975 Nostrand Avenue

BROOKLYN, NEW YORK

Final Engineering Report

NYSDEC Site Number: C224335

AKRF Project Number: 210225

Prepared for:

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

Prepared on Behalf of:

Nostrand Green LLC
826 Broadway, 11th Floor
New York, NY 10003

Prepared by:

AKRF
440 Park Avenue South, 7th Floor
New York, New York 10016
212-696-0670

DECEMBER 2023

CERTIFICATIONS

I, Rebecca Kinal, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan (RAWP) was implemented and that all construction activities were completed in substantial conformance with the Department-approved RAWP.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the RAWP and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site and that such plan has been approved by the Department.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

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, P.E., of AKRF, Inc. at 440 Park Avenue South, New York, NY 10016, am certifying as Owner’s Designated Site Representative for the site.

Rebecca Kinal	12/28/2023	
NYS Professional Engineer #082046	Date	Signature

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Acronym	Definition
AWQSGVs	Ambient Water Quality Standards and Guidance Values
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CPP	Citizen Participation Plan
CQAP	Construction Quality Assurance Plan
CVOC	Chlorinated Volatile Organic Compound
DD	Decision Document
DGA	Dense Grade Aggregate
DRO	Diesel Range Organics
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
EDD	Electronic Data Deliverable
EE	Environmental Easement
EP	Endpoint
EPA	United States Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbon
ESA	Environmental Site Assessment
FER	Final Engineering Report
GAC	Granular Activated Carbon
GC	General Contractor
GPA	Gas Permeable Aggregate
HASP	Health and Safety Plan
IC	Institutional Control
ISCO	In-Situ Chemical Oxidation
MEP	Mechanical, Electrical, and Plumbing
mg/kg	Milligrams per Kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MW	Monitoring Well
NGVD	National Geodetic Vertical Datum
NJ	New Jersey
NJDEP	New Jersey Department of Environmental Protection
NY	New York
NYCOER	New York City Office of Environmental Remediation
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
ORP	Oxidation-Reduction Potential

Acronym	Definition
OSHA	United States Occupational Safety and Health Administration
PA	Pennsylvania
PAH	Polycyclic Aromatic Hydrocarbon
PBS	Petroleum Bulk Storage
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization detector
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RE	Remedial Engineer
RI	Remedial Investigation
RMR	Remedy Modification Request
RPZ	Reduced Pressure Zone
RRSCOs	Restricted Residential Soil Cleanup Objectives
S/MMP	Soil/Materials Management Plan
SCFM	Standard Cubic Feet per Minute
SCS	Soil Conservation Services
SDG	Sample Delivery Group
SMP	Site Management Plan
SOE	Support of Excavation
SOP	Site Operations Plan
SRS	Soil Remediation Standards
SSDS	Sub-slab Depressurization System
SSO	Site Safety Officer
SV	Soil Vapor
SVE	Soil Vapor Extraction
SVES	Soil Vapor Extraction System
SVI	Soil Vapor Intrusion
SVOCs	Semivolatile Organic Compounds
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TCA	Trichloroethane
TCE	Trichloroethylene
TCL	Target Compound List

Acronym	Definition
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UUSCOs	Unrestricted Use Soil Cleanup Objectives
VMP	Vapor Monitoring Point
VOC	Volatile Organic Compound
WC	Waste Characterization
µg/L	Micrograms per Liter
$\mu g/m^3$	Micrograms per Cubic Meter

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

Nostrand Green LLC entered into a Brownfield Cleanup Agreement (BCA) (IndexNo. C224335-12-21) as a Volunteer with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate the property located at 975 Nostrand Avenue in Brooklyn, New York (the "Site"). The Site was remediated to a Track 2 Restricted Residential Use standard in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP), Decision Document, and Remedy Modification Request (RMR). When completed, the Site will contain a new mixed-use residential building with parking below and will be used for residential and commercial use.

The Site is located in the County of Kings, New York and is identified as Block 1309, Lot 6 on the New York City Tax Map. The Site is approximately 1.369 acres, bounded to the north by a vacant lot; to the east by Clove Road, followed by multi-family residential buildings; to the south by mixed residential and commercial uses; and to the west by Nostrand Avenue followed by mixed residential and commercial uses and Sullivan Place. The Site is in a mixed-use commercial and residential neighborhood with some institutional uses, including a public school. The boundaries of the Site are fully described in **Appendix A** – Metes and Bounds. A Site location map is provided as **Figure 1**. A Site plan is provided as **Figure 2**.

1.1 Site History

Based on a review of historical Sanborn maps and City Directories, the Site was developed with a trucking company as early as 1908. At the time, a portion of an unspecified road intersected the eastern portion of the Site in a north-south direction. By 1932, the Site was developed with stores, a parking garage, a printing facility, upholstery facility, and a carpenter. By 1963, the parking garage was replaced by a textiles warehouse. An auto repair shop was shown in the southern portion of the Property between 1963 and 1965 and by 1978, the Site comprised a commercial use building (demolished Spring 2022) and an asphalt paved parking lot.

1.2 Geology and Hydrogeology

The surface topography generally slopes down toward the south. Based on the U.S. Geological Survey Brooklyn, New York quadrangle map, the Site lies at approximately 85 feet above mean sea level. During the Remedial Investigation (RI), soil observed in the borings consisted of historic fill comprising sand, gravel, and silt with varying amounts of concrete, brick, wood, ash, and asphalt from surface grade to between 6to 15 feet below ground surface (bgs). The fill was underlain by sand, silt, and clay with gravel observed at variable depths ranging from 6 to 80 feet bgs (noted during monitoring well installation).

Groundwater beneath the Site was measured at depth ranging from 65.51 to 71.85 feet bgs. The groundwater flow direction could not be determined or confirmed based on the Site-specific groundwater depths and elevation survey; however, the topography of the area suggests that groundwater beneath the Site flows in a southwesterly direction towards Prospect Lake (the nearest body of water). Groundwater in Brooklyn is not used as a source of potable water.

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectives (RAOs)

Based on the results of the RI and as outlined in the Decision Document (DD), the following RAOs were identified for the Site.

2.1.1 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.

2.1.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

2.1.3 Soil Vapor

RAO for Public Health Protection

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

2.2 Description of Selected Remedy

The Site was remediated in accordance with the remedy selected by NYSDEC in the November 2022 Remedial Action Work Plan (RAWP), November 2022 Decision Document (DD), and the February 2023 RMR.

The factors considered during the selection of the remedy are those listed in 6 New York Code of Rules and Regulations (NYCRR) 375-1.8. The selected remedy included the following components:

1. Excavation of soil/fill exceeding Track 2 RRSCOs in the southwestern corner and exceeding Track 1 UUSCOs from the remainder of the Site. However, a Remedy Modification Request was submitted, and subsequently approved, which changed the remedial goal to a Track 2 cleanup across the entire Site. As part of Site remediation, a total of 72.263.79 tons of contaminated soil/fill was excavated and removed from ground surface to at least approximately 15 feet below grade.

2. Removal and off-site disposal of any petroleum storage tanks, fill ports, and vents and associated grossly contaminated soil, if encountered, in accordance with applicable regulations.
3. Installation of support of excavation (SOE) around the entire perimeter of the Site to depths ranging from approximately 25 to 45 feet bgs to enable excavation of contaminated soil and achieve the remedial goals. As part of the SOE, installation of a secant pile wall along the southern boundary which also acted as a cut-off wall and a barrier to limit migration of contaminated soil vapor.
4. Implementation of a Community Air Monitoring Plan (CAMP) during all intrusive Site activities.
5. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of all excavated soil during any intrusive Site work.
6. Characterization and off-site disposal of all materials removed from the Site in accordance with all federal, state, and local rules and regulations for handling, transport, and disposal. Waste disposal facilities were selected based on all data collected to date.
7. Collection and laboratory analysis of 66 post-excavation endpoint samples to evaluate the performance of the remedy with respect to attainment of applicable cleanup track.
8. Importation of clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) to replace the excavated soil and establish the designed grades. All imported materials were approved by NYSDEC prior to on-site placement.
9. Installation and operation of an active sub-slab depressurization system (SSDS) below the new building foundation to prevent vapor intrusion into the new building, to be activated as part of Site management.
10. Installation and operation of a soil vapor extraction system (SVES) in the southwestern portion of the Site to treat on-Site soil vapor, prevent the off-site migration of soil vapor, and prevent/contain migration of soil vapor on to the Site from off-site sources.
11. Recording of an Environmental Easement (EE) with the New York City Register to prevent future exposure to any residual contamination remaining at the Site. The EE requires the remedial parties/Site owners to complete and submit a periodic certification of Engineering Controls (ECs) and Institutional Controls (ICs) to the Department in accordance with Part 375-1.8 (h)(3); allows the use and development of the Site for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws; restricts the use of groundwater as a source of potable or process water without necessary water quality treatment, as determined by New York State Department of Health (NYSDOH); and requires compliance with the Site-specific NYSDEC-approved Site Management Plan (SMP).
12. Preparing a SMP for the long-term management of residual contamination as required by the EE, including plans for: (1) ECs and ICs, (2) monitoring, (3) operation and maintenance, and (4) reporting.
13. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, were addressed in accordance with all applicable federal, state, and local rules and regulations.

3.0 INTERIM REMEDIAL MEASURES

An Interim Remedial Measure (IRM) Work Plan (IRMWP) dated June 2022 was prepared by AKRF and approved by NYSDEC on June 30, 2022, for the installation of the support of excavation (SOE) along the Site perimeter to enable future remedial excavation of contaminated soil/fill and to collect soil waste characterization samples for off-site disposal of contaminated soil/fill. This work was completed between July and November 7, 2022 (remedial action formally commenced following RAWP approval). The work consisted of collecting waste characterization samples across the Site; collecting soil vapor and soil samples as part of the pre-design investigation (PDI); excavating temporary test pits; drilling SOE piles; and limited excavation and grading to support secant wall construction. Approximately 600-800 cubic yards of soil/fill was excavated and stockpiled on-site during this work for future export and off-site disposal. Concrete was poured for the secant wall construction. Previously approved crushed stone was imported for construction of a temporary truck tracking pad.

Daily oversight and air monitoring was conducted during the IRM implementation, and daily reports were submitted to NYSDEC and NYSDOH for review. The IRMWP approval letter is included in **Appendix B** and the daily reports covering this work are included in **Appendix E**.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved IRMWP dated June 2022, RAWP dated November 2022, DD dated November 2022, and RMR dated February 2023, and are noted below. NYSDEC approvals are provided in **Appendix B**.

4.1 Governing Documents

AKRF's NYSDEC-approved IRMWP and RAWP served as the governing documents for Site remediation. These documents outlined specific aspects of the remedial action pertaining to Site-specific health and safety and sampling protocols. The following documents were utilized during the completion of the remedial action.

4.1.1 Site Specific Health & Safety Plan (HASP)

A Site-specific HASP was included in Appendix A of the IRMWP and in Appendix E of the RAWP. The HASP included hazards and chemicals of concern, requirements for personnel training, a description of Site work zones, protocols for work zone monitoring and a Community Air Monitoring Plan (CAMP), designated personal protection equipment (PPE), and emergency response procedures. The HASP identified key project personnel and their responsibilities. An AKRF-designated Site Safety Officer (SSO) was present during all intrusive remedial work to document safe working procedures and perform real-time work zone air monitoring with a photoionization detector (PID).

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The HASP was complied with for all remedial and invasive work performed at the Site.

4.1.2 Quality Assurance Project Plan (QAPP)

The QAPP was included in Appendix B of the IRMWP and in Appendix G of the RAWP. The purpose of the QAPP was to establish policies, objectives, organization, functional activities, and quality assurance/quality control (QA/QC) activities designed to achieve the project data quality objectives. All applicable remedial work was performed in compliance with the QAPP.

4.1.3 Construction Quality Assurance Plan (CQAP)

The CQAP, included in Appendix H of the RAWP, managed performance of the Remedial Action tasks through designed and documented QA/QC methodologies applied in the field and in the laboratory. The CQAP provided a detailed description of the observation and testing activities that were used to monitor construction quality and confirm that remedial construction was in conformance with the remediation objectives and specifications. All applicable remedial work was performed in compliance with the CQAP.

4.1.4 Soil/Materials Management Plan (S/MMP)

A Soil/Materials Management Plan (S/MMP) was included in Section 5.4 of the RAWP. The S/MMP established procedures and methods for managing all soils/materials disturbed at the Site, including excavation, handling, storage, transport, disposal, and importation. The S/MMP was implemented during material handling conducted under the remedial work to assure effective, nuisance free performance of soil management work in

compliance with all applicable federal, state, and local laws and regulations. The S/MMP was complied with for all applicable remedial and invasive work performed at the Site. Additional details of the S/MMP implementation is provided in Section 4.2.3 of this FER.

4.1.5 Storm Water Pollution Prevention Plan (SWPPP)

A SWPPP conforming to the requirements of NYSDEC Division of Water guidelines and New York State regulations was prepared for the Site and implemented during the Remedial Action. Details regarding erosion and sediment controls are provided in Section 4.2.2. A copy of the SWPPP is included as **Appendix C**.

4.1.6 Community Air Monitoring Plan (CAMP)

The CAMP was included in Appendix A of the NYSDEC-approved IRMWP (component of the HASP) and in Appendix E of the NYSDEC-approved RAWP (component of the HASP). The principal purpose of the CAMP was to monitor air quality during all Site intrusive activities at the perimeter of the exclusion zone.

