3728 PARK AVENUE

BRONX COUNTY

BRONX, NEW YORK

Remedial Action Work Plan

NYSDEC BCP Number: C203169

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CERTIFICATION STATEMENT

I, Charles J. McGuckin, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work 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) and Green Remediation (DER-31).

NYS Professional Engineer #069509	Date	Signature

Note: include PE stamp

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ACRONYMS

µg/kg ..... Micrograms per Kilogram

µg/L ..... Micrograms per Liter

µg/m^3 ..... Micrograms per Cubic Meter

mg/kg..... Milligrams per Kilogram

4,4'-DDE..... 4,4'-Dichlorodiphenyldichloroethylene

4,4'-DDD..... 4,4-Dichlorodiphenyldichloroethane

4,4'-DDT 4,4-Dichlorodiphenyltrichloroethane

AOCs..... Areas of Concern

ASP ..... Analytical Services Protocol

AWQSGVs ..... Ambient Water Quality Standards and Guidance Values

BCA..... Brownfield Cleanup Agreement

BCP ..... Brownfield Cleanup Program

BEEI ..... Bureau of Environmental Exposure Investigation

bls..... Below Land Surface

BOA..... Brownfield Opportunity Areas

CAMP..... Community Air Monitoring Plan

C/D ..... Construction and Demolition

CEH..... Center for Environmental Health

CFR..... Code of Federal Regulations

COC ..... Certificate of Completion

CP-51 ..... Commissioner Policy-51

CPP ..... Citizen Participation Plan

CQAP ..... Construction Quality Assurance Plan

CSM ..... Conceptual Site Model

CVOCs ..... Chlorinated Volatile Organic Compounds

CY ..... Cubic Yards

DAR..... Division of Air Resources

DCE..... cis-1,2-dichloroethene

DEC..... Department of Environmental Conservation

DER-10..... NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation

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DMM ..... Division of Materials Management

DO ..... Dissolved Oxygen

DUSR ..... Data Usability Summary Report

EC ..... Engineering Control

ECL ..... Environmental Conservation Law

EDD ..... Electronic Data Deliverable

EJ ..... Environmental Justice

ELAP ..... Environmental Laboratory Approval Program

ESA ..... Environmental Site Assessment

FER ..... Final Engineering Report

Ft ..... Feet/Foot

HASP ..... Health and Safety Plan

HAZWOPER ..... Hazardous Waste Operations and Emergency Response

Hp ..... Horsepower

HVAC ..... Heating, Ventilation, and Air Conditioning

IC ..... Institutional Control

MEK ..... Methyl Ethyl Ketone; 2-butanone

MS/MSD ..... Matrix Spike/Matrix Spike Duplicate

MW ..... Monitoring Well

ng/L ..... Nanograms per Liter

NYCDEP ..... New York City Department of Environmental Protection

NYCDOT ..... New York City Department of Traffic

NYCRR ..... New York Codes, Rules, and Regulations

NYSDEC ..... New York State Department of Environmental Conservation

NYSDOH ..... New York State Department of Health

NYSDOT ..... New York State Department of Transportation

O&M ..... Operation and Maintenance

ORP ..... Oxidation-Reduction Potential

OSHA ..... Occupational Safety and Health Administration

PAHs ..... Polycyclic Aromatic Hydrocarbons

PCBs ..... Polychlorinated Biphenyls

PCE ..... Tetrachloroethene (Perchloroethene)

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PEJA ..... Potential Environmental Justice Area

PDF ..... Portable Document Format

PID ..... Photo Ionization Detector

PPE ..... Personal Protective Equipment

PVC ..... Polyvinyl Chloride

QAPP ..... Quality Assurance Project Plan

QA/QC ..... Quality Assurance/Quality Control

RAOs ..... Remedial Action Objectives

RAWP ..... Remedial Action Work Plan

RI ..... Remedial Investigation

RIR ..... Remedial Investigation Report

SCG ..... Standards, Criteria, and Guidance

SCOs ..... Soil Cleanup Objectives

SEQRA ..... State Environmental Quality Review Act

SMP ..... Site Management Plan

SOE ..... Support of Excavation

SoMP ..... Soil Management Plan

SOP ..... Site Operations Plan

SRI ..... Supplemental Remedial Investigation

SSO ..... Site Safety Officer

SVOC ..... Semivolatile Organic Compounds

SWPPP ..... Stormwater Pollution Prevention Plan

TAGM ..... Technical and Administrative Memorandum

TAL ..... Target Analyte List

TCE ..... Trichloroethene

TCL ..... Target Compound List

TCLP ..... Toxicity Characteristics Leaching Procedure

TOGS ..... Technical and Operational Guidance Series

USEPA ..... United States Environmental Protection Agency

USGS ..... United States Geological Survey

VOC ..... Volatile Organic Compounds

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EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

Roux Environmental Engineering and Geology, D.P.C. (Roux), on behalf of Sol on Park LLC (the Volunteer), has prepared this Remedial Action Work Plan (RAWP) for the property located at 3728 Park Avenue, Bronx, New York (Site), as shown on Figure 1. The Site was investigated to prepare for remediation under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). The Volunteer executed a Brownfield Cleanup Agreement (BCA) Index No. C203169-11-23 with NYSDEC on December 15, 2023, and the Site was assigned BCP Site number C203169.

The Site address is 3728 Park Avenue, Bronx, New York. The Site's size is approximately 0.68 acres, and it is identified on the New York City Tax Map for Bronx County as Block 2902, Lot 30 and a part of Lot 36, as shown on Figure 1 and Figure 2.[1]

Summary of the Remedial Investigation

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated August 20, 2024 and Supplemental RI (SRI) Work Plan dated November 14, 2025. The remedial investigation was conducted between September 4 and October 1, 2024. The Supplemental RI was performed between November 25 and December 4, 2025. The RI report was submitted to NYSDEC on February 3, 2026, and is currently under review by NYSDEC.

The RI and SRI field investigation was completed in accordance with the RIWP and SRIWP, respectively, and associated project plans including the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP)/Field Sampling Plan (FSP) and Community Air Monitoring Plan (CAMP). All work was performed in accordance with appropriate regulations and guidance, including but not limited to NYSDEC DER-10 and DER-31 and NYSDOH SVI Guidance.

The following areas of concern (AOCs) were identified within the Site limits from historical documents:

- Soil contamination due to the presence of Site-wide urban fill; and
- Potential soil, groundwater, and soil vapor contamination from former Site uses.

Environmental data collected during the RI and SRI was used to qualitatively assess the potential exposure of receptors to Site contaminants and develop the information necessary to support the development of this RAWP.

[1] The Site was formerly identified as Block 2902, part of Lot 36, until the property owner (New York City Housing Authority [NYCHA]) subdivided former Lot 36. The New York City Tax Map was updated to reflect the subdivision on February 4, 2025. A change of use notice and application to amend the BCA to reflect the new tax lot designation and street address 3728 Park Avenue will be forthcoming.

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A Site plan showing all the sample locations from the RI and SRI is included in Figures 5A, 5B and 5C. The soil boring and monitoring well logs are provided in Appendices E and F. The purge logs (groundwater and soil vapor sampling forms) are included in Appendix G.

