and their subcontractors. Mr. Sharma prepared the remedial closure report for delivery to the client.

Essex Crossing Sites 1, 2, 3, 4, 5, 6, and 8, Manhattan, NY

AKRF provided various services during the redevelopment of the Essex Crossing sites in the lower east of Manhattan. Mr. Sharma acted as the deputy project manager overseeing field personnel implementing the construction oversight during site redevelopment, and coordinated with the client and their subcontractors. Mr. Sharma also coordinated spill cleanups and prepared the spill closure reports to address the multiple petroleum spills encountered during redevelopment. Mr. Sharma also coordinated with the client and the New York City Department of Housing & Preservation (HPD) during the implementation of the NYC Department of Environmental Protection (DEP)-approved Remedial Action Plan (RAP). Mr. Sharma also completed reports for delivery to the client.

NYU Langone Medical Center (NYULMC) – Kimmel Pavilion, New York, NY

New York University Langone Medical Center enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate the property located at 424 East 34th Street in Manhattan. The proposed development consisted of a new medical facility. Mr. Sharma acted as the deputy project manager overseeing field personnel implementing the construction oversight during site redevelopment, and coordinated with the client and their subcontractors.

551 Tenth Avenue, New York, NY

Extell 4110 LLC enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate the property located at 547-551 Tenth Avenue in Manhattan. The property was developed with a 52-story residential building with one sub-grade level. Mr. Sharma provided construction oversight during site excavation, spill remediation, coordination and management of soil removal and fill material imports, oversight of the on-site air monitoring program, identification and proper management of contamination encountered during excavation work, and maintenance of critical paperwork and preparation of the final closure report.

Zerega Avenue – Phase I, Phase II and Wetland Survey, Bronx, NY

AKRF was contracted by EDC to conduct perform environmental services at an approximately 255,000-square foot project area located at 530 to 590 Zerega Avenue, Bronx, New York. The work included a Phase I Environmental Site Assessment (ESA), and Phase II Environmental Site Investigation which included preparation of a site-specific health and safety plan, a geophysical survey and utility mark-outs, and the collection and analysis of soil, groundwater, soil vapor, indoor air and ambient air samples. Mr. Sharma provided assistance with subsurface soil, groundwater and soil gas investigation as part of the Phase II investigation of the project site.

Rego Park Home Depot, Queens, NY

Solvent contamination was encountered during retail development of a former industrial property in Rego Park, Queens, New York. The site work included an extensive investigation and a multi-phase remediation performed under the NYSDEC Voluntary Cleanup Program (BCP). Remediation included removal of aboveground and underground storage tanks (ASTs and USTs) and hotspot soil removal. An Air Sparging/Soil Vapor Extraction (AS/SVE) groundwater remediation system designed by AKRF was installed as part of the building construction. Continued remediation work included upgrading and expanding the AS/SVE system after the store was opened. AKRF prepared the Final Engineering Report and obtained closure with a Release and Covenant Not to Sue issued by NYSDEC in 2013. AKRF continues operations, maintenance, and monitoring under the NYSDEC-approved Site Management Plan. Mr. Sharma assisted with ongoing operation, maintenance and monitoring of the AS/SVE system.

TF Cornerstone – 606 West 57th Street, New York, NY

AKRF has been retained by TF Cornerstone to provide environmental services for the proposed redevelopment of a portion of the block bounded by Eleventh and Twelfth Avenues and West 56th and 57th Streets. The proposed actions include a zoning map amendment, zoning text amendments, a special permit, and an authorization to facilitate development of approximately 1.2 million square feet of residential and retail space. AKRF is currently preparing an Environmental Impact Statement (EIS) for the New York City Department of City Planning (DCP) to analyze the effects of the proposed actions and development of the proposed building. The EIS will address the full range of environmental impacts associated with the proposed development. As part of the project's review, AKRF also prepared documents and graphics submitted to DCP under its Blue PRint program, a pre-application process that presents basic project information to DCP and clarifies major issues prior to the filing of a land use- or zoning-related application. The process is intended to standardize the pre-application process and expedite DCP's overall project review. Mr. Sharma was responsible for contractor oversight for the spill remediation activities as requested by the NYSDEC.