The CAMP included real time monitoring in the field for particulate matter and volatile organic compounds (VOCs). VOC monitoring equipment consisted of a PID capable of calculating 15-minute running average concentrations, which were compared to the action levels established in the NYSDEC-approved IRMWP and the RAWP. The real-time particulate monitoring equipment utilized was capable of measuring particulate matter less than 10 micrometers in size (PM_{10}) and integrating over a period of 15 minutes for comparison to the established action levels. The monitoring equipment was calibrated prior to the start of work on a daily basis and all readings collected during remedial work were documented on dedicated field log sheets. Periodic roving monitoring was performed during excavation and soil disturbance activities to observe and document any perceptible odors that could create a nuisance to nearby sensitive receptors. Real time monitoring of VOCs and particulate matter was also conducted at upwind and downwind fixed stations. The locations of the upgradient and downgradient fixed monitoring stations were established daily based on the weather variations such as wind flow direction.

As the Site is located within 20 feet of potentially occupied structures, a Special Requirements CAMP was implemented, which required one of the two fixed CAMP stations to be stationed near potentially exposed individuals. The fixed stations used radio telemetry to send real time alarms to field personnel if the CAMP air monitoring action levels were exceeded.

Daily reports submitted to the NYSDEC and the NYSDOH included graphs for the fixed stations showing 15-minute averages for particulate and VOC concentrations, as well as alarm response actions by field personnel. The CAMP was implemented during all applicable remedial and invasive work performed at the Site.

CAMP results and response actions are discussed in Section 4.2.5.

4.1.7 Contractor Submittals

All plans and submittals for the remedial project (i.e., those listed above plus contractor and subcontractor submittals) were reviewed by the Remedial Engineer to confirm that they were in compliance with the IRMWP and the RAWP. All relevant remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the

start of work. Additionally, the foundation/excavation and SOE permits obtained from NYC Department of Buildings (DOB) are provided in **Appendix C**.

4.1.8 Citizen Participation Plan (CPP)

A Citizen Participation Plan (CPP) for the Site was included in Appendix I of the RAWP. A Project Fact Sheet describing the approved plan for Remedial Action was forwarded to persons on the project contact list in accordance with the NYSDEC-approved CPP.

A certification of mailing was and will be sent by the Applicant or its representatives to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed; (2) the date they were mailed; (3) a copy of the Fact Sheets; and (4) a list of recipients (contact list). No changes will be made to the approved Fact Sheets authorized for released by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing. This was completed for all previous Fact Sheets issued.

No changes were made to the approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures or flyers, was included with the Fact Sheet mailing.

Document repositories were established at the following locations and will be updated to contain all applicable project documents, including this FER:

Brooklyn Public Library - Crown Heights Branch 560 New York Ave. at Maple Street Brooklyn, NY 11225 Managing Librarian: Janelle Welch (718) 773-1180	NYC Brooklyn Community Board 9 890 Nostrand Avenue Brooklyn, NY 11225 Chairperson: Fred P. Baptiste (718) 778-9279 bk09-1@cb.nyc.gov	NYSDEC DECInfo Locator https://www.dec.ny.gov/data/DecDocs/C224335/

4.2 Remedial Program Elements

4.2.1 Contractors and Consultants

Consultants

- AKRF served as the Environmental Engineer and Qualified Environmental Professional (QEP) responsible for oversight and performance of the remedial work with respect to the NYSDEC-approved IRMWP, RAWP, and Decision Document under the oversight of the designated Remedial Engineer.
    - The RE for this project was Rebecca Kinal, P.E. of AKRF. The RE is a registered Professional Engineer licensed by the State of New York (License No. 082046-1) and had primary responsibility for implementation of the remedial program for the Site.
    - The AKRF QA/QC Officer for this project was Colleen Griffiths who was responsible for adherence to the QAPP and reviewing the procedures with all personnel prior to commencing any fieldwork.

  - The AKRF Project Director for this project was Axel Schwendt, who was responsible for the general oversight of all aspects of the project, including budgeting, data management, and field program decision-making. The project director communicated regularly with all members of the AKRF project team, the Applicant, and NYSDEC to ensure a smooth flow of information between involved parties.
  - The AKRF Project Manager for this project was Ashutosh Sharma. The primary responsibility of the Project Manager was to oversee and manage the daily field activities associated with implementing the IRMWP and RAWP, assist with the remedial activities in the field, scheduling, reporting, and correspondence with regulatory agencies.
  - The primary AKRF Site Safety Officers (SSOs) and field technicians for this project were Hank Westly, Claire Bearden, Anna Brooks, Brian Quinn, and Michael Bates. The SSOs were responsible for implementing the IRMWP, RAWP, HASP, and CAMP in the field, and daily reporting.
- ODA New York of New York, NY served as the architect.
- De Nardis Engineering, LLC of White Plains, NY served as the structural engineer.
- EP Engineers of New York, NY served as the mechanical, electrical, and plumbing (MEP) engineer.
- Control Point Associates, Inc. of New York, NY served as the NYS-licensed surveyor.
- L.A.B. Validation Corporation of East Northrop, New York served as the project third-party data validator.

Consultant	Role	Contact Info
AKRF	Remedial Engineer	Rebecca Kinal, P.E. rkinal@akrf.com 914-922-2362
ODA New York	Architect	Alex Tehranian alext@oda-architecture.com 646-478-7455
De Nardis Engineering, LLC	Structural Engineer	Jairo Rios jjrios@denardis.com 914-948-8844
EP Engineering	Mechanical, electrical, and plumbing (MEP) Engineer	Chris Burgess chris@epengineering.com 212-257-6192
Control Point Associates, Inc.	NYS-licensed Surveyor	Hunter Picard hpicardv@cpasurvey.com 646-780-0411
L.A.B. Validation Corporation	Project Third-party Data Validator	Lori A. Beyer labvalidation@aol.com 516-523-7891 East Northrop, New York

Contractors

- Broadway Builders of New York, NY served as the construction manager and general contractor (GC) for all remediation activities, including SOE installation, foundation construction, excavation, and vapor barrier/waterproofing installation.
- Oliviero Construction Corp. of Bronx, NY served as the foundation contractor and subgrade SSDS installation contractor.
- Impact Environmental of Bohemia, NY served as the soil disposal coordinator and disposal approval manager, and provided transportation for disposal of the on-site soils and trucking for the import of backfill material.
- PAL Environmental Services of Queens, NY, served as the New York City certified tank removal contractor and completed the UST cleaning and disposal for the on-site USTs.
- AWT Environmental Services, Inc. (AWT) of Sayreville, New Jersey, served as the SVE system installation contractor.
- Eurofins Environment Testing Northeast, LLC of Edison, New Jersey, served as the environmental analytical laboratory.
- Eco Rental Solutions of Elmsford, NY served as the environmental equipment supplier.

Contractor	Task	Contact Info
Broadway Builders	Construction manager and general contractor (GC) for all remediation activities	Chris Cordona ccardona@broadway.builders 917-270-6616
Oliviero Construction Corp.	Foundation contractor and subgrade SSDS installer	Orlando Sanchez osanchez@ccjv.com 718-991-5100
Impact Environmental	Soil disposal coordinator and disposal approval manager	Lindsey Seltzer 631-778-1732
PAL Environmental Services	New York City certified tank removal contractor	718-349-0900
AWT Environmental Services, Inc.	SVE system installation contractor.	Stephen Tomicki stomicki@awtenv.com 732-616-1660
Eurofins Environment Testing Northeast, LLC	Environmental Analytical Laboratory	Melissa Haas Melissa.haas@et.eurofinsus.com 203-308-0880
Eco Rental Solutions	Environmental Equipment Supplier	Chris Pakrad cpakrad@eco-rentalsolutions.com 914-400-0324

4.2.2 Site Preparation

On November 7, 2022, a pre-construction meeting was held with representatives of NYSDEC, NYSDOH, AKRF, the Volunteer, and the GC. The meeting was held to discuss soil handling, NYSDEC BCP requirements, and RAWP implementation requirements during redevelopment. Site preparation activities involving major mobilization events for the completion of the remedial work included the following:

- **Mobilization** – Site mobilization was performed in July 2022 following approval of the IRMWP and included Site security setup, equipment mobilization, utility mark-outs, and installation of SOE prior to beginning remediation excavation.
- **Erosion and Sediment Controls –** Prior to the start of the RA, perimeter erosion and sediment controls and drainage inlet protection were installed, including a stabilized construction pad at the Site's entrance/exit location. Throughout the duration of the RA, erosion and sediment controls were repaired or replaced on an as-needed basis. Erosion and sediment control measures are further discussed in Section 4.2.4.
- **Site Fencing** – The Site was secured with a locking fence that was placed around the entire perimeter of the Site prior to undertaking remedial activities.

Documentation of agency approvals required by the RAWP is included in **Appendix B**. Other non-agency permits relating to the remediation project are provided in **Appendix C and J.**

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action.

The Applicant complied with all federal, state, and local requirements during the remedial work at the Site. All permits and government approvals required for remedial construction were obtained prior to the start of remedial construction.

4.2.3 General Site Controls

- **Site Security** – The Site was completely closed from public access during remedial activities by locking gates. During some work activities, the entrance gate(s) was open, but use was restricted to authorized personnel and pedestrians were restricted from entering the Site.
- **Job Site Record Keeping** – Job site record keeping was appropriately documented during the completion of all phases of the remedial work by taking notes in dedicated field books, filling out appropriate sampling log sheets, taking digital photographs, and collecting available copies of disposal or material specification documentation from contractors completing the remedial work.
- **Erosion and Sediment Controls** – Erosion and sediment controls included a stabilized construction pad at truck entrances/exits, SOE, drainage inlet protection, and dust suppression. Routine inspections, repairs, and maintenance of control measures were completed in a timely fashion to maintain the controls in proper working order. All vehicles leaving the Site were inspected to ensure that no soil adhered to the wheels or undercarriage of the vehicles leaving the Site. No situations occurred involving material spilled in transit and all mud and dust tracked off-site was promptly cleaned up. The access routes were inspected for road conditions, overhead clearance, and weight restrictions. The work was completed in accordance with the SWPPP and

regular inspections were completed to confirm compliance with the SWPPP. No erosion or sedimentation problems occurred during performance of the remedial work.

- **Equipment and Material Staging** – Staging and storage of equipment and materials were contained within the secured Site trailer or on-site locking storage sheds during completion of the remedial work. Site machinery was shut down and locked on-site at the end of each workday.
- **Soil Screening Results** – During remedial excavation, elevated PID readings, odors, and staining were observed in the soil surrounding the encountered USTs, described further in Section 4.3.1. The findings were noted in the field books and reported to NYSDEC in the daily reports.
- **Equipment Decontamination Procedures** – All soil sampling equipment was either dedicated or decontaminated between sampling locations. The equipment decontamination procedure established in the QAPP, included in Appendix G of the November 2022 NYSDEC-approved RAWP, was implemented during use of any non-dedicated sampling equipment.
- **Soil Screening Methods** – During all ground-intrusive work, visual, olfactory, and PID soil screening and assessment were performed by a qualified environmental professional (QEP) or an experienced environmental consultant under the direction of the RE.
- **Stockpile Methods** – Excavated materials were screened continuously for the presence of contamination during all earthwork. Material was segregated by waste streams (i.e., intended disposal facility) and stockpiled separately from other construction wastes. Segregated materials were placed on, and covered with, polyethylene sheeting (as needed) pending off-site disposal at the appropriate receiving facility. Staged soil/fill was inspected daily, and any damaged covers were replaced the same day. Soil/fill was staged as far from the Site boundaries as possible, and the Site was graded to ensure erosion of any staged soil/fill piles did not leave the Site.
- **Materials Excavation and Load Out** – Loaded vehicles leaving the Site were appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate federal, state, local, and NYSDOT requirements. Vehicles transporting soil were not loaded beyond their NYSDOT weight rating, and all material was secured beneath the truck bed cover. A truck wash was operated on-site to ensure that all outbound trucks were washed at the truck wash before leaving the Site. All egress points for truck and equipment transport from the Site were kept clean of dirt and other materials derived from the Site during Site remediation and development.

4.2.4 Nuisance Controls

- **Housekeeping** – Egress points for truck and equipment transport from the Site were kept clean of dirt and other materials during remedial work using hoses connected to fire hydrants via a reduced pressure zone (RPZ) valve and brooms. Material transported by trucks exiting the Site was secured with tight-fitting covers.
- **Dust Control** – Dust was monitored using handheld particulate monitoring equipment on a roving basis and at upwind and downwind fixed monitoring stations. The fixed stations used radio telemetry to send real time alarms to field personnel if the CAMP air monitoring action levels were exceeded. Dust suppression necessitated by soil

removal, demolition work, and cutting concrete was achieved through the use of hoses capable of spraying water directly onto excavations and temporary staging areas.

- **Odor Control** – Odors were monitored within the work zone and community via olfactory inspection and with a PID. Odor control measures were not necessary nor implemented during the remedial scope of work.
- **Complaints Response** – No complaints were identified or received during the completion of the remedial work.

4.2.5 CAMP Results

Community air monitoring was performed for VOCs and airborne particulate matter at upwind and downwind fixed monitoring stations at the perimeter of the Site during all remedial activities. Station locations were adjusted daily depending upon wind conditions, planned work locations, and logistical feasibility based on Site work.