The RIR, submitted under separate cover in February 2026, details all RI and SRI implementation field activities. All data was produced in accordance with NYSDEC Analytical Services Protocol (ASP) Category B deliverables and was reviewed and validated by Data Validation Services, a party independent of the project team, in a Data Usability Summary Report (DUSR) before being incorporated into the RIR for the Site.

Local Geology and Hydrogeology

Based on field observations during the RI/SRI implementation, the Site is predominantly underlain by fill (consisting of sand, gravel, cobble, brick, asphalt, concrete, wood, organics, plastic, ceramic, and glass) to depths ranging from approximately 1 to 12 ft bls, except at RISB-9 where no fill material was observed. Fill materials overlie native sand with varying amounts of gravel, silt and cobbles. At RISB-15, fibrous material was observed at approximately 7 ft bls. Decomposed bedrock was encountered throughout the Site at depths ranging from approximately 2 ft bls at RISB-16 to 21 ft bls at RISB-13. Soil boring logs are provided in Appendices E and F and hydrogeologic cross sections based on the RI are included as Figures 10 and 11.

According to water-level data collected from the permanent wells on October 4, 2024, the elevation of the water table at the Site ranges from 19.25 ft to 22.71 ft relative to NAVD 88. The measured depth to groundwater from the land surface at the Site varies from 14.94 ft bls to 22.04 ft bls. A survey was conducted at the Site on March 26, 2024 to record the elevation of each soil boring, monitoring well cover, and soil vapor point (as well as measuring point elevations). According to the survey, the surface elevation on-Site varies from 35.37 ft in the northwest portion of the Site to 50.03 ft in the southeast portion of the Site relative to NAVD88, which indicates that the Site grade changes by 14.66 ft across the Site. Based on depth-to-groundwater variations and observed fluctuations during RI/SRI implementation, perched groundwater conditions appear to be present on-Site. Groundwater gauging data is included as Table 1. A groundwater flow map is provided as Figure 6, showing flow in a western direction towards the Harlem River.

Summary of Results

In summary, the data generated during the RI and SRI indicate the following about Site-wide conditions:

- VOCs were not detected in soil at concentrations above their applicable UUSCOs, RRSCOs, and/or PGWSCOs across the Site, except for one exceedance of acetone, a common laboratory contaminant. No VOCs were detected in groundwater samples.
- SVOCs, exclusively PAHs, were detected at concentrations above their applicable UUSCOs, RRSCOs, and/or PGWSCOs in the fill material present across the Site. No SVOCs exceeding PGWSCOs in soil were detected in groundwater samples at concentrations above the AWQSGVs. Only one minor SVOC exceedance of phenol (1.3J ug/L) was detected in one groundwater sample that exceeded its AWQSGV of 1 ug/L. The data indicate that SVOCs in soil are not impacting groundwater.
- Metals were detected in soil at concentrations above applicable UUSCOs, RRSCOs, and/or PGWSCOs across the Site. Arsenic, barium, beryllium, hexavalent chromium, total chromium, copper, lead, manganese, mercury, nickel, and zinc were detected at concentrations above their applicable UUSCOs. Arsenic, barium, hexavalent chromium, lead, manganese and mercury were

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detected at concentrations exceeding their applicable RRSCOs. Metals contamination in shallow soil is likely related to the presence of fill material at the Site. The metal exceedances of UUSCOs detected deeper than the observed fill depth include beryllium, total and hexavalent chromium, manganese, nickel and zinc. Arsenic, barium, lead, manganese and mercury were detected at a concentration above their applicable PGWSCO in shallow soil, but were not detected in any dissolved groundwater samples, which indicates that metals in soil are not a source of groundwater contamination at the Site. All the metals detected at concentrations above AWQSGVs in the filtered groundwater samples are naturally occurring.

- PCBs were detected (above UUSCOs, but below RRSCOs and PGWSCOs) in two soil samples collected from the same boring during the RI and are likely related to the presence of fill material at the Site. PCBs were not detected in any groundwater samples collected during the RI. These data indicate that PCBs in soil are not impacting groundwater.
- Pesticides were detected at concentrations exceeding their applicable UUSCOs but not their respective RRSCOs, and they were not detected in groundwater. Therefore, pesticides in soil are not a source of groundwater contamination at the Site. Pesticide concentrations exceeding UUSCOs are limited to the observed fill interval and may be a result of fill and/or historical surficial pesticide application. There were no herbicides detected at concentrations exceeding any applicable SCOs.
- PFAS compounds were detected above soil GVs in four shallow soil samples and detected in exceedance of the AWQSGVs in all groundwater samples collected as part of the RI/SRI. There is no documented use of PFAS at the Site or any known historical Site operations that would indicate the past use of these compounds. PFOS and PFOA were only detected in the shallow 0-2 ft soil interval during the RI/SRI and are likely due to fill material. Soil samples deeper than the observed fill material were collected and analyzed for PFOS and PFOA at two of the soil boring locations with exceedances in the 0-2 ft interval (RISB-4 and RISB-17). There were no detections of PFOS or PFOA in the deeper soil samples collected during the RI.
- Low-level CVOCs and petroleum-related VOCs were detected in soil vapor samples across the Site. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCs, the RI soil vapor detections are most likely related to off-site sources.

In summary, the data collected during the RI and SRI indicate that fill-related impacts (SVOCs, PCBs, metals, pesticides and PFAS) are present in Site soils. Groundwater results indicate groundwater at the Site is not significantly impacted. Soil vapor samples across the Site have some VOC detections which are not attributed to soil or groundwater contamination.

Qualitative Human Health Exposure Assessment

As described in Appendix 3B of DER-10, *"The overall purpose of the Qualitative Human Health Exposure Assessment (or the exposure assessment) is to evaluate and document how people might be exposed to site related contaminants, and to identify and characterize the potentially exposed population(s) now and under the reasonably anticipated future use of the site."* The following section details the Qualitative Human Health Exposure Assessment based on data discussed in previous sections of this RAWP.

Soil Exposure

Soil samples collected during the RI and SRI indicated the presence of SVOCs, metals, PCBs, pesticides and PFOS/PFOA at concentrations above the NYSDEC UUSCOs or GVs. Individuals could be exposed to these contaminants through direct contact with soil during ground-intrusive work at the Site if they do not take precautionary measures to protect themselves as will be required during the BCP remediation. Direct contact without the use of proper personal protective equipment (PPE) and personal hygiene measures

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could lead to dermal contact and incidental ingestion of these compounds. Since the Site is currently fully fenced and will be fully fenced during construction activities, and access is controlled, potential contact with Site soil is restricted to remedial and construction contract workers at the Site performing ground-intrusive activities in addition to trespassers and passersby (through potential particulate matter in the air) to the extent the dust control measures are not implemented. The general public will not be exposed to direct contact with Site soil. CAMP and dust control measures will be implemented during intrusive activities to minimize the potential for offsite exposures by controlling soil/dust/vapor from leaving the Site.