Whitney Museum of American Art, NY

Mr. Sharma provided assistance with subsurface soil and groundwater investigation, construction oversight and soil disposal management during the remediation phase of the project. The project included the construction of an approximately 230,000-square foot museum building with one sub-grade level with exhibition galleries, administrative offices, accessory use (café and bookstore), storage space, and an approximately 4,000-square foot restaurant.

Yankee Stadium Demolition, Bronx, NY

The New York City Economic Development Corporation (NYCEDC) project included demolition of the old Yankee Stadium and construction of a ball field known as Heritage Field. Mr. Sharma provided air monitoring and remedial action plan (RAP) oversight during the demolition and soil disturbance work.

East River Science Park, New York, NY

The New York City Economic Development Corporation (NYCEDC) proposed to construct two seventeen-story buildings to serve as a biomedical research center. The space between the two towers included an elevated atrium and an outdoor plaza on top of a parking garage. Mr. Sharma provided construction oversight during site excavation, coordination and management of soil removal and fill material imports, oversight of the on-site air monitoring program, identification and proper management of contamination encountered during excavation work, and maintenance of critical paperwork and preparation of the final closure report.

W 61st Street Site, NY

Mr. Sharma provided assistance with construction oversight during site excavation activities and helped prepare the final closure report for the site which, as part of the Brownfield Cleanup Program (BCP), was slated for redevelopment as two residential buildings with a courtyard and a tennis court.

164 Kent Avenue, Brooklyn, NY

The project was a multi-phase development consisting of a large waterfront block in the Williamsburg Rezoning Area. The project site has been developed with a mixed-use residential-commercial high rise towers with an esplanade and a pier along the East River. AKRF provided acquisition and development support, including performing Phase I and II environmental site assessments, and preparation of Remedial Action Plans (RAPs) and Construction Health and Safety Plan (CHASPs) for approval by DEP and OER. AKRF provided assistance with construction oversight during soil handling activities and managing the Community Air Monitoring Plan (CAMP) activities. To date, closure reports have been prepared and occupancy achieved for three of the four buildings. Mr. Sharma provided construction oversight during soil handling activities and running the Community Air Monitoring Plan (CAMP).

285 Jay Street, Brooklyn, NY

Under contract with the Dormitory Authority of the State New York (DASNY), AKRF completed a Phase II Subsurface investigation at the site of a proposed CUNY educational building to satisfy New York City E-designation requirements. As part of the work AKRF performed at the site, Mr. Sharma conducted sub-surface soil and groundwater investigation work and coordinated with the driller and the property owner for successful completion of the work. Mr. Sharma prepared the remedial closure report for delivery to the client.

MTA Long Island Railroad, East Side Access Project, New York, NY

The Metropolitan Transportation Authority (MTA) sponsored the East Side Access project to connect the Long Island Railroad to the Grand Central Terminal, thereby allowing Long Island commuters direct access to the East Side of Manhattan. Mr. Sharma provided assistance with the execution of the Community Air Monitoring Plan (CAMP) at various locations during the construction phase.

Adam Clayton Powell Jr. Boulevard, New York, NY

AKRF performed a Phase II study to meet the requirements of the New York City Department of Environmental Protection (NYCDEP) and to determine whether subsurface conditions had been affected by the on-site and/or off-site petroleum storage tanks and to ascertain whether current or former on- or off-site activities had adversely affected the subject property. Mr. Sharma conducted sub-surface soil and groundwater investigation at the abandoned site slated for future development. He was responsible for coordinating with the driller and the property owner for successful completion of the work.

APPENDIX G
SITE MANAGEMENT FORM

SITE-WIDE INSPECTION FORM
LAMBERT HOUSES PARCEL 5
2080 AND 2082 BOSTON ROAD, BRONX, NEW YORK

Inspector:

Date:

1. Site Use Restrictions

No on-site vegetable gardens?

No groundwater withdrawal for potable/non-potable use?

Restricted-residential use maintained?

2. Passive Sub-Slab Depressurization System (SSDS)

Are the visible piping and appurtenances in good condition? (Y/N)

Does the wind turbine on the exhaust stacks move freely? (Y/N)

Repairs made as noted during inspection?

3. Site Cover System

Is the Site cover system (concrete slab, pavers, 2-foot clean cover) intact? (Y/N)

Has any excavation or breach of Site cover system occurred? (Y/N)

4. Comments