Exceedances for VOCs and particulates were noted during system startups, due to equipment malfunction, construction activities unrelated to intrusive work, or Canadian wildfire smoke. Particulate exceedances above action levels were detailed in the daily construction updates submitted to NYSDEC. After each exceedance, corrective actions were taken (e.g., dust suppression), if associated with on-site activities.

Copies of all air monitoring data are provided in **Appendix D**. Specifics regarding the exceedances can be found in the daily reports and weekly CAMP summaries included as part of the monthly reports, included in **Appendix E**. The specific CAMP exceedances are summarized in **Table I** below.

Table I
CAMP Exceedances Summary

Date	**Maximum Level – 15-min avg (**mg/m^3) (particulate)	CAMP Station Location	Remarks	Corrective Action Completed
9/13/22	0.5975	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
9/21/22	0.3200	Downwind	Exhaust from the excavator	Readings subsided once machine moved away from CAMP station.
10/3/22	0.3375	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
10/17/22	0.1895	Downwind	Close proximity to the drill rig	Readings subsided once rig moved away from CAMP station.
11/22/22	0.1943	Downwind	Exhaust from the excavator	Readings subsided once machine moved away from CAMP station.

Date	Maximum Level – 15-min avg (mg/m^3) (particulate)	CAMP Station Location	Remarks	Corrective Action Completed
12/5/22	0.2630	Downwind	Saw cutting work	Readings subsided once saw cutting work was moved away from CAMP station.
12/6/22	0.387	Downwind	Data error	Restarted equipment
12/14/22	0.2879	Downwind	Welding work	No corrective action, unrelated to remedial work.
12/19/22	0.1740	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
12/28/22	1.3866	Downwind	Welding work	Readings subsided once welding work was completed.
12/29/22	1.2650	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
1/4/23	1.4296	Downwind	Humidity and foggy weather conditions	No corrective action, unrelated to remedial work.
1/6/23	0.6200	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
1/9/23	0.2461	Downwind	Welding work	No corrective action, unrelated to remedial work.
1/10/23	0.1787	Downwind	Welding work	Readings subsided once welding work was completed.
1/13/23	0.1731	Downwind	Equipment Setup	No corrective action, unrelated to remedial work.
2/22/23	0.1709	Downwind	Exhaust from the excavator	Readings subsided once machine moved away from CAMP station.
3/2/23	0.3259	Downwind	Equipment movement	Readings subsided once the work was completed.
3/22/23	0.1588	Downwind	Equipment movement	Readings subsided once the equipment was re-located.
3/28/23	0.3098	Downwind	Welding work	CAMP station was moved further away.
4/5/23	0.3907	Downwind	Smoke from nearby apartment building	No corrective action, unrelated to remedial work.

Date	Maximum Level – 15-min avg (mg/m^3) (particulate)	CAMP Station Location	Remarks	Corrective Action Completed
4/17/23	0.1772	Downwind	CAMP enclosure knocked over	No corrective action, unrelated to remedial work.
6/6/23	0.2000	Downwind	Elevated background particulate readings due to wildfire smoke.	No corrective action, unrelated to remedial work.
6/7/23	0.4189	Downwind	Elevated background particulate readings due to wildfire smoke.	No corrective action, unrelated to remedial work.
6/8/23	0.3190	Downwind	Elevated background particulate readings due to wildfire smoke.	No corrective action, unrelated to remedial work.
6/15/23	0.9505	Downwind	CAMP enclosure knocked over	No corrective action, unrelated to remedial work.
6/30/23	0.2250	Downwind	Elevated background particulate readings due to wildfire smoke.	No corrective action, unrelated to remedial work.
7/26/23	0.2743	Downwind	Equipment movement	No corrective action, unrelated to remedial work.

No exceedances of VOCs were noted due to remedial activities.

4.2.6 Reporting

- **Daily Reports** – Daily reports were submitted to the NYSDEC and NYSDOH project managers throughout the duration of the remedial action in accordance with the approved IRMWP and RAWP. The daily reports included an update of progress made during the reporting day, locations of work and quantities of material imported and exported from the Site, references to alphanumeric map for Site activities, a summary of CAMP findings, including exceedances, an explanation of notable Site conditions, photographs, and fixed monitoring station data.
- **Monthly Reports** – Monthly reports were submitted to the NYSDEC project manager continuously throughout the duration of the remedial action. The monthly reports included a description of activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e., tons of material exported and imported, etc.), a description of approved activity modifications, including changes of work scope and/or schedule, sampling results received following internal data review and validation, as applicable, and an update of the remedial schedule including unresolved delays

encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

Daily and monthly reports are included in **Appendix E**. The digital photo log documenting implementation of the RAWP is included in electronic format in **Appendix F**.

4.3 Contaminated Materials Removal

The objectives for the remedial program were established through the remedy selection process stated in 6 NYCRR Part 375. The SCOs for the Site noted in the RAWP included a combination of Track 1 Unrestricted Use and Track 2 Restricted Residential Use cleanup. However, a RMR was submitted to modify the remedy to a Track 2 Cleanup across the entire Site footprint, which included the remedial excavation and off-site disposal of soil above RRSCOs within the upper 15 feet of soil with some deeper excavation to 16 feet bgs to remove petroleum contaminated soil around the USTs. A list of the SCOs for the Track 2 cleanup (RRSCOs) is provided in **Table 1**. The contaminated materials removal portion of the remedial program set out to restore the Site to pre-disposal conditions to the extent practicable based on existing conditions. At a minimum, the remedy was established to eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the Site through the proper application of scientific and engineering principles.

The locations where excavations were performed is shown on **Figure 3**. A total of 72.263.79 tons of non-hazardous soil were removed from the Site and transported for off-site disposal at the appropriate soil disposal facilities. In addition, two previously unknown/unregistered USTs were also excavated and removed from the Site. All contaminated soil was removed in accordance with the RAWP and Decision Document. The soil excavations and removals performed as part of the remedy are described in Section 4.3.2 and the UST removals are summarized in Section 4.3.1.

Table II in Section 4.3.2.3 presents the total quantities of each category of material removed from the Site and the disposal locations.

4.3.1 Tank Removal and Closure

Between April 4, 2023 and April 11, 2023, two approximately 550-gallon USTs (labelled as UST-1 and UST-2), were encountered at the Site during remedial excavation activities. The discovery of the USTs was reported to the NYSDEC project manager. The two USTs discovered appeared to be in poor condition with evidence of corrosion and strong petroleum-like odors. Visible pitting and holes were observed in UST-1. Soil staining was observed beneath both USTs. The USTs were cleaned and disposed of by PAL Environmental Services of Queens, New York. The UST contents, including approximately 667-gallons of petroleum-water mixture and cleaning fluids, were pumped into vacuum trucks for off-site disposal at Clean Waters of New York of Staten Island, NY and approximately 600 pounds of sludge were removed for off-site disposal at Republic Environmental Systems, LLC of Hatfield, Pennsylvania. The cleaned tank carcasses were removed from the Site as scrap metal on April 11, 2023, and sent to Two Brothers Scrap Metal located in Farmingdale, NY.

Due to the close proximity of the USTs to the western Site boundary, additional SOE was required to facilitate excavation and removal of all petroleum-contaminated soil/fill in the area. Excavated soil/fill were exported off-site for disposal at the Bayshore Soil Management facility located in Keasbey, NJ. NYSDEC was notified of the tank removal activities via daily reports. A Petroleum Bulk Storage (PBS) Application was submitted to

register and close the USTs, following removal, under PBS ID 2-613454. UST closure and removal documentation, including waste disposal manifests and PBS Application, is provided as **Appendix G**. The extent of remedial excavation and UST locations are shown on **Figure 3**. UST endpoint soil samples which are compared against the UUSCOs and RRSCOs are summarized in **Tables 3a-3b**. Data Usability Summary Reports (DUSRs) were prepared for data generated during the UST removal activities, and the DUSRs and laboratory reports are included in **Appendix H**. The DUSRs identified additional qualifiers for specific compounds for specific samples. The qualifiers have been added to the data summary tables and were included in the Electronic Data Deliverables (EDDs) submitted to NYSDEC EQuIS™.

4.3.2 Soil Excavation and Removal

A summary of the waste characterization soil samples and associated analytical results are included in Waste Characterization Assessment Report prepared by Impact Environmental (Impact) of Bohemia, New York. The report and the waste disposal facility acceptance letters are included in **Appendix I**. During construction activities, additional waste classification sampling was conducted as needed. Soil disposal manifests and bills of lading are also included in **Appendix I**.

4.3.2.1 Soil Characterization Sampling

Impact Environmental conducted soil waste classification sampling at the Site between July 11 and July 20, 2022. The procedures and analytical results were documented in a letter report dated August 8, 2022.

Based on the typical requirements of regional disposal facilities and material to be classified at the Site, 45 composite soil samples and 45 grab soil samples were collected from the 0–20-foot interval. All soil samples were field-screened using a calibrated PID to measure relative concentrations of VOCs in the soil. Low level PID readings [maximum of 17.7 parts per million (ppm)] were noted during the sampling. Grab and composite samples were collected for analysis.

Composite soil samples were analyzed for:

- Semi-volatile organic compounds (SVOCs) by EPA Method 8270D;
- Hexavalent chromium by EPA Method 7196A;
- Total metals by EPA Method 6010, mercury by EPA Method 7471, and the Toxicity Characteristic Leaching Procedure (TCLP) metals by EPA Methods 6010D and 7470A;
- Polychlorinated biphenyls (PCBs) by EPA Method 8082;
- Pesticides by EPA Method 8081B;
- Herbicides by EPA Method 8151A;
- Extractable Petroleum Hydrocarbons (EPH) by NJDEP EPH Method; and
- pH by EPA Method 9045.

Each grab sample was collected using Terra Core™ sampling devices and analyzed for VOCs by EPA Method 8260.

Field observations noted fill material (primarily brown fine silt and sand with scattered rock, brick, concrete, and asphalt fragments were noted in the top 5-10 feet) underlain by loamy silt and sand from 10-20 feet below grade. Groundwater was not encountered during soil boring advancement.

Based on the TCLP results, no hazardous waste was identified at the Site.

4.3.2.2. Non-Hazardous Contaminated Soil Disposal Facility Approval

Based on the results of the waste characterization soil sampling, soil/fill from each depth profile (0-20 feet bgs) of each waste characterization grid (WC1 through WC11) was approved by the facilities, as noted in **Table II** in Section 4.3.2.3 below.

After securing the formal approvals from the selected waste disposal facilities, remedial excavation was initiated in November 2022 in accordance with the NYSDEC-approved RAWP. A Site plan showing the remedial excavation areas is provided as **Figure 3**.

4.3.2.3. Non-Hazardous Soil Excavation and Material Removal

Between November 2022 and August 2023, a total of 72.263.79 tons of non-hazardous soil, approximately 667 gallons of non-hazardous liquids, and approximately 600 pounds of sludge were exported off-site for disposal. Remedial excavation was completed to achieve a Track 2 Cleanup by removing the contaminated soil/fill in the upper 15 feet of the Site with some deeper excavation to 16 feet bgs to remove petroleum contaminated soil around the USTs.

Table II shows the total quantity of material removed from the Site and disposed of at each disposal facility.

Table II
Waste Disposal Summary

Waste Stream	Disposal Facility	Quantity Disposed
Petroleum-contaminated water from USTs	Advanced Wastewater Treatment Farmingdale, NY	667 gallons
Petroleum-contaminated sludge from USTs	Republic Environmental Systems Hatfield, PA	600 pounds
Non-Hazardous Soil	Impact Recovery and Reuse Center (IRRC) Lyndhurst, NJ	21,935.59 tons
Non-Hazardous Soil	Bayshore Soil Management Keasbey, NJ	47,091.30 tons
Non-Hazardous Soil	Clean Earth of Carteret Carteret, NJ	2,253.23 tons
Non-Hazardous Soil	KSR Corp Development Kearny, NJ	983.67 tons

4.3.3 Construction and Demolition Debris (C&D) and Tank Carcass Removal

4.3.3.1 C&D Removal

Construction and demolition (C&D) generated at the Site were exported off-site for recycling at the Allocco Recycling facility located in Brooklyn, NY and at the IRRC facility located in Lyndhurst, NJ.

4.3.3.2 Cleaned UST

On April 11, 2023, the two 550-gallon tank carcasses were transported to the Two Brothers Scrap Metal in Farmingdale, NY for recycling as scrap metal.

4.3.3.3 Off-Site Disposal Summary

Table III shows the total quantity of material removed from the Site and disposed of at each disposal facility.

Table III
RCA/C&D Removal Summary

Material	Recycling Facility	Quantity Disposed
C&D	IRRC Lyndhurst, NJ	765.44 tons
C&D	Allocco Recycling Brooklyn, NY	318 cubic yards
Cleaned USTs	Two Brothers Scrap Metal Farmingdale, NY	2,220 pounds

4.4 Excavation Dewatering

A New York City Department of Environmental Protection (NYCDEP) Self-Certification Form was prepared for managing and discharge of rain and stormwater at the Site. The form was submitted to NYCDEP for review and approval. NYCDEP approved the plan and Permit No. C002056355 was issued on March 27, 2023 for discharging up to 4,800 gallons of water per day to a sanitary or combined sewer, for a period of 365 days between January 30, 2023 and January 30, 2024. A copy of the form is included in **Appendix J**.