Groundwater Exposure

Groundwater samples collected during the RI and SRI indicate that one SVOC (phenol), metals, and PFOS/PFOA are present at concentrations above the NYSDEC AWQSGVs. Exceedances for dissolved metals, however, were limited to magnesium and sodium, which are assumed to be naturally occurring. Groundwater is not used for drinking or other potable purposes (the area is connected to the public water supply), and there is no direct contact with or ingestion of groundwater by the general public. Furthermore, no public water supply wells are located in the area surrounding the Site.

Individuals who perform intrusive work (i.e., utility construction and/or repair), perform groundwater sampling, or remedial activities may come into contact with contaminated groundwater. Proper PPE and personal hygiene measures will be required to prevent dermal contact and the potential for incidental ingestion of these compounds. Depth to groundwater on-Site ranges from 14.94 ft bls to 22.04 ft bls, with a fluctuating perched water table observed during the RI. Groundwater may be encountered during redevelopment depending on the final, selected remedy.

The proposed on-Site buildings will be serviced by the public water supply. Based on this, there is no public exposure pathway for contaminated groundwater, and the exposure pathway for workers with potential direct contact with contaminated groundwater will be reduced or eliminated via implementation of the HASP.

Soil Vapor Exposure

Soil vapor samples collected during the RI indicate the presence of petroleum-related VOCs and CVOCs across the Site. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCs, the elevated concentrations are likely due to off-site sources.

Individuals who perform ground-intrusive work and passersby during the remedial action may be exposed to contaminated soil vapor if HASP and CAMP measures are not employed. CAMP and odor/vapor control measures will be implemented during intrusive activities to minimize the potential for offsite exposures from vapors leaving the Site during the remedial action.

Soil vapor intrusion could be a concern for the occupants in the future on-Site building if soil vapor intrusion mitigation measures are not proposed. Therefore, soil vapor mitigation measures will be considered as part of the remedy.

Fish and Wildlife Assessment (FWIA)

The RI/SRI for this Site did not identify the potential for impacts to fish and wildlife resources.

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Summary of the Remedy

A remedial program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial program, as appropriate. The project will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, the remedial program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities

The elements of the selected Track 2 Restricted Residential Use Cleanup are detailed below.

- Installation of support of excavation (SOE) to support the proposed remedial excavation depths. SOE will be installed for excavations with a final depth of 4 feet or more. Interior excavation sidewalls may be sloped or benched to achieve the proposed excavation depths.

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- Excavation and off-site disposal of a total of approximately 4,300 CY of soil (i.e., all soil exceeding RRSCOs up to 15 ft bls over the entire Site. The anticipated remedial excavation depth will range from 2 ft to 11 ft bls (actual volume is subject to change based on observed field conditions, SOE requirements, and post-excavation endpoint sampling).
- Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work.
- Appropriate 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.
- Collection and analysis of post-excavation bottom confirmation endpoint samples at a frequency of one per 900 square feet as well as confirmation sidewall samples at a frequency of one per 30 linear feet to document that the SCOs were met. Based on this frequency, a total of 35 bottom endpoint samples and 22 sidewall samples would be required. The sidewall samples are located in between the remedial excavation grids with a difference in excavation depth of 2 ft or more. Sidewall samples are not required where excavation extends to the property line or SOE precludes sample collection.
- Backfill and compaction of clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in (if needed) to replace the excavated soil and establish the designed grades at the Site. Backfill and compaction of clean fill meeting the lower of RRSCOs and PGWSCOs, shall be in compliance with: (1) chemical limits and other specifications included in Table 18, (2) all Federal, State and local rules and regulations for handling and transport of material.
- Dewatering is not expected to be required to complete the remedial excavation because the depth to groundwater is deeper than the proposed excavation depths. In the event that limited shallow dewatering is required, it will be in compliance with city, state, and federal laws and regulations. As applicable, extracted groundwater will either be containerized for off-Site licensed or permitted disposal or will be treated on-Site under an NYSDEC SPDES equivalency permit and site connection permit from New York City Department of Environmental Protection to meet pretreatment requirements prior to discharge to a storm sewer system discharging to an outfall.
- Installation of a passive SSDS and permanent sub-slab soil vapor monitoring points to address residual soil vapor contamination. Indoor air and sub-slab soil vapor sampling will be completed, as part of an SVI Assessment following completion of the building, to determine if additional actions are necessary to address the potential for exposure via the SVI pathway. The passive SSDS system will have the capability to be converted to an active system if the results of the assessment warrant it. Drawings detailing the passive SSDS design are included as Appendix P.
- Imposition of ICs in the form of an Environmental Easement to ensure proper Site use and prevent future exposure to any residual contamination by:
    - requiring the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
    - allowing the continued use and development of the controlled property for restricted residential (or less restrictive uses) as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
    - restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH (groundwater restriction applies to the entire Site); and
    - requiring compliance with the Department-approved SMP.
- Preparation of an SMP that includes the following:
    - an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
        - Institutional Controls: The Environmental Easement discussed above.

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    - Engineering Controls: The passive SSDS (activatable) and vapor monitoring points discussed above.
- a Monitoring Plan to assess the performance and effectiveness of the remedy, including, if necessary, monitoring for vapor intrusion for any buildings constructed on the Site.

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REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Sol on Park, LLC (Sol on Park) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on December 15, 2023, to investigate and remediate an approximately 0.68-acre property located at 3728 Park Avenue in Bronx, New York. Sol on Park is a Volunteer in the Brownfield Cleanup Program. Restricted Residential use is proposed for the property. When completed, the Site will contain a 18-story mixed-use residential building featuring 229 affordable units for seniors and community facility space. Refer to the BCP application for additional details.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between September 4, 2024 and October 1, 2024, as well as the Supplemental RI performed between November 25, 2025 and December 4, 2025. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10, DER-31, and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State, and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have not yet determined if this Site poses a significant threat to human health and the environment. The RI/SRI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 Site Location And Description

The Site is located in the County of Bronx, Bronx, New York and is identified as Block 2902, Lot 30 and portion of Lot 36 on the New York City Tax Map.[2] A United States Geological Survey (USGS) topographical quadrangle map (Figure 1) shows the Site location. The Site is situated on an approximately 0.68-acre area bounded by NYCHA Morris I Building #16 to the north, St Pauls Place and a NYC Department of Education Public School building 128 to the south, NYCHA Morris I Building #17 to the east, and Park Avenue and the Metro North rail line to the west (see Figure 2). A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419. The 0.68-acre property is fully described in Appendix A – Metes and Bounds. A global positioning system coordinate for the starting point is included.

1.2 Contemplated Redevelopment Plan

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan

[2] The Site was formerly identified as Block 2902, part of Lot 36, until the property owner (New York City Housing Authority [NYCHA]) subdivided former Lot 36. The New York City Tax Map was updated to reflect the subdivision on February 4, 2025. A change of use notice and application to amend the BCA to reflect the new tax lot designation and street address 3728 Park Avenue will be forthcoming.