4.5 Remedial Performance/Documentation Sampling

In accordance with the NYSDEC-approved RAWP and NYSDEC DER-10 Section 5.4, 66 Site-wide documentation samples were collected across the entire Site. Post-excavation endpoint sample analytical results collected from the remedial excavation are summarized in **Tables 2a through 2f**, with supplemental UST endpoint soil samples summarized in **Tables 3a-3b**. The soil endpoint samples were collected following excavation and removal of a minimum of 15 feet of soil/fill with some deeper excavation to 16 feet bgs to remove petroleum-contaminated soil around the USTs to achieve a Track 2 Restricted Residential Use Cleanup. All endpoint sample locations were surveyed by a NYS-licensed surveyor.

Data Usability Summary Reports (DUSRs) were prepared for all data generated in this remedial performance evaluation program. Post-excavation endpoint sample DUSRs, associated laboratory reports, and the survey are included in **Appendix H**. Laboratory qualifiers assigned to specific

samples in the DUSRs have been added to the data summary tables and were included in the EDDs submitted to NYSDEC EQuIS™.

All endpoint sample results are summarized below.

4.5.1 Confirmatory Soil Endpoint Analytical Results

A total of 66 Site-wide post-excavation endpoint soil samples were collected from the proposed remedial depth in accordance with the NYSDEC-approved RAWP. All endpoint soil samples were submitted under proper chain-of custody protocol to Eurofins Environment Test America, Edison, New Jersey for analysis of VOCs by EPA Method 8260C, SVOCs with 1,4-Dioxane by EPA Method 8270, pesticides by EPA Method 8081B, PCBs by EPA Method 8082A, TAL Metals by EPA Method 6020B and 7471B, and the NYSDEC list of 21 Per- and Polyfluoroalkyl Substances (PFAS) compounds by EPA Method 537 (modified). Sample locations are shown on **Figure 4**. These samples are further discussed below.

For QA/QC purposes, one trip blank, one field blank, one matrix spike/matrix spike duplicate (MS/MSD), and one blind duplicate were submitted for every laboratory sample delivery group (SDG). The QA/QC samples were analyzed for the same parameters as the associated endpoint samples, with the exception of the trip blanks, which were analyzed for VOCs only.

A majority of the endpoint samples met the Track 2 RRSCOs at the remedial depth. Exceedances of the RRSCOs are discussed below:

- EP-13_15_20221228 was collected at 15 feet below grade on December 28, 2022. Indeno(1,2,3-c,d)pyrene was detected at a concentration of 0.53 mg/kg, above its RRSCO of 0.5 mg/kg.
- EP-01_15_202211229 was collected at 15 feet below grade on December 29, 2022. Mercury was detected at a concentration of 1.8 mg/kg, above its RRSCO of 0.81 mg/kg.
- EP-16_15_20221229 was collected at 15 feet below grade on December 29, 2022. Benzo(a)anthracene was detected at a concentration of 7.3 mg/kg, above its RRSCO of 1 mg/kg; benzo(a)pyrene was detected at a concentration of 6.2 mg/kg, above its RRSCO of 1 mg/kg; benzo(b)fluoranthene was detected at a concentration of 7.3 mg/kg, above its RRSCO of 1 mg/kg; chrysene was detected at a concentration of 6.0 mg/kg, above its RRSCO of 3.9 mg/kg; dibenz(a,h)anthracene was detected at a concentration of 1.1 mg/kg, above its RRSCO of 0.33 mg/kg; and indeno(1,2,3-cd)pyrene was detected at a concentration of 4.1 mg/kg, above its RRSCO of 0.5 mg/kg.
- EP-25_16_20230103 was collected at 16 feet below grade on January 3, 2023. Mercury was detected at a concentration of 0.83 mg/kg, above its RRSCO of 0.81 mg/kg; benzo(a)anthracene was detected at a concentration of 6.3 mg/kg, above its RRSCO of 1 mg/kg; benzo(a)pyrene was detected at a concentration of 5.9 mg/kg, above its RRSCO of 1 mg/kg; benzo(b)fluoranthene was detected at a concentration of 7.3 mg/kg, above its RRSCO of 1 mg/kg; chrysene was detected at a concentration of 5.6 mg/kg, above its RRSCO of 3.9 mg/kg; dibenz(a,h)anthracene was detected at a concentration of 0.95 mg/kg, above its RRSCO of 0.33 mg/kg; and indeno[1,2,3-

cd]pyrene was detected at a concentration of 4.4 mg/kg, above its RRSCO of 0.5 mg/kg.

- EP-30_15_20230103 was collected at 15 feet below grade on January 3, 2023. Benzo(a)anthracene was detected at a concentration of 4.3 mg/kg, above its RRSCO of 1 mg/kg; benzo(a)pyrene was detected at a concentration of 3.5 mg/kg, above its RRSCO of 1 mg/kg; benzo(b)fluoranthene was detected at a concentration of 5.0 mg/kg, above its RRSCO of 1 mg/kg; chrysene was detected at a concentration of 4.3 mg/kg, above its RRSCO of 3.9 mg/kg; dibenz(a,h)anthracene was detected at a concentration of 0.76 mg/kg, above its RRSCO of 0.33 mg/kg; and indeno[1,2,3-cd]pyrene was detected at a concentration of 2.8 mg/kg, above its RRSCO of 0.5 mg/kg.
- EP-37_16_20230410 was collected at 16 feet below grade on April 10, 2023. Mercury was detected at a concentration of 1.3 mg/kg, above its RRSCO of 0.81 mg/kg.
- EP-49_15_20230410 was collected at 15 feet below grade on April 10, 2023. Lead was detected at a concentration of 429 mg/kg, above its RRSCO of 400 mg/kg; benzo(a)anthracene was detected at a concentration of 1.7 mg/kg, above its RRSCO of 1 mg/kg; benzo(a)pyrene was detected at a concentration of 1.4 mg/kg, above its RRSCO of 1 mg/kg; benzo(b)fluoranthene was detected at a concentration of 1.7 mg/kg above the RRSCO of 1 mg/kg; and indeno[1,2,3-cd]pyrene was detected at a concentration of 0.77 mg/kg, above its RRSCO of 0.5 mg/kg.

No other endpoint samples exceeded the RRSCOs at the remedial depth.

Tables 4a through 4f detail the results of the post-excavation endpoint soil samples collected from the Site. **Figure 4** depicts the post-excavation endpoint soil sample locations. All validated Site-wide endpoint sample data was submitted and accepted into NYSDEC's EQuIS™ database. The endpoint sample location survey is provided in **Appendix H**. Data Usability Summary Reports (DUSRs) were prepared for all data generated in this remedial performance evaluation program. These DUSRs are included in **Appendix H** and associated raw data is also provided electronically in **Appendix H**.

4.6 Imported Backfill

4.6.1 Clean Stone

Between July 2022 and August 2023, various crushed stone materials were imported to the Site for construction of a temporary truck pad at the construction entrances. A summary of the imported materials is included in **Table IV**.

Table IV
Imported Backfill Summary

Material	Facility	Quantity Imported
1.5" crushed stone	IRRC Lyndhurst, NJ	422.25 tons
¾" clean blue stone	IRRC Lyndhurst, NJ	47.41 tons
2.5" crushed stone	Evergreen Recycling of Corona, Inc Queens, NY	20.87 tons

Material	Facility	Quantity Imported
2.5" crushed stone	Stone Industries, Inc. Haledon, NJ	136.70 tons

The crushed stone was used to install a temporary truck pad at the construction entrances. Material certifications (including sieve analysis), NYSDEC approvals, and imported stone tickets are included in **Appendix K**.

4.6.2 Gas Permeable Aggregate

Between November 2022 and August 2023, a total of 3,967.26 tons of gas permeable aggregate (GPA) was imported to the Site for use as part of the SSDS construction. A summary of the imported GPA is included in **Table V**.

Table V
Gas Permeable Aggregate Summary

Facility	Quantity Imported
Tilcon Quarry West Nyack, NY	1,808.04 tons
Mount Hope Quarry Mount Hope, NJ	25.86 tons
Vulcan Materials Hamburg, NJ	2,133.36 tons

4.6.3 Dense Grade Aggregate

Between June 2023 and August 2023, 388.41 tons of virgin Dense Grade Aggregate (DGA) stone was imported to the Site from the IRRC facility located in Lyndhurst, NJ. The DGA was used for backfilling behind a portion of the subgrade foundation walls.

Imported material documentation for all products is included in **Appendix K**, and the backfill locations (for DGA and GPA) are shown on **Figure 5**.

4.7 Contamination Remaining On-Site

All endpoint sample results and areas of remaining contamination (in comparison to the UUSCOs and RRSCOs) are summarized below.

4.7.1 Site-Wide Soil Endpoint Analytical Results

Following excavation of soil and fill material across the Site, 66 post-excavation endpoint samples were collected. Although some endpoint samples had concentrations exceeding the RRSCOs (see Section 4.5.1), a Track 2 remediation was achieved by extending excavation down to a minimum depth of 15 feet below sidewalk grade with some deeper excavation to 16 feet bgs to remove petroleum contaminated soil around the USTs. The endpoint sample analytical results are included in **Tables 2a through 2f**. The extent of remedial excavation and post-excavation endpoint sample locations are shown on **Figures 3 and 4**, respectively.

4.7.2 Groundwater

Groundwater quality was characterized during previous investigations prior to entering the BCP and during the RI conducted as part of the BCP. The groundwater beneath the Site was found to have concentrations of VOCs, including chloroform and tetrachloroethylene (PCE), above the NYSDEC Technical Operational and Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQSGVs). PFAS compounds was detected in the groundwater samples at concentrations above the NYSDEC PFAS AWQSGVs. Metals including antimony, iron, magnesium, manganese, selenium, and sodium were detected in the groundwater above the AWQSGVs. However, the PFAS, VOC, and metals detections in groundwater appeared to be reflective of regional groundwater quality and were not believed to be related to discharges from historical operations at the Site. Therefore, groundwater treatment was not included as a component of the DD. Low-level concentrations exceeding the AWQSGVs still remain.

Groundwater use at the Site is also subject to the Institutional Controls (ICs) documented within the Environmental Easement (EE) and is restricted for use as a source of potable or process water without the necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or the New York City Department of Health and Mental Hygiene (NYCDOHMH). Groundwater quality results are shown on **Figures 6 and 7**.

4.7.3 Sub-Slab Soil Vapor

Based on the findings of the RI and additional soil vapor testing completed as part of the PDI, contaminated soil vapor remains at the Site. The results of the soil vapor sampling conducted during the RI indicated petroleum- related VOCs, including benzene, toluene, ethylbenzene, xylenes (collectively referred to as "BTEX"), 1,3-butadiene, ethanol, isopropanol, tert-butyl alcohol (TBA), n-hexane, cyclohexane, heptane, 2- hexanone, 1,3,5-Trimethylbenzene, 1,2,4-trimethlybenzene, 2,2,4-trimethylpentane, and 1,4-dichlorobenzene were detected in one or more samples at concentrations up to 234 micrograms per cubic meter ($\mu g/m^3$) (n-hexane in sample RI-SV-04_20220329). The highest concentrations of BTEX were detected in samples RI-SV-03_20220329, RI-SV-10_20220329, and RI-SV-11_20220329 collected from the northeastern and southern portions of the Site, respectively. Chlorinated solvent- related VOCs including TCE, PCE, 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, cis-1,2- dichloroethene, and methylene chloride were detected in one or more soil vapor samples at concentrations up to 37,000 $\mu g/ m^3$ (PCE in sample RI-SV-10_20220329 collected from the southwestern corner of the Site).

Additionally, methyl ethyl ketone (MEK), a solvent commonly used in adhesives and printing inks, was detected in 11 of the 12 samples at concentrations ranging between 4.48 $\mu g/m^3$ and 34.5 $\mu g/m^3$, and trichlorofluoromethane, a chlorofluorocarbon (CFC) commonly used as a refrigerant and a foaming or blowing agent, was detected in 9 of the 12 samples with concentrations ranging between 2.19 $\mu g/m^3$ and 33.8 $\mu g/m^3$. The elevated concentrations are likely related to off-site soil vapor source(s) which include: the historic dry cleaning store located on the south-adjacent property; and multiple dry cleaners located directly west of the Site across Nostrand Avenue.

The results of the soil vapor sampling conducted during the PDI indicated the CVOCs PCE, TCE, 1,1-dichloroethane, 1,1-dichloroethylene, 1,2-dichloroethane, cis-1,2-

dichloroethylene (cis-1,2-DCE), and 1,1,1- trichloroethane (TCA) were detected in one or more soil vapor samples ranging from estimated trace concentrations up to a maximum of 260,000 µg/m^3 for PCE in sample PDI-SV-05_20_20220726 (which was collected at a depth of 20 feet bgs in the southwestern corner of the Site). Sample dilution (ranging from a factor of 10 to 1,010) was necessary for the majority of the samples due to the elevated CVOC concentrations.

In the samples from the southwestern portion of the Site, TCE was detected at concentrations ranging from 0.78 to 1,800 µg/m^3; PCE was detected at concentrations ranging from 40 to 260,000 µg/m^3; and cis-1,2-DCE was detected at concentrations ranging from 0.83 to 1,500 µg/m^3. The highest concentrations were noted in the deeper samples collected from the southwestern portion at the 20-, 30-, and 40-foot depth intervals. Some elevated concentrations of CVOCs were also noted in the shallow 5- and 10-foot intervals (with a maximum shallow sample PCE detection of 11,000 µg/m^3 in sample PDI-SV-05_5_20220726).

During the RI, TCA was detected at a maximum concentration of 900 µg/m^3 in a sample (RI-SV-02_20220329) collected from the north central portion of the Site. As part of the PDI, two soil vapor sample clusters (at boring locations PDI-SB-07 and PDI-SB-08) were installed in this area to further investigate TCA concentrations. TCA was detected in the PDI vapor points at concentrations ranging from 2.1 to 11 µg/m^3 (in sample PDI-SV-07_40_20220727 collected at 40 feet bgs).

The contaminated soil vapor will be treated by the soil vapor extraction system (SVES) and the vapor mitigation system, which consists of an active SSDS installed below the entire building footprints, designed to prevent vapor intrusion into the new building.

Soil vapor sample results are shown on **Figure 8**.

4.8 Engineering Controls (ECs)

Since remaining contaminated groundwater and soil vapor exists beneath the Site, ECs are required to protect human health and the environment. The Site has the following primary ECs, as described in the following subsections.

4.8.1 SSDS

Exposure to contaminated soil vapor is mitigated by the SSDS (and associated vapor barrier) installed beneath the building. The SSDS will be operated as an active system upon construction of the new building to induce vacuum under the slab relative to the building interior. The underground elements of the SSDS installed under the new building slab include the following components:

- Fifteen SSDS branches consisting of 0.02-inch slotted and solid, 4-inch-diameter Schedule 40 polyvinyl chloride (PVC) sub-slab piping with riser legs penetrating the building slab and stubbed out approximately 2 to 3 feet above the top of slab;
- Communication and pipe sleeves through concrete foundation elements;
- A minimum 6-inch-thick GPA stratum underlain by geotextile fabric beneath the majority of SSDS treatment area, with 6-mil poly sheeting in the southwestern portion only;
- Fourteen vacuum monitoring points (MPs) installed beneath the building slab; and

- A vapor barrier (GCP Preprufe 300R) beneath the full extent of the building slab. In addition, a geogrid was installed above the SSDS pipe trenches installed below the mat slabs to protect the PVC from heavy concrete loads.

During construction of the new building superstructure, the following aboveground elements will be installed to complete the SSDS installation:

- Pipe manifolds, which combine the PVC riser legs into three separate 6- or 8-inch galvanized steel pipe risers, extending to the roof of the building following building completion;
- Roof-mounted blowers (3 total) with shut-off alarms connected to a local alarm panel;
- Three 6- or 8-inch-diameter galvanized steel rooftop exhaust stacks fitted with rain caps, terminating at least 4 feet above intake of adjacent mechanical equipment or 10 feet above the finished roof (whichever is greater);
- Accessories, including cleanouts, sample ports, vacuum indicators/pressure gauges, flow meters, butterfly valves, and differential pressure switches; and
- A control panel equipped with a telemetry system to notify select personnel of alarm conditions.

The SSDS complies with the requirements stated in Section 7.0 of the RAWP. The location and components of the SSDS are shown on **Figure 9**. As-built drawings for the underground components of the SSDS are included in **Appendix L**.

Procedures for operating and maintaining the SSDS are documented in the SMP, included in **Appendix M**.

4.8.2 SVE System

The treatment of residual contaminated soil vapor in the approximately 4,000- square foot area in the southwestern portion of the Site will be performed through operation of an SVE system. The SVE system, in combination with the SSDS, also prevents soil vapor intrusion and off-site migration of contaminated soil vapor. For the SVE system to operate while the building is still under construction, the aboveground components of the SVE system were installed and are operating in a temporary location. Once the building envelope has been constructed, the aboveground SVE equipment will be relocated to its permanent location. Any changes to the equipment and its location will be communicated to NYSDEC and NYSDOH and documented in the Periodic Review Report for the applicable time period, and the SMP will be updates with an updated as-built drawing of the final SVES configuration.

The installed components of the SVE system include:

- Four 4-inch-diameter PVC SVE wells, which target the vadose zone treatment interval in the southwestern portion of the Site;
- Three 1-inch-diameter PVC soil vapor extraction monitoring points;
- One 15-horsepower SVE blower operating at approximately 50 inches of water (inH_2O) and 500 standard cubic feet per minute (SCFM);
- One 120-gallon moisture separator tank with a high-level alarm, transfer pump, and 55-gallon auxiliary drum with a high-level alarm;

- One inline particulate filter;
- One dilution line with particulate filter;
- Two Evoqaua Water Technologies vapor-phase granulated activated carbon (GAC) vessels (piped in series, with influent, intermediate, and effluent sample ports).
- System alarms, including one high temperature sensor and one low vacuum sensor;
- Individual SVE line and dilution line accessories, including vacuum gauges, pitot tube/differential pressure gauge assemblies for air flow rate measurements, throttling valves, and sampling ports;
- One control panel equipped with a telemetry system to notify select personnel of alarm conditions; and
- One effluent stack.

The SVE system is designed to operate on a continual basis, 24 hours a day, 7 days a week, and 365 days a year except for periodic shut-downs for maintenance. The SVE system will operate until monitoring (as outlined in Section 4.0 of the SMP) and appropriate consultation with NYSDEC and NYSDOH confirm that the SVE wells and/or carbon treatment are no longer required to treat contaminated soil vapor left in place at the Site. The locations of the SVE wells and SVE system components are shown on **Figure 10**. The SVE startup data is provided in **Table VI** below:

Table VI
SVE Startup Data

Monitoring Location	Vacuum Reading "H2O Between 0 and 90 "H2O
SVE-01	-8.491
SVE-02	-7.942
SVE-03	-7.844
SVE-04	-7.910

Soil Vapor Monitoring Point	Vacuum Reading "H2O Between 0 and 90 "H2O
SVMP-1	-0.106
SVMP-2	-0.124
SVMP-3	-0.103

Procedures for operating and maintaining the SVE system are documented in the Operation and Maintenance Plan of the SMP.

4.9 Institutional Controls (ICs)

The Site remedy requires that an Environmental Easement (EE) be placed on the Site to (1) implement, maintain and monitor the ECs; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to restricted residential, commercial, or industrial uses only.

The EE for the Site was executed by the Department on October 12, 2023 and recorded with the NYC Office of the City Register on October 19, 2023. The County Recording Identifier number for this filing is 2023000270549. A copy of the EE and proof of filing is provided in **Appendix A**.

The ICs that support Engineering Controls are:

- 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;
- Any soil vapor 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;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;

- The potential for vapor intrusion must be evaluated for any future new buildings on the Site (see **Figure 2** for Site boundary), and any potential impacts that are identified must be monitored or mitigated;
- An evaluation shall be performed to determine the need for further investigation and remediation should additional large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

Adherence to these ICs for the Site is mandated by the EE and will be implemented under the SMP. The Site will also have a series of ICs in the form of Site restrictions and requirements. The Site restrictions that apply to the Site are:

- In-ground vegetable gardens and farming on the Site are prohibited;
- 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 (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 NYSDEC;
- All future activities on the Site that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;
- The Site may be used for restricted residential, commercial or industrial use(s) only, provided the long-term ECs and ICs included in the SMP are employed;
- The Site may not be used for a higher level of use, such as residential or unrestricted use, without an amendment or extinguishment of the EE; and
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the Site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

4.10 Deviations from the Remedial Action Work Plan (RAWP)

The RAWP included remediation/soil excavation to achieve a Contingent Track 1 Cleanup (for soil) in a majority of the Site and a Track 2 Cleanup in the southwestern portion of the Site. However, based on the laboratory results for the post-excavation soil endpoint samples collected between November 2022 and January 2023, AKRF prepared the February 2023 RMR to formally request that the Site remedy be changed to a Track 2 cleanup across the entire Site footprint. Under the Track 2 Cleanup described in the RMR, the entire Site would be excavated to a minimum of 15 feet below grade and any source contamination material below 15 feet below grade would be excavated and removed, except for the approximately 4,000-square foot area in the southwestern portion of the Site, where remaining source contamination below 15 feet below grade will be treated by the SVE system (as noted in the RAWP). NYSDEC approved the RAWP RMR in a letter dated February 16, 2023.

The deviation did not materially affect achieving the remedial action objectives established for the Site.

FIGURES

TABLES

APPENDIX A
ENVIRONMENTAL EASEMENT, SITE SURVEY, AND METES & BOUNDS DESCRIPTION

APPENDIX B
IRMWP APPROVAL LETTER, RAWP APPROVAL/DECISION DOCUMENT, AND REMEDY MODIFICATION REQUEST APPROVAL LETTER

APPENDIX C
STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND APPLICABLE DOB PERMITS (FOR EXCAVATION AND SOE)

APPENDIX D
AIR MONITORING DATA

APPENDIX E
DAILY AND MONTHLY PROGRESS REPORTS

APPENDIX F
PHOTOGRAPHIC LOG

APPENDIX G
PBS REGISTRATION AND TANK CLOSURE DOCUMENTATION

APPENDIX H
DOCUMENTATION SAMPLE RECORDS – SURVEY, SAMPLING DATA AND DUSRS

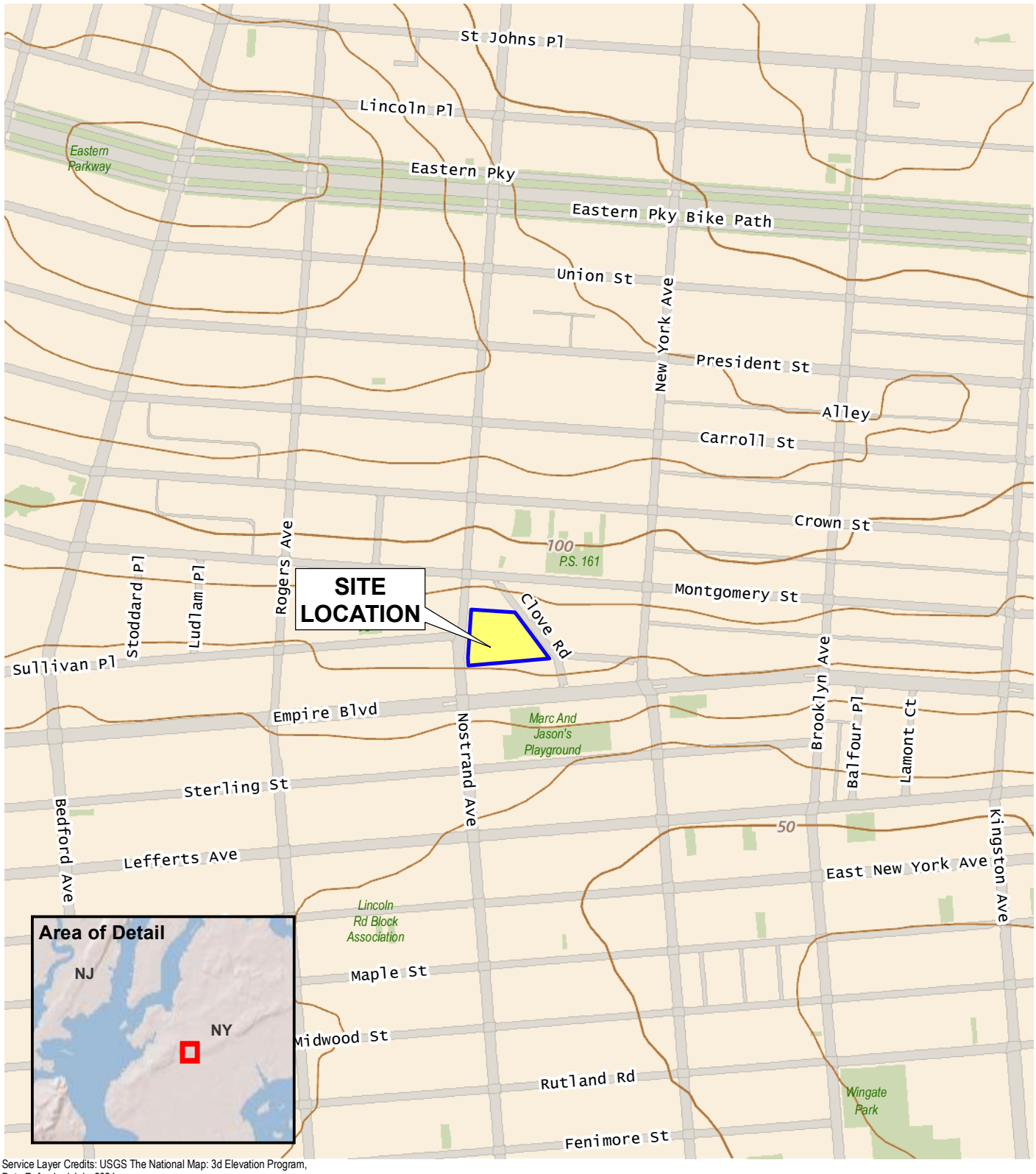
APPENDIX I
WASTE CLASSIFICATION REPORT AND SOIL/FILL DISPOSAL DOCUMENTATION

APPENDIX J
NYCDEP SELF-CERTIFICATION FORM AND APPROVAL FOR DEWATERING

APPENDIX K
IMPORTED MATERIALS DOCUMENTATION

APPENDIX L
SSDS AND SVE AS-BUILTS

APPENDIX M
SITE MANAGEMENT PLAN (SMP)