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and end use are described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The planned redevelopment of the Site will consist of a 18-story approximately 204,641 gross-square-foot (gsf) mixed-use residential building containing 229 affordable units for seniors, 1 two-bedroom unit reserved for an on-site building superintendent, and community facility space. The first floor of the building will feature a Park Avenue entrance to a 4,930-sf community health center with urgent care facilities operated by Union Community Health Center, a non-profit community health organization in the Bronx and mechanical and storage spaces. The second floor of the building will consist of a 1,096-sf community facility space dedicated to the Morris Houses campuses Tenant Association. Green Bronx Machine, a neighborhood non-profit organization, will occupy approximately 1,739 sf of space on the second floor for administrative and educational purposes. The development will include an outdoor plaza and the building itself will feature additional green spaces in the form of landscaped rooftop terraces on the eighth, ninth, and tenth floors. The redevelopment plans are provided in Appendix B.

1.3 Description of Surrounding Property

The area surrounding the Site has historically been mixed residential and commercial use. To the north of the Site is NYCHA Morris I Building #16. To the south of the Site, beyond St Pauls Place, is a NYC Department of Education Public School building 128. To the west of the Site, beyond Park Avenue, is the Metro North rail line. To the east of the Site is NYCHA Morris I Building #17. The NYC Department of Education Public School building 128 is a sensitive human receptor in close proximity of the Site. There are no other land uses within close proximity of the Site that are sensitive human or ecological receptors. A figure presenting the surrounding land use and sensitive receptors is provided as Figure 3.

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2.0 BACKGROUND

The following sections provide pertinent background information, including documented history of the Site, and the results of previous environmental investigation work conducted at the Site.

2.1 Historical Land Uses

Based on a review of previous environmental reports and documentation, including historic Sanborn Fire Insurance Maps, the following Site history was established. Historical use of the Site included mixed residential and commercial/industrial. Residential use in areas along St Pauls Place occurred from 1891 or prior through the 1950s. Development occurred in the northern portion of the Site prior to 1891 for manufacturing uses that took place between 1891 and 1909. The manufacturing facilities were identified as Brewers Varnish in 1891 and Varnishes and Brewers Chips in 1909. In 1952, a gasoline filling station and parking lot were observed in the former manufacturing area. The Site appears vacant after 1959. Evidence of a large-scale neighborhood redevelopment project appears in historical documents between the years of 1952 and 1966. Entire city blocks were leveled, and large apartment buildings were erected during this time, which still stand today as the NYCHA campus.

2.2 Geologic and Hydrogeologic Conditions

The land surface elevation varies across the Site from 35 feet (northwestern portion of the Site) to 50 feet (southeastern portion) relative to NAVD 88. Based on the Roux Phase II ESA, the Site is underlain with a mixture of historic fill consisting of mostly brown to dark brown sand, silt, and gravel with brick. The thickness of the fill layer ranges from 2 to 7.5 ft bls across the Site. Beneath the historic fill, the subsurface is predominantly comprised of mostly fine to coarse silty sand with some intervals of sandy silt and clayey silt and included decomposed and weathered bedrock (Manhattan Schist).

Based on the results of the prior Roux Phase II ESA, groundwater elevation varies at the Site and was encountered from approximately 10 to 20 ft bls. Perched groundwater appeared to be observed at select locations at the Site. Groundwater is estimated to flow towards the west.

Based on a review of the previous environmental reports and as shown on Figure 4, the Site is not located in, or adjacent to, regulated wetlands. According to a review of Federal Emergency Management Agency (FEMA) Flood Maps, the Site is located in Flood Zone X, which is defined as an area of minimal flood hazard. The nearest natural surface water body is the Harlem River, located approximately 1.1 miles to the west of the western Site boundary.

2.3 Historical Environmental Reports

This section provides an overview of previous environmental-related activities completed at the Site, based on a review of readily available information and the following environmental investigations.

- Phase I ESA, prepared by BRS on behalf of NYCHA, dated March 7, 2022; and
- Phase II ESA/BCP Eligibility Summary Letter Report, prepared by Roux on behalf of NRP Holdings LLC, dated March 24, 2023.

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A summary of the findings from assessments of the Site is provided below.

Phase I Environmental Site Assessment, prepared by BRS on behalf of NYCHA, dated March 7, 2022

Based on the information gathered during the Phase I ESA process, BRS identified the following Recognized Environmental Conditions (RECs):

- Historical Usage of the Site: Research has identified the former presence of various manufacturing facilities including Brewers Varnish in 1891 and Varnishes and Brewers Chips in 1909. A gasoline filling station was identified in 1952. Between 1924 and 1954, these buildings appear on the historic aerials, then the Site appears vacant after 1959.
- Fill Material: Fill material may be present beneath the Site given the redevelopment of the area.

Based on the information gathered during the Phase I ESA process, BRS had not identified any Controlled Recognized Environmental Conditions (CRECs), Historical Recognized Environmental Conditions (HRECs), or Business Environmental Risks (BERs) in connection with the Site.

BRS had identified the following data gaps in the information developed as part of the inquiry that affected the ability of the environmental professional to identify conditions indicative of releases at the Site:

- Awaiting responses to Freedom of Information Act (FOIA) requests from the FDNY. Based on the User provided information and records obtained and reviewed, this was not considered a significant data gap.

Phase II ESA/BCP Eligibility Letter Report, prepared by Roux on behalf of NRP Holdings LLC, dated March 24, 2023

The prior Roux Phase II ESA is provided in Appendix C. The following conclusions were determined based on the results of the Roux Phase II ESA:

- Fill material was visually observed to a maximum depth ranging from approximately 2 ft bls to 7.5 ft bls across the Site.
- Elevated Photoionization Detector (PID) readings were observed in one soil boring, RXSB-1, ranging from 10.1 ppm to 1,857.0 ppm. No elevated PID readings were observed at any other borings.
- Volatile Organic Compounds (VOCs) were not detected in exceedance of NYSDEC Unrestricted Use Soil Cleanup Objectives (UUSCOs) or Restricted Residential Soil Cleanup Objectives (RRSCOs) in soil, or in groundwater in exceedance of NYSDEC Ambient Water-Quality Standards and Guidance Values (AWQSGVs) at the Site, with the only exception of only AWQSGV exceedances of 1,2,4,5-Tetramethylbenzene, Cymene, Isopropylbenzene (Cumene), and Sec-Butylbenzene.
- Analytical results for the shallow (less than 7 ft bls) soil samples collected during the Phase II ESA indicate that soil is impacted with select polycyclic aromatic hydrocarbons (PAHs) and metals at concentrations exceeding UUSCOs and RRSCOs, likely related to either historic fill or former operations at the Site.
- Select PAHs and metals in unfiltered groundwater samples exceeding AWQSGVs that did not exceed AWQSGVs in corresponding filtered samples are not indicative of Site conditions but are due to inadvertent introduction of sediment in the unfiltered samples.
- Based on the data generated as part of this Phase II ESA, exceedances of the RRSCOs in soil were found across the Site.
- Development of the Site for residential purposes will require soil remediation (removal and disposal) and/or proper on-site soil management, along with the potential installation of environmental

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engineering controls (e.g., building sub-slab venting system), vapor barrier systems, and imposition of institutional controls (e.g., environmental easement) to mitigate concerns associated with vapor intrusion.