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

0 600 1,200

SCALE IN FEET

AKRF
440 Park Avenue South, New York, NY 10016

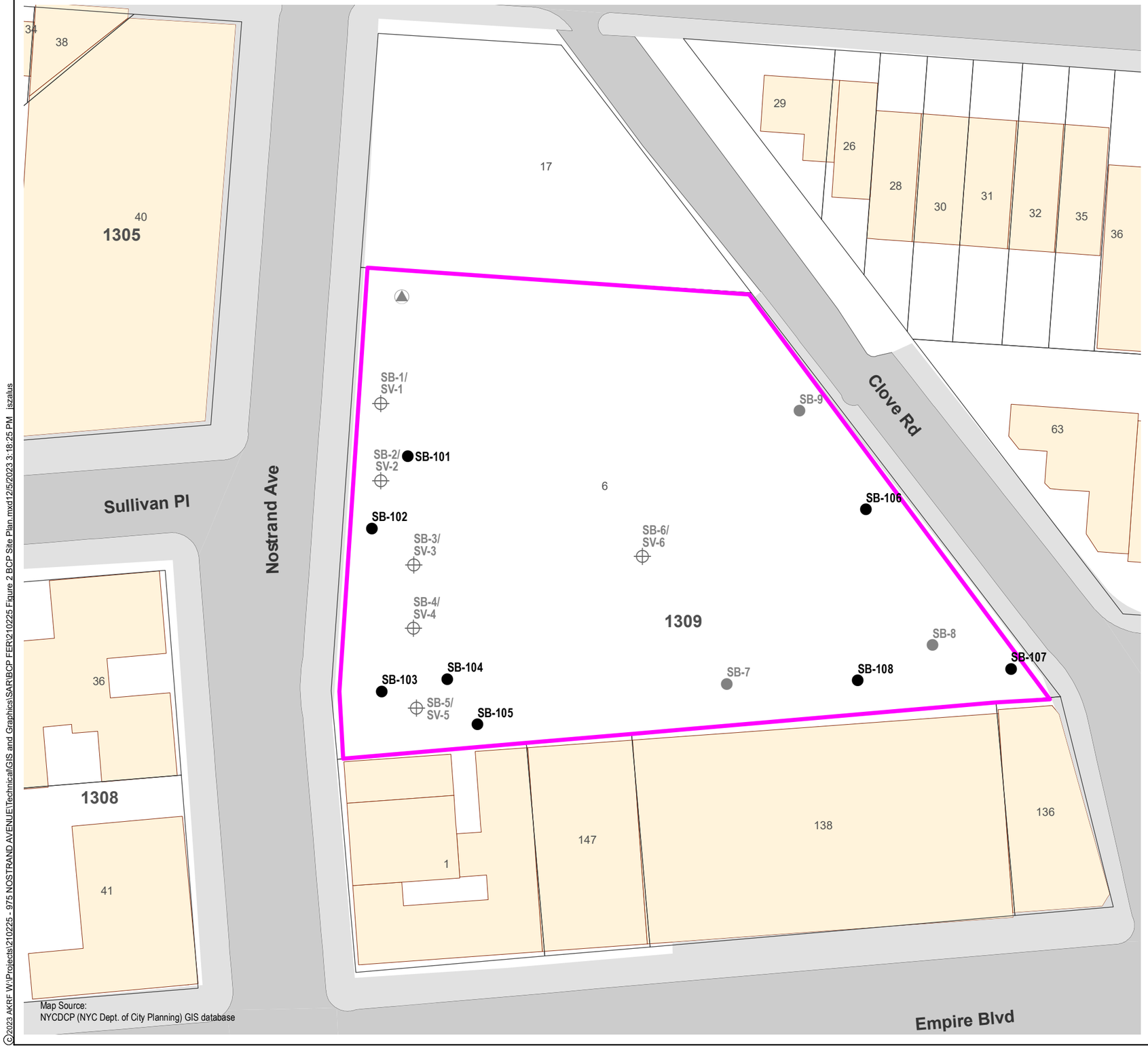
975 Nostrand Avenue
Brooklyn, New York

SITE LOCATION

DATE
8/23/2023

PROJECT NO.
210225

FIGURE
1



LEGEND

- BCP SITE BOUNDARY
- 6 LOT BOUNDARY
- 1309 BLOCK NUMBER
- BUILDING
- EXISTING MONITORING WELL
- PREVIOUS SOIL BORING (EBI CONSULTING, 2020)
- PREVIOUS SOIL BORING/SOIL VAPOR POINT (EBI CONSULTING, 2020)
- SOIL BORING LOCATION (AKRF, 2021)

0 25 50 100

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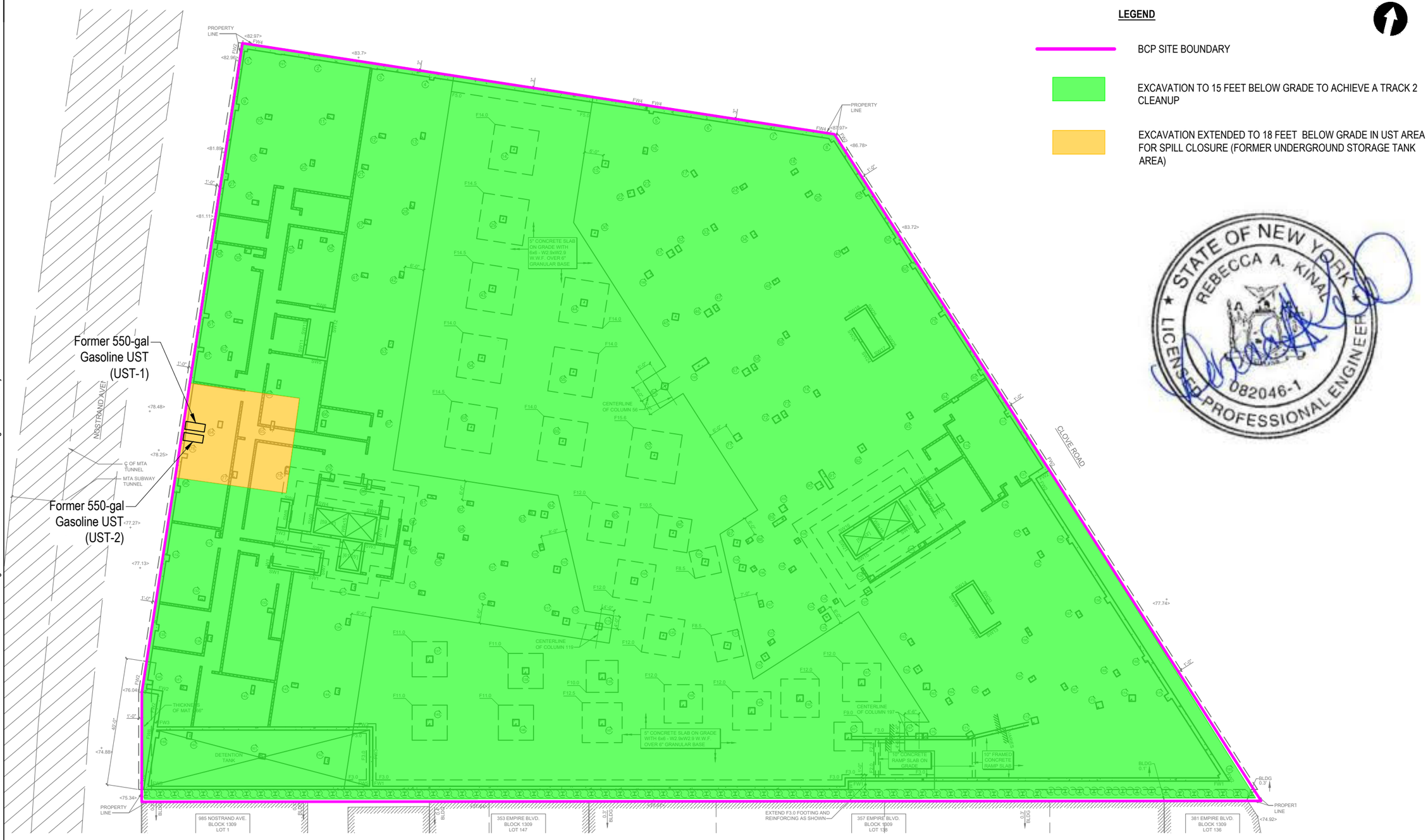
BCP SITE PLAN

DATE
12/5/2023

PROJECT NO.
210225

FIGURE
2



LEGEND

- BCP SITE BOUNDARY
- EXCAVATION TO 15 FEET BELOW GRADE TO ACHIEVE A TRACK 2 CLEANUP
- EXCAVATION EXTENDED TO 18 FEET BELOW GRADE IN UST AREA FOR SPILL CLOSURE (FORMER UNDERGROUND STORAGE TANK AREA)

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

Source:
ODA Architects New York "975 Norstrand Avenue Cellar/Foundation Plan", DWG No: FO-100.00, Dated 2-25-2022.

0 15 30 60
SCALE IN FEET

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975 Nostrand Avenue
Brooklyn, New York

EXTENT OF REMEDIAL EXCAVATION

DATE
9/25/2023

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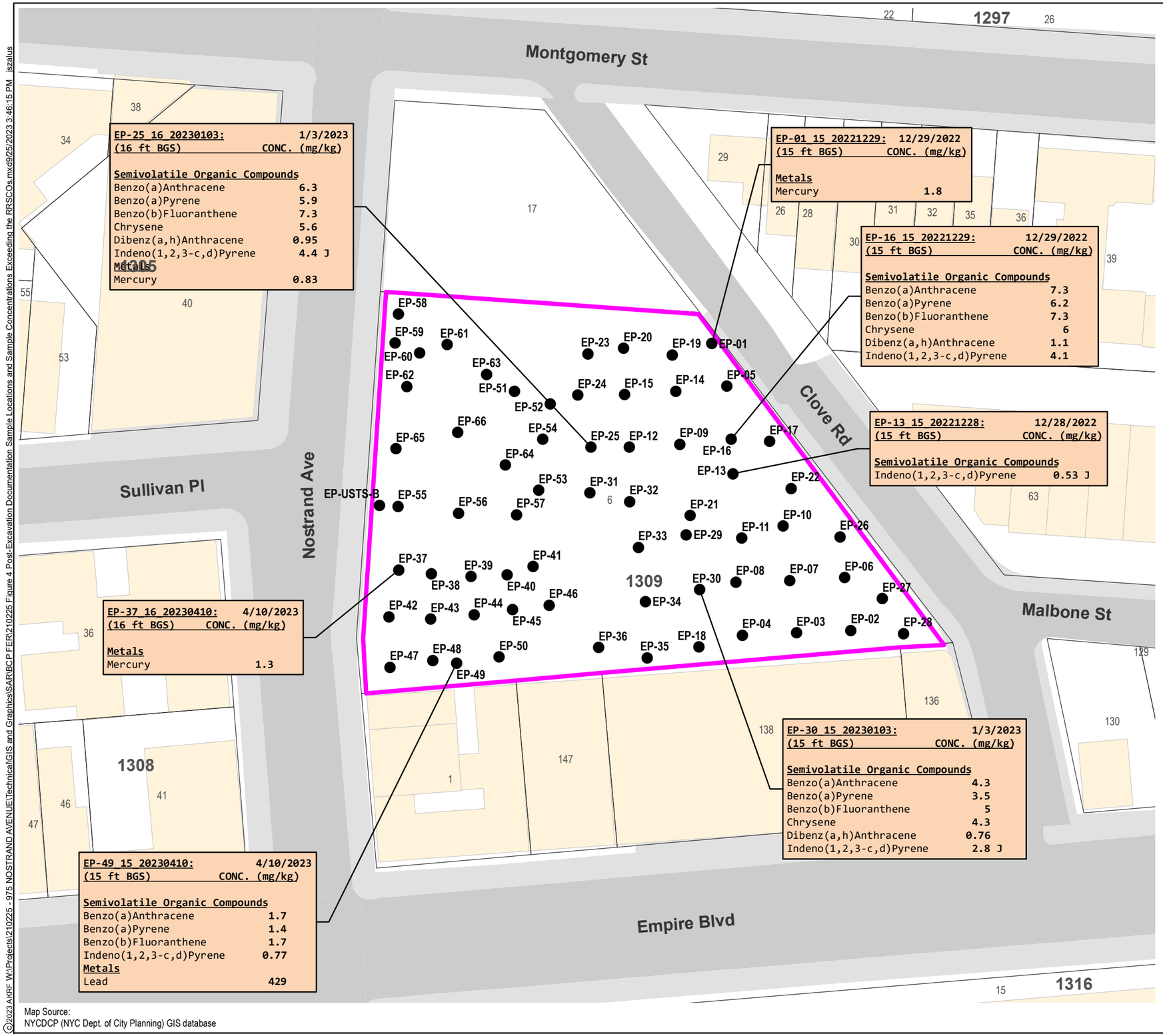
210225

FIGURE
3

 W:\Projects\210225 - 975 NOSTRAND AVENUE\Technical\Hazmat\CAD\BCP FER\210225 Figure 3 Extent of Remedial Excavation.dwg last save: jszalus 9/25/2023 2:22 PM



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

LEGEND

- PROJECT SITE BOUNDARY
- 6 LOT BOUNDARY
- 1309 BLOCK NUMBER
- BUILDING
- ENDPOINT SAMPLE LOCATION

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 Restricted Residential Soil Cleanup Objectives (RRSCOs) are presented in bold.

mg/kg:milligrams per kilogram = parts per million (ppm)

	PART 375 RESTRICTED RESIDENTIAL mg/kg
Volatile Organic Compounds	
Acetone	100
Volatile Organic Compounds	
Benzo(a)Anthracene	1
Benzo(a)Pyrene	1
Benzo(b)Fluoranthene	1
Benzo(k)Fluoranthene	3.9
Chrysene	3.9
Dibenz(a,h)Anthracene	0.33
Indeno(1,2,3-c,d)Pyrene	0.5
Metals	
Copper	270
Lead	400
Mercury	0.81
Nickel	310

0 30 60 120
SCALE IN FEET

Sample Date
Sample ID
RI-SB-08 13-15 20220323: 3/23/2022
(15 FT BGS) CONC. (mg/kg)
Metals
Mercury 0.3
Concentration
Analyte/Compound

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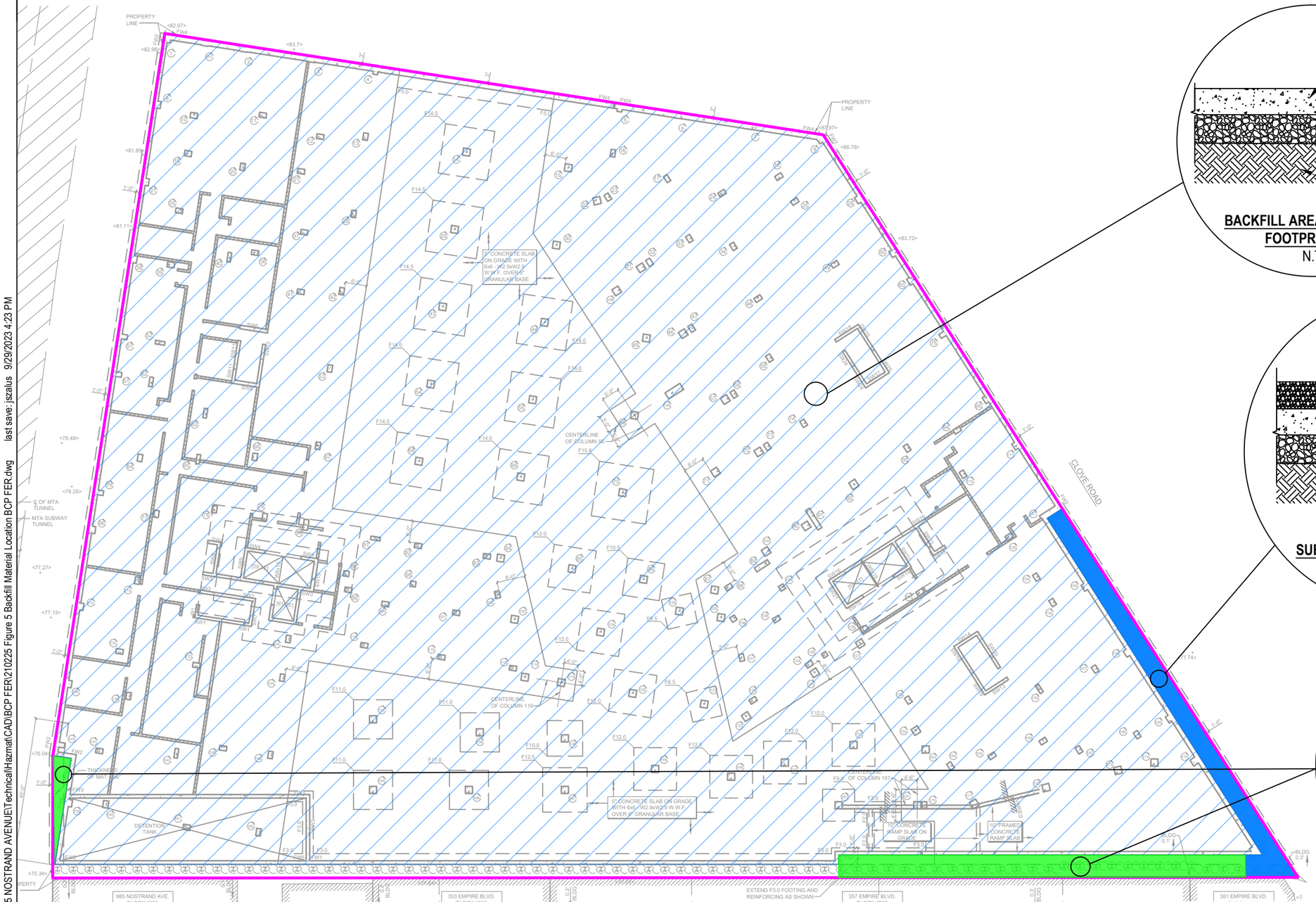
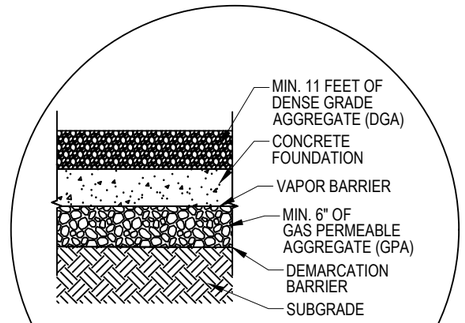
Post-Excavation Documentation Sample Locations and Sample Concentrations Exceeding the RRSCOs

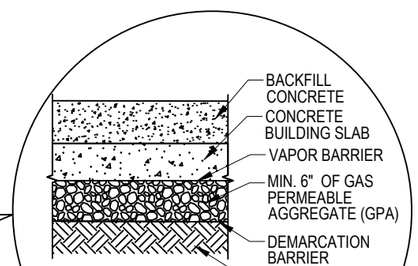
DATE
9/25/2023
PROJECT NO.
210225
FIGURE
4



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



BACKFILL AREA BEHIND SUBGRADE FOUNDATION WALLS
N.T.S.



BACKFILL AREA BEHIND SUBGRADE FOUNDATION WALLS
N.T.S.

0 15 30 60
SCALE IN FEET

LEGEND

- BCP SITE BOUNDARY
- BACKFILL AREA WITH GAS PERMEABLE AGGREGATE(GPA)
- BACKFILL AREA WITH DENSE GRADE AGGREGATE(DGA)
- BACKFILL AREA FILLED WITH CONCRETE

Source:
ODA Architects New York "975 Norstrand Avenue Cellar/Foundation Plan", DWG No: FO-100.00, Dated 2-25-2022.

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BACKFILL MATERIAL LOCATIONS

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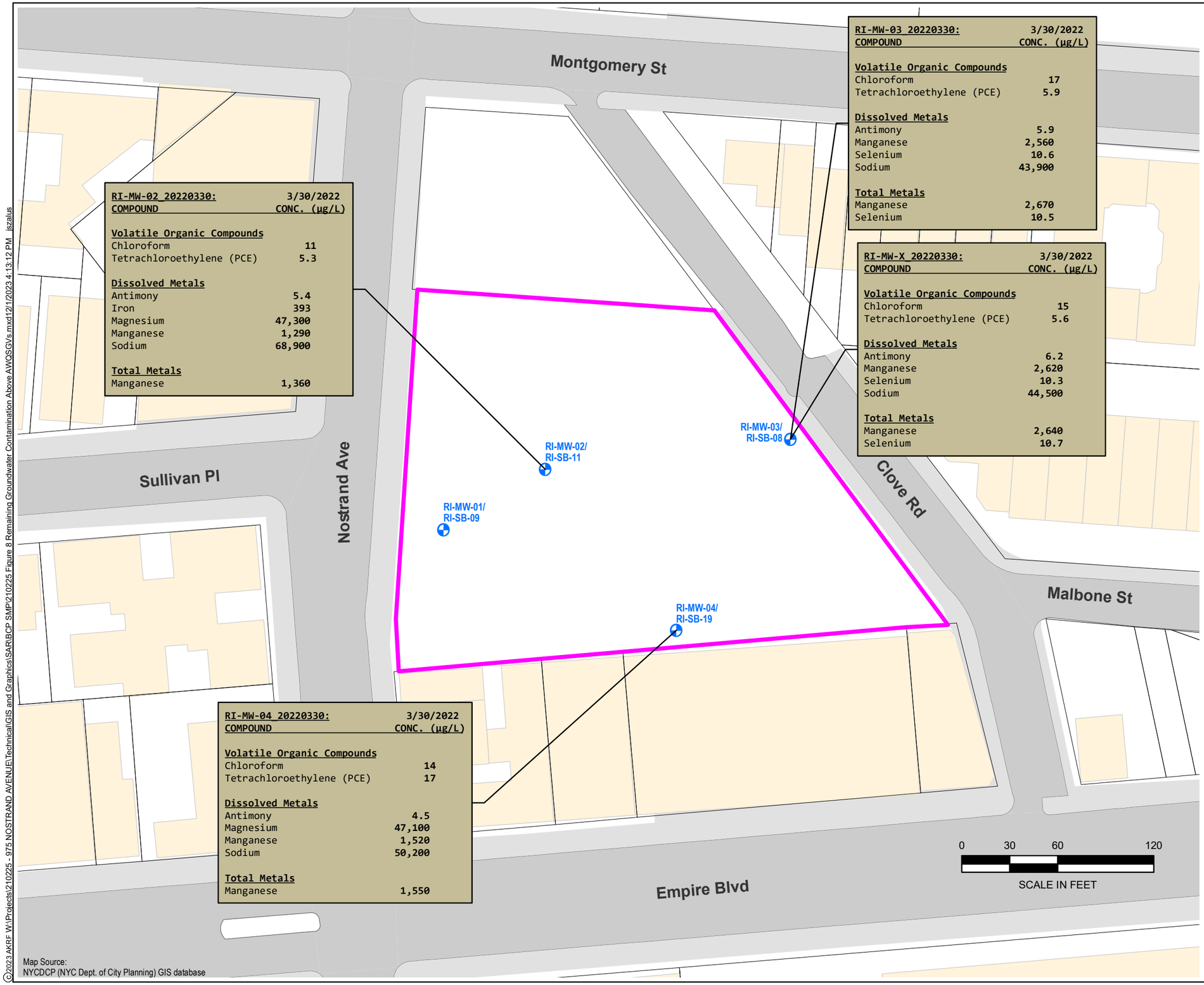
9/29/2023

PROJECT NO.
210225

FIGURE
5

 W:\Projects\210225 - 975 NOSTRAND AVENUE\Technical\Hazmat\CAD\BCP FER\210225 Figure 5 Backfill Material Location BCP FER.dwg last save: jszalus 9/29/2023 4:23 PM



LEGEND

- PROJECT SITE BOUNDARY
- 6 — LOT BOUNDARY AND TAX LOT NUMBER
- BUILDING
- RI SOIL BORING/MONITORING WELL

NYSDEC TOGS Class GA Ambient Water Quality Standard and Guidance Values (AWQSGVs):
New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) (1.1.1):

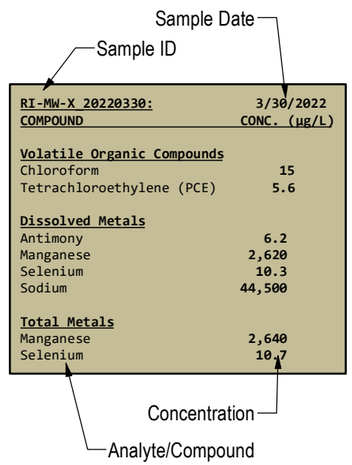
µg/L: micrograms per Liter = parts per billion (ppb)

Only Exceedances of NYSDEC AWQSGVs are shown in bold font.

RI-MW-X_20220330 is a blind duplicate of sample RI-MW-03_20220330

No Sample was collected from RI-MW-01

	NYSDEC AWQSGVs µg/l
Volatile Organic Compounds	
Chloroform	7
Tetrachloroethylene (PCE)	5
Metals	
Antimony	3
Iron	300
Magnesium	35,000
Manganese	300
Selenium	10
Sodium	20,000



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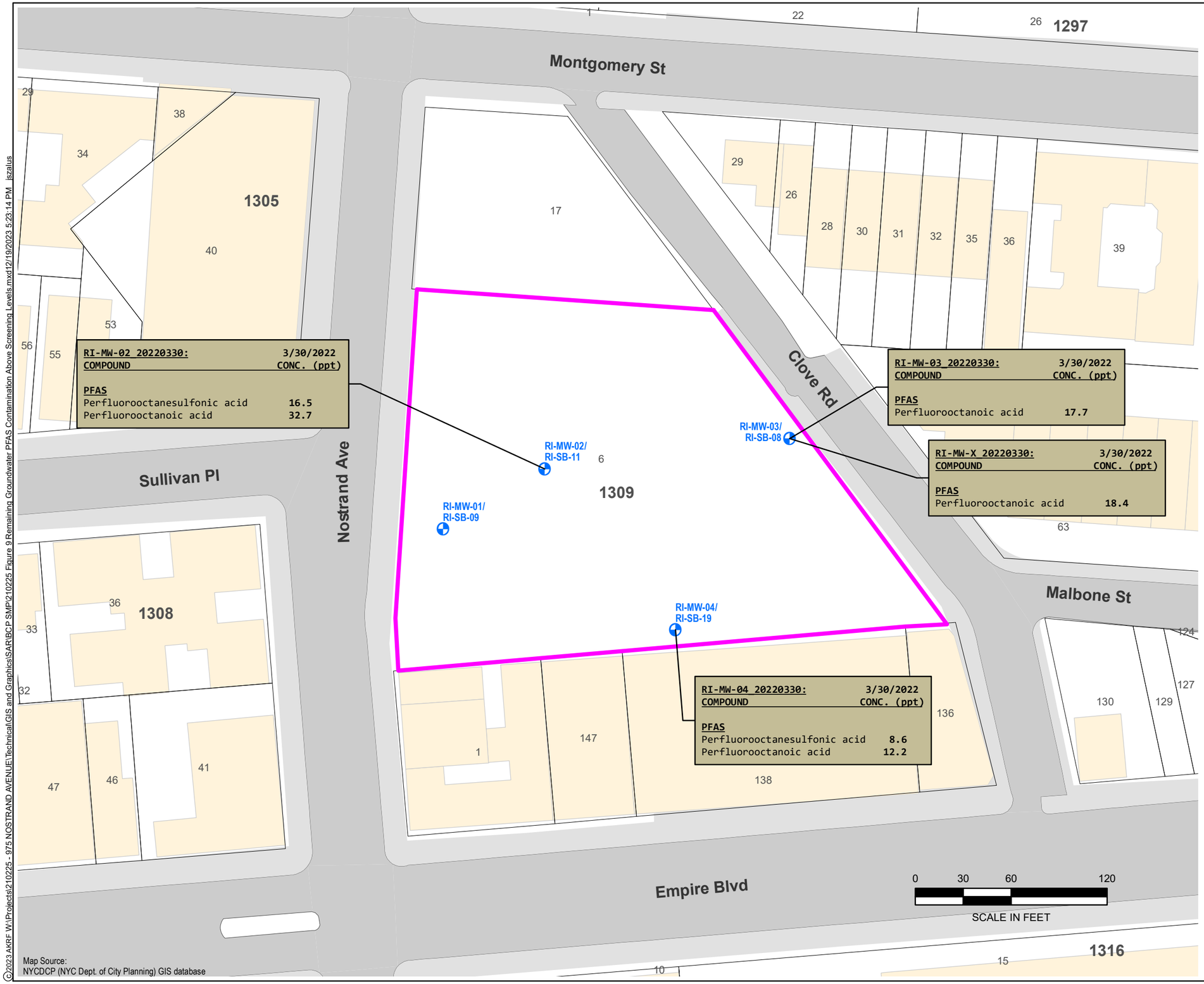
Remaining Groundwater Contamination Above AWQSGVs