2.4 Sanborn Maps

All Sanborn Maps available for this Site were reviewed prior to the preparation of the RAWP.

The table below provides a summary of the Subject Property and surrounding area from 1891 to 2007, as determined from the Certified Sanborn Fire Insurance maps, which are included as Appendix D.

Sanborn Map Review		
Year	**Summary (On-Site)**	**Summary (Off-Site)**
1891	The site is developed with approximately 7 structures identified as Brewers Varnish Manufacturing.	Properties to the east and south are developed with dwellings. The properties to the north are primarily undeveloped. Vanderbilt Avenue is depicted on the western Site boundary with NY Central and Hudson River Railroad.
1909	The site is developed with 3 dwellings, a stable, and a Varnishes & Brewers Chips operation.	To the west is Park Avenue and to the south is St Paul's Place. Properties to the north and east are developed with dwellings.
1951	The site is developed with Monumental Works, two dwellings, a roofing company and a filling station with parking.	To the west is Park Avenue, and to the south is St Paul's Place and Public School No 55. Properties to the north and east are developed with dwellings. Monumental Works has extended to the east.
1977 - 2007	The site is vacant.	Properties to the north and east were developed with apartment building (Morris Apartments). No changes to the west and south.

2.5 Description of areas of concern

Based on the findings of the prior investigations, the following area of concern (AOCs) were further investigated as part of the RI and SRI:

- Historic fill based on previously identified fill material at depth at the Site;
- Presence of potential impacts from historical on-Site operations; and
- Collection and analysis of additional soil samples to supplement the existing RI data as well as to further determine the proposed remedial excavation depths.

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3.0 REMEDIAL INVESTIGATION FIELD ACTIVITIES

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated August 2024 and Supplemental RI (SRI) Work Plan dated November 2025. The Remedial Investigation was conducted between September 4, 2024 and October 1, 2024. The Supplemental Remedial Investigation was conducted between November 25, 2025 and December 4, 2025. The Revised RI report was submitted to NYSDEC on February 3, 2026, and is currently under review by NYSDEC.

The RI and SRI field investigation was completed in accordance with the RIWP and SRIWP, respectively, and associated project plans including the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP)/Field Sampling Plan (FSP) and Community Air Monitoring Plan (CAMP). All work was performed in accordance with appropriate regulations and guidance, including but not limited to NYSDEC DER-10 and DER-31 and NYSDOH SVI Guidance.

The following areas of concern (AOCs) were identified within the Site limits from historical documents:

- Soil contamination due to the presence of Site-wide urban fill; and
- Potential soil, groundwater, and soil vapor contamination from former Site uses.

Based on the existing data for the Site and known data gaps, the following objectives have been identified:

- Delineate the nature and extent of potential impacts to soil from AOCs described above utilizing multiple sample depths (to define the cleanup track);
- Delineate the nature and extent of impacts to groundwater;
- Evaluate the soil vapor intrusion risk to future structures that will be built on-Site; and
- Fill data gaps from prior investigations (e.g., obtain more data across the Site).

Environmental data collected during the RI and SRI was used to qualitatively assess the potential exposure of receptors to Site contaminants and develop the information necessary to support the development of this RAWP.

The scope of work for the RI and SRI included the following:

- The performance of Site reconnaissance to confirm proposed sampling locations.
- The collection of soil, groundwater and soil vapor samples sufficient to define the nature and extent of impacted media and current site conditions as summarized below:
    - The advancement of nineteen (19) soil borings, collection of 60 soil samples and analysis of 48 soil samples (45 samples plus three duplicates) during the RI and thirteen (13) soil borings and collection of 36 soil samples (34 soil samples plus two duplicates) during the SRI. Samples collected during the RI and SRI were analyzed for VOCs, SVOCs, metals, PCBs, herbicides, pesticides and/or per- and polyfluoroalkyl substances (PFAS), depending on depth and location.
    - Installation of eight (8) groundwater monitoring wells, collection of six (6) groundwater samples during the RI, which were analyzed for VOCs, SVOCs, total and dissolved metals, PCBs, herbicides, and pesticides, collection of two (2) groundwater samples during the RI analyzed for PFAS and collection of six (6) groundwater samples during the SRI which were analyzed for PFAS and 1,4-dioxane.

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- Installation of nine (9) soil vapor points and collection of seven (7) soil vapor samples during the RI which were analyzed for VOCs using USEPA Method TO-15.
- The collection of groundwater level measurements and land survey data as needed for developing a groundwater elevation contour map.

- The performance of a qualitative exposure assessment to identify exposure pathways and evaluate contaminant fate and transport.

A Site plan showing all the sample locations from the RI and SRI is included in Figure 5A, Figure 5B and Figure 5C. The soil boring and monitoring well logs are provided in Appendices E and F. The purge logs (groundwater and soil vapor sampling forms) are included in Appendix G.

The RIR, submitted under separate cover in January 2026, details all RI and SRI implementation field activities. All data was produced in accordance with NYSDEC Analytical Services Protocol (ASP) Category B deliverables and was reviewed and validated by Data Validation Services, a party independent of the project team, in a Data Usability Summary Report (DUSR) before being incorporated into the RIR for the Site.

3.1 Best Management Practices

The following best management practices (BMPs) were implemented during the RI and SRI:

- Daily communication with the NYSDEC and completion of daily reports.
- Compliance with the RIWP and SRIWP.
- Constant communication between team members including Roux's personnel and subcontractors (driller, geophysical surveyor, laboratory).
- Good housekeeping was performed during drilling and sampling activities.
- Adherence to the site-specific health and safety plan (HASP).

3.2 Site Reconnaissance and Geophysical Survey

Roux performed Site reconnaissance and, in conjunction with the previous Phase I ESA and Phase II ESA, identified potential AOCs, described above, which were evaluated during the RI and SRI. An inspection of the existing Site conditions was conducted to determine final locations of soil borings, monitoring wells, and soil vapor points based on actual field conditions.

A geophysical survey was completed at the Site during the Phase II investigation to identify any potential orphan underground storage tanks (USTs), subsurface utilities, conduits, or obstructions. The geophysical survey did not indicate the presence of subsurface utilities or anomalies indicative of orphan USTs. Utilities are present in the surrounding area to service the adjacent NYCHA buildings.

3.3 Soil Investigation

3.3.1 Soil Investigation during the RI

All soil boring locations were precleared to 5 ft bls using non-intrusive methods, such as hand tools and/or vacuum excavation, prior to advancement of soil borings to verify the absence of utilities and/or other subsurface features (i.e., obstructions). If a utility or other feature was observed during pre-clearance activities, the sampling location was relocated as close as possible to the original location. Soil samples

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were collected by hand or by utilizing a GeoProbe® Direct-Push Drill Rig. Soil was collected continuously from land surface, including precleared soil from the first 5 feet to the terminal depth of the boring. During advancement of all soil borings, soil lithology was recorded in accordance with the Unified Soils Classification System (USCS), and soil was inspected for evidence (visual or olfactory) of contamination, including staining and/or odors, and field screened continuously for VOCs using a PID with a 10.6 electron-volt (eV) lamp.

To further characterize the soil conditions and to delineate known contamination at the Site, a total of 60 soil samples were collected from the 19 soil borings advanced at the locations shown in Figure 5A. At each soil boring location, soil samples were collected at 2-ft intervals to fill data gaps and further delineate exceedances of RRSCOs. In accordance with the approved RIWP, samples from select sample depths were placed on hold pending review of the initial sample results. A total of 48 samples (including three duplicates) were analyzed. The sample locations are shown in Figure 5A and discussed below.

The sample intervals were selected for laboratory analysis at each boring location to fill spatial data gaps and evaluate the potential presence of soil contamination. The soil samples were collected as shown on the table below to provide vertical delineation of contamination at the Site.

Nineteen soil borings were advanced to characterize soil conditions and samples were collected at the following depths:

Sample Location ID	Sample Depth Intervals (ft bls)	Analyses Collected
RISB-1	0-2	Full Suite Target Compound List (TCL)+30/Target Analyte List (TAL)
	5-7	Full Suite TCL+30/TAL
	7-9	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-2	0-2	Full Suite TCL+30/TAL+ Emerging Contaminants* (ECs)
	7-9	Full Suite TCL+30/TAL
	9-11	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-3	0-2	Full Suite TCL+30/TAL+ECs
	5-7	Full Suite TCL+30/TAL
	7-9	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-4	0-2	Full Suite TCL+30/TAL+ECs
	20-22	Full Suite TCL+30/TAL+ECs

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Sample Location ID	Sample Depth Intervals (ft bls)	Analyses Collected
	22-24	Full Suite TCL+30/TAL+ECs (Sample placed on hold)
RISB-5	0-2	Full Suite TCL+30/TAL
	17-19	Full Suite TCL+30/TAL
	19-21	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-6	0-2	Full Suite TCL+30/TAL
	15-17	Full Suite TCL+30/TAL+ECs
	17-19	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-7	0-2	Full Suite TCL+30/TAL
	19-21	Full Suite TCL+30/TAL+ECs
	21-23	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-8	0-2	Full Suite TCL+30/TAL
	2-4	Full Suite TCL+30/TAL
	4-6	Full Suite TCL+30/TAL (Sample placed on hold)
	16.5-18.5	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-9	0-2	Full Suite TCL+30/TAL
	2-4	Full Suite TCL+30/TAL
	4-6	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-10	0-2	Full Suite TCL+30/TAL
	7-9	Full Suite TCL+30/TAL
	17-19	Full Suite TCL+30/TAL
RISB-11	0-2	Full Suite TCL+30/TAL
	13-15	Full Suite TCL+30/TAL

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Sample Location ID	Sample Depth Intervals (ft bls)	Analyses Collected
	15-17	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-12	0-2	Full Suite TCL+30/TAL
	2-4	Full Suite TCL+30/TAL
	4-6	Full Suite TCL+30/TAL
RISB-13	0-2	Full Suite TCL+30/TAL
	17-19	Full Suite TCL+30/TAL+ECs
	19-21	Full Suite TCL+30/TAL
RISB-14	0-2	Full Suite TCL+30/TAL+ECs
	9-11	Full Suite TCL+30/TAL+ECs
	13-15	Full Suite TCL+30/TAL+ECs
	15-17	Full Suite TCL+30/TAL+ECs (Sample placed on hold)
RISB-15	0-2	Full Suite TCL+30/TAL
	5-7	Full Suite TCL+30/TAL+ECs
	7-9	Full Suite TCL+30/TAL
RISB-16	0-2	Full Suite TCL+30/TAL
	3-5	Full Suite TCL+30/TAL
	5-7	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-17	0-2	Full Suite TCL+30/TAL+ECs
	12-14	Full Suite TCL+30/TAL+ECs
	15-17	Full Suite TCL+30/TAL+ECs (Sample placed on hold)
	18-20	Full Suite TCL+30/TAL+ECs (Sample placed on hold)

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Sample Location ID	Sample Depth Intervals (ft bls)	Analyses Collected
RISB-18	0-2	Full Suite TCL+30/TAL
	8-10	Full Suite TCL+30/TAL
	10-12	Full Suite TCL+30/TAL (Sample placed on hold)
RISB-19	0-2	Full Suite TCL+30/TAL
	5-7	Full Suite TCL+30/TAL
	7-9	Full Suite TCL+30/TAL (Sample placed on hold)

*As required by NYSDEC, soil samples were analyzed for the emerging contaminants (ECs), PFAS, which include the 40 compounds listed in accordance with the Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs guidance document (NYSDEC April 2023 PFAS Guidance).

Based on the initial RI sampling results collected from the previous sample depth interval, the following samples placed on hold were either not analyzed by the lab or the parameters list was modified:

Sample Location ID	Sample Depth Intervals (ft bls)	Parameters Analyzed
RISB-1	7-9	TAL Metals
RISB-2	9-11	None
RISB-3	7-9	None
RISB-4	22-24	None
RISB-5	19-21	None
RISB-6	17-19	None
RISB-7	21-23	None
RISB-8	4-6	Semi-volatile Organic Compounds (SVOCs) and TAL Metals
RISB-8	16.5-18.5	None
RISB-9	4-6	None
RISB-11	15-17	None

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Sample Location ID	Sample Depth Intervals (ft bls)	Parameters Analyzed
RISB-14	15-17	None
RISB-16	5-7	None
RISB-17	15-17	None
RISB-17	18-20	None
RISB-18	10-12	None
RISB-19	7-9	None

Following sample collection, boreholes that were not converted to monitoring wells or soil vapor points were backfilled with soil cuttings and restored with like materials to surrounding grade to the extent possible to minimize drummed waste. All soil borings were surveyed by a licensed New York State surveyor to obtain horizontal and vertical coordinates.

3.3.2 Soil Investigation during the SRI

The RI soil data indicated that thirteen of the nineteen RI soil boring locations required additional sampling to fill data gaps, specifically at depths up to 15 ft bls. The sample locations are shown in Figure 5A. The thirteen SRI soil boring locations were surveyed by a licensed New York State surveyor and marked out in the field prior to implementation of the SRI. Each SRI soil boring location was stepped out approximately two feet from the corresponding RI location to ensure representative sampling.

All soil boring locations were precleared to 5 ft bls using non-intrusive methods, such as hand tools and/or vacuum excavation, to verify the absence of utilities and/or other subsurface features (i.e., obstructions) prior to advancement of soil borings. Soil samples were collected by hand or by utilizing a GeoProbe® Direct-Push Drill Rig. Soil was collected continuously from land surface, including precleared soil from the first 5 feet to the terminal depth of the boring. During advancement of all soil borings, soil lithology was recorded in accordance with the USCS, and soil was inspected for evidence (visual or olfactory) of contamination, including staining and/or odors, and field screened continuously for VOCs using a PID with a 10.6 eV lamp.