DATE
12/1/2023

PROJECT NO.
210225

FIGURE
6



LEGEND

- PROJECT SITE BOUNDARY
- 6 LOT BOUNDARY AND TAX LOT NUMBER
- 1309 BLOCK NUMBER
- BUILDING
- SOIL BORING/MONITORING WELL

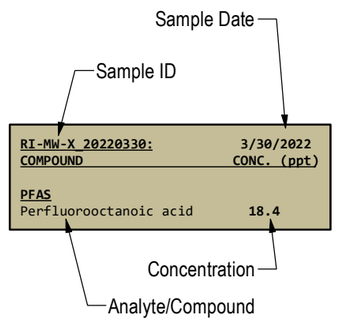
PFOA: Perfluorooctanoic acid
PFOS: Perfluorooctanesulfonic acid
PFAS: Per- and polyfluoroalkyl substances

ppt = parts per trillion

Values that exceed the NYSDEC PFAS Guidance Values are shown in bold font.

RI-MW-X_20220330 is a blind duplicate of sample RI-MW-03_20220330

PFAS Guidance Levels Groundwater ppt	
PFAS	
Perfluorooctanesulfonic acid (PFOS)	2.7
Perfluorooctanoic acid (PFOA)	6.7



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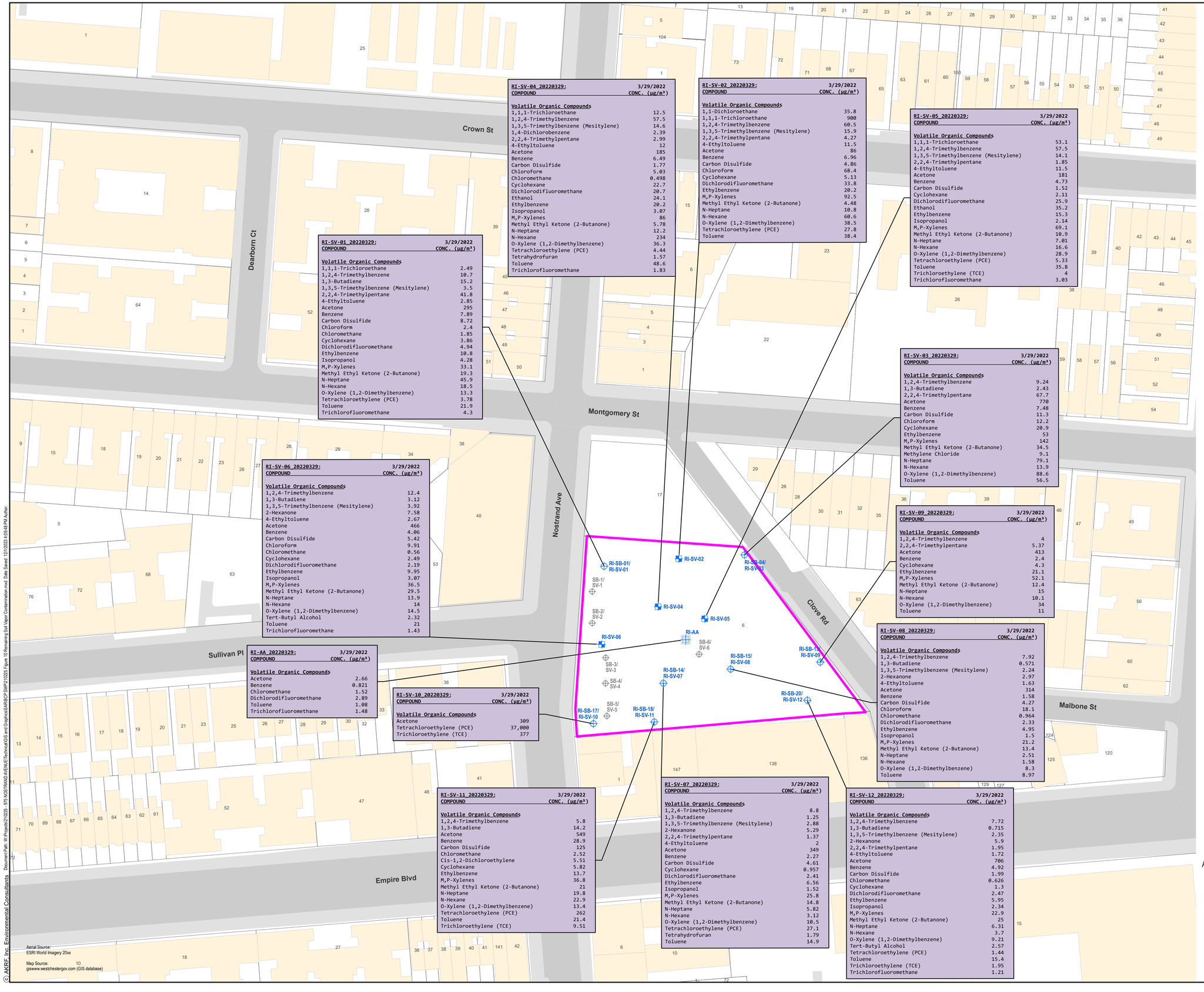
Remaining Groundwater PFAS Contamination Above Guidance Levels

DATE
12/19/2023

PROJECT NO.
210225

FIGURE
7



Aerial Source:
ESRI World Imagery 20xx

Map Source: 10
giswww.westchestergov.com (GIS database)

 Document Path: W:\Projects\21025 - 975 NOSTRAND AVENUE\Technical\GIS and Graphics\SAR\RDP SAR\21025 Figure 10 Remaining Soil Vapor Contamination.mxd Date Saved: 12/1/2023 4:09:48 PM Author:

AKRF
440 Park Avenue South, New York, NY 10016

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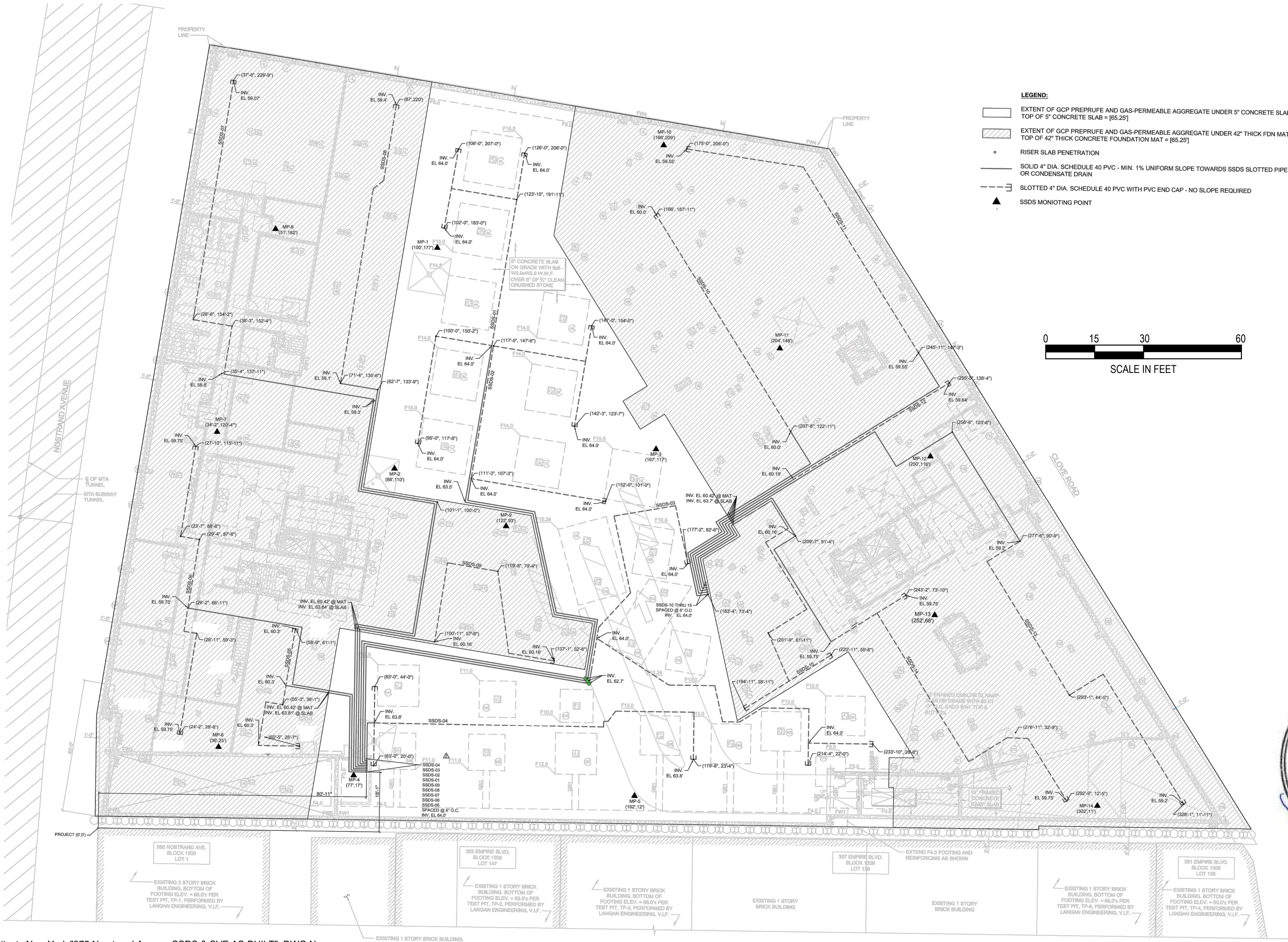
Brooklyn, New York

Remaining Soil Vapor Contamination

DATE
12/1/2023

PROJECT NO.
210225

FIGURE
8



LEGEND:

- EXTENT OF GCP PREPRUFE AND GAS-PERMEABLE AGGREGATE UNDER 5" CONCRETE SLAB. TOP OF 5" CONCRETE SLAB = [65.25']
- EXTENT OF GCP PREPRUFE AND GAS-PERMEABLE AGGREGATE UNDER 42" THICK FDN MAT. TOP OF 42" THICK CONCRETE FOUNDATION MAT = [65.25']
- RISER SLAB PENETRATION
- SOLID 4" DIA. SCHEDULE 40 PVC - MIN. 1% UNIFORM SLOPE TOWARDS SSDS SLOTTED PIPE OR CONDENSATE DRAIN
- SLOTTED 4" DIA. SCHEDULE 40 PVC WITH PVC END CAP - NO SLOPE REQUIRED
- SSDS MONIOTING POINT

0 15 30 60

SCALE IN FEET

Source:
OCC Architects New York "975 Norstrand Avenue SSDS & SVE AS-BUILT", DWG No: VE-01, Dated 9-26-2023.

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Brooklyn, New York

SSDS LAYOUT PLAN

STATE OF NEW YORK
REBECCA A. KINAL
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082046-1

DATE	9/26/2023
PROJECT NO.	210225
FIGURE	9

SVE VAPOR MONITORING POINT LOCATIONS		
ID	COLUMN LOCATION	ROOM
SVMP-01	144	GARAGE (SOUTH)
SVMP-02	143	RETAIL STORAGE
SVMP-03	153	GAS ROOM

LEGEND

ABOVEGROUND SOLID 4" Ø SCHEDULE 40 PVC PIPE FROM SVE WELLS

SVE-01 — SOIL VAPOR EXTRACTION (SVE) WELL

SVMP-1 — SVE VAPOR MONITORING POINT

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975 Nostrand Avenue
Brooklyn, NY. Block 1309, Lot 6

SVE LAYOUT PLAN

DATE
12/11/2023

PROJECT NO.
210225

FIGURE
10