The sample intervals were selected for laboratory analysis at each boring location to fill spatial data gaps and evaluate the potential presence of soil contamination. A total of 36 soil samples (including two duplicates) were collected and analyzed from the thirteen SRI soil boring locations. The soil samples were collected as shown on the table below to provide vertical delineation of contamination at the Site.

RI Soil Boring Location	Number of SRI Samples	SRI Sample Analyses	Sample Depth (ft bls)	Sample IDs for Analysis
RISB-2	2	TCL SVOCs TAL Metals	2-4	RISB-2 (2-4)
			4-6	RISB-2 (4-6)

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RI Soil Boring Location	Number of SRI Samples	SRI Sample Analyses	Sample Depth (ft bls)	Sample IDs for Analysis
RISB-3	1	TCL SVOCs TAL Metals	3-5	RISB-3 (3-5)
RISB-5	5	Full Suite TCL+30/ TAL PFAS (40 compound list)	0-2	RISB-5 (0-2)
			2-4	RISB-5 (2-4)
			4-6	RISB-5 (4-6)
			6-8	RISB-5 (6-8)
			8-10	RISB-5 (8-10)
RISB-6	2	TCL SVOCs TAL Metals	2-4	RISB-6 (2-4)
			4-6	RISB-6 (4-6)
RISB-7	2	TCL SVOCs TAL Metals	2-4	RISB-7 (2-4)
			4-6	RISB-7 (4-6)
RISB-8	3	TCL SVOCs TAL Metals	6-8	RISB-8 (6-8)
			8-10	RISB-8 (8-10)
			10-12	RISB-8 (10-12)
RISB-10	2	TCL SVOCs TAL Metals	3-5	RISB-10 (3-5)
			5-7	RISB-10 (5-7)
RISB-13	5	TCL SVOCs TAL Metals	2-4	RISB-13 (2-4)
			4-6	RISB-13 (4-6)
			6-8	RISB-13 (6-8)
			8-10	RISB-13 (8-10)
			10-12	RISB-13 (10-12)
RISB-14	3	TCL SVOCs TAL Metals	3-5	RISB-14 (3-5)
			5-7	RISB-14 (5-7)
			7-9	RISB-14 (7-9)
RISB-15	2	TCL SVOCs TAL Metals	9-11	RISB-15 (9-11)
			11-13	RISB-15 (11-13)

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RI Soil Boring Location	Number of SRI Samples	SRI Sample Analyses	Sample Depth (ft bls)	Sample IDs for Analysis
RISB-17	3	TCL SVOCs TAL Metals	2-4	RISB-17 (2-4)
			4-6	RISB-17 (4-6)
			6-8	RISB-17 (6-8)
RISB-18	3	TCL SVOCs TAL Metals	2-4	RISB-18 (2-4)
			4-6	RISB-18 (4-6)
			6-8	RISB-18 (6-8)
RISB-19	1	TCL SVOCs TAL Metals	3-5	RISB-19 (3-5)

3.4 Groundwater Investigation

3.4.1 Groundwater Investigation during the RI

Eight permanent groundwater monitoring wells (RIMW-1 through RIMW-8) were installed at co-located soil boring locations as shown on Figure 5B. The locations of the on-Site monitoring wells were chosen to enhance general Site coverage and fill a spatial data gap based on the locations of previous groundwater sample locations.

Following installation, the permanent monitoring wells were developed to ensure proper hydraulic connection with the aquifer and to reduce/eliminate turbidity of the groundwater. All monitoring wells were surveyed by a licensed New York State surveyor to obtain horizontal and vertical coordinates. The depth to groundwater in each monitoring well was measured using an electronic water/oil level meter, and a groundwater contour map (Figure 6) was developed using the survey data from permanent monitoring wells.

- Following well development, the monitoring wells were purged consistent with the United States Environmental Protection Agency (USEPA) low-flow sampling requirements, and one round of groundwater samples were collected at least one week following well development in accordance with the QAPP/FSP. Field parameters (e.g., pH, conductivity, turbidity, temperature, dissolved oxygen, and oxidation-reduction potential [ORP]) were collected using a water quality meter during purging and prior to sampling. Groundwater samples were analyzed for TCL/Part 375 VOCs, TCL/Part 375 SVOCs, pesticides, herbicides, Polychlorinated biphenyls (PCBs), TAL/Part 375 total and dissolved metals. In addition, groundwater samples collected from two monitoring wells were analyzed for ECs via USEPA Method 1633. Groundwater samples were not able to be collected from RIMW-2 and RIMW-3 due to the lack of groundwater present in each monitoring well from fluctuating perched groundwater conditions.

3.4.2 Groundwater Investigation during the SRI

The SRI included groundwater sampling from six of the eight existing RI on-Site wells, which were sampled for PFAS Method 1633A (40 compound list) and 1,4-dioxane (RIMW-1, RIMW-4, RIMW-5, RIMW-6, RIMW-7 and RIMW-8). Two of the monitoring wells (RIMW-2 and RIMW-3) were dry and therefore not sampled

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during the SRI. Prior to sampling, the depth to groundwater in each monitoring well was measured using an electronic water level meter. On-site wells listed above were then sampled consistent with USEPA low-flow sampling requirements and NYSDEC guidance, using a peristaltic pump. Field parameters (e.g., pH, conductivity, turbidity, temperature, dissolved oxygen, and oxidation-reduction potential [ORP]) were collected using a water quality meter during purging and prior to sampling.

All groundwater samples were submitted to Eurofins, a NYSDOH ELAP-certified laboratory and analyzed for PFAS Method 1633A (40 compound list) and 1,4-dioxane.

3.5 Soil Vapor Investigation during the RI

To evaluate current soil vapor conditions, Roux installed nine permanent soil vapor points (RISV-1 through RISV-9) using a Geoprobe® direct-push rig to terminal depths ranging from 6 ft bls to 21 ft bls based on the proposed development excavation and/or observed groundwater elevations. The soil vapor locations are shown in Figure 5C. One soil vapor sample was collected from each point, except for RISV-5 and RISV-6 as discussed below. The sample depth at each location is as follows:

Sample Location ID	Sample Depth Interval (ft bls)
RISV-1	4.5 - 5
RISV-2	6.5 - 7
RISV-3	6.5 - 7
RISV-4	15.5 - 16
RISV-7	6.5 - 7
RISV-8	6.5 - 7
RISV-9	6.5 - 7

In accordance with the NYSDOH Guidance, the integrity of each soil vapor point was checked using Helium tracer gas following installation to verify that collected soil vapor samples are not compromised by inadvertent introduction of ambient air into the sample. The soil vapor samples were collected using pre-cleaned (batch certified) 6-liter summa canisters with regulators calibrated to collect samples over an 8-hour period and analyzed using USEPA Method TO-15 for VOCs. Soil vapor samples were unable to be collected from RISV-5 and RISV-6 due to unexpected infiltration of fluctuating perched groundwater into the soil vapor points. All soil vapor locations were surveyed by a licensed New York State surveyor to obtain horizontal and vertical coordinates.

3.6 Laboratory Analysis

Soil, groundwater, and soil vapor samples were collected and analyzed for the parameters listed in Sections 3.3 through 3.5. All RI/SRI data were produced in accordance with NYSDEC ASP Category B deliverables and were reviewed and validated by Data Validation Services, who prepared DUSRs (Appendix D of the RIR). All data was submitted to NYSDEC in electronic format, in accordance with DER-10, Section 1.15.

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4.0 REMEDIAL INVESTIGATION RESULTS

The following section provides a summary of the geological and hydrogeological findings, and the soil, groundwater, and soil vapor quality data that were generated by Roux during the RI and SRI. Data tables with all the data generated during the RI and SRI are provided in Tables 1 through 15. Soil exceedances of applicable criteria are provided in Figure 7. Groundwater exceedances of AWQSGVs are provided in Figure 8. Soil vapor data is provided in Figure 9. Laboratory analytical reports are provided in Appendix H.

4.1 Significant Threat

A significant threat determination to human health and the environment has not yet been made. Upon determination, notice will be provided for public review.

4.2 Geological and Hydrogeological Conditions

The following sections provide a description of the geological and hydrogeological findings of Site as determined by performance of the RI and SRI. A hydrogeologic investigation was conducted to evaluate the subsurface conditions that could influence the nature and extent, possible migration, and remediation of contamination at the Site.

4.2.1 Local Geology And Stratigraphy

Based on field observations during the RI/SRI implementation, the Site is predominantly underlain by fill (consisting of sand, gravel, cobble, brick, asphalt, concrete, wood, organics, plastic, ceramic, and glass) to depths ranging from approximately 1 to 12 ft bls, except at RISB-9 where no fill material was observed. Fill materials overlie native sand with varying amounts of gravel, silt and cobbles. At RISB-15, fibrous material was observed at approximately 7 ft bls. Decomposed bedrock was encountered throughout the Site at depths ranging from approximately 2 ft bls at RISB-16 to 21 ft bls at RISB-13. Soil boring logs are provided in Appendices E and F and hydrogeologic cross sections based on the RI are included as Figures 10 and 11.

4.2.2 Site Hydrogeological Setting

According to water-level data collected from the permanent wells on October 4, 2024, the elevation of the water table at the Site ranges from 19.25 ft to 22.71 ft relative to NAVD 88. The measured depth to groundwater from the land surface at the Site varies from 14.94 ft bls to 22.04 ft bls. A survey was conducted at the Site on March 26, 2024 to record the elevation of each soil boring, monitoring well cover, and soil vapor point (as well as measuring point elevations). According to the survey, the elevation on-Site varies from 35.37 ft in the northwest portion of the Site to 50.03 ft in the southeast portion of the Site relative to NAVD88, which indicates that the Site grade changes by 14.66 ft across the Site. Based on depth-to-groundwater variations and observed fluctuations during RI implementation, perched groundwater conditions appear to be present on-Site. Groundwater gauging data is included as Table 1. A groundwater flow map is provided as Figure 6, showing flow in a western direction towards the Harlem River.

4.3 Identification of Standards, Criteria and Guidance

Standards, Criteria and Guidance (SCGs) are promulgated requirements (“standards” and “criteria”) and non-promulgated guidance (“guidance”) that govern activities that may affect the environment and are used

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by the NYSDEC at various stages in the investigation and remediation of a site. SCGs incorporate both the concept of "applicable or relevant and appropriate requirements" (ARARs) and the "to be considered" (TBCs) category of non-enforceable criteria or guidance, consistent with the United States Environmental Protection Agency (USEPA) remediation programs. The following table provides a list of SCGs potentially applicable to the Site. Key SCGs are discussed in greater detail below.

Citation	Title	Regulatory Agency
General		
ECL Article 27 Title 14 and 6 NYCRR Part 375	Environmental Remediation Programs	NYSDEC
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response	US Department of Labor, OSHA
29 CFR 1926	Safety and Health Regulations for Construction	US Department of Labor, OSHA
TAGM HWR-4031	Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites	NYSDEC
No Citation	Analytical Services Protocol	NYSDEC
DER-10	Technical Guidance for Site Investigation and Remediation	NYSDEC
No Citation	Sampling for 1,4-Dioxane and Per- and Polyfluoroalkyl Substances (PFAS) Under DEC's Part 375 Remedial Programs	NYSDEC
Soil		
6 NYCRR Part 375	Environmental Remediation Programs	NYSDEC
CP-51	Soil Cleanup Guidance	NYSDEC
Groundwater		
6 NYCRR Part 700-705	Surface Water and Ground Water Classification Standards	NYSDEC
TOGS 1.1.1	Ambient Water Quality Standards and Guidance Values (AWQSGVs)	NYSDEC
TOGS 2.1.3	Primary and Principal Aquifer	NYSDEC
Air		
Air Guide No. 1	Guidelines for the control of toxic ambient air contaminants	NYSDEC
No Citation	Final - Guidance for Evaluating Soil Vapor Intrusion in the State of New York	NYSDOH
Solid Waste		
6 NYCRR 360	Solid Waste Management Facilities	NYSDEC
6 NYCRR 364	Waste Transporters	NYSDEC
Hazardous Waste		
6 NYCRR Part 371	Identification and Listing of Hazardous Wastes	NYSDEC
6 NYCRR 372	Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities	NYSDEC
6 NYCRR 376	Land Disposal Restrictions	NYSDEC

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Citation	Title	Regulatory Agency
Site Management		
CP-43	Groundwater Monitoring Well Decommissioning Procedures	NYSDEC
DER-31	Green Remediation	NYSDEC

SCGs for Soil

SCGs for soil at BCP sites are the numerical soil cleanup objectives (SCOs) presented in the Part 375-6.8(a-b) regulations (as revised December 31, 2025). The SCOs are categorized into unrestricted use criteria and restricted use (residential, restricted-residential, commercial, or industrial) criteria, as well as criteria for protection of groundwater and ecological resources. The applicability of each category of soil cleanup objectives is determined based upon the location and current and reasonably anticipated future use of the Site, as well as cleanup tracks being evaluated. SCGs for per- and polyfluoroalkyl substances (PFAS, specifically Perfluorooctanoic acid [PFOA] and Perfluorooctane sulfonic acid [PFOS]) in soil are the Guidance Values presented in the NYSDEC Sampling, Analysis and Assessment of Per-and Polyfluoroalkyl Substances (PFAS) guidance document, last revised April 2023.

The UUSCOs are applicable to the evaluation of an unrestricted use cleanup and are included in this RAWP. The RAWP for the Site will evaluate a Track 1 unrestricted use scenario, as required by DER-10. The RRSCOs are also appropriate for the Site based upon the proposed future mixed residential and commercial land use. The Protection of Groundwater Soil Cleanup Objectives (PGWSCOs) are applicable to those parameters that are present in both soil and groundwater exceeding the applicable standard presented below. Metals observed in groundwater exceeding the applicable standards are naturally occurring, therefore, the PGWSCOs are not applicable for this Site.

SCGs for Groundwater

The document entitled “Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,” issued by the NYSDEC in June 1998 and as amended in 2000, 2004 and 2023, presents the standards that were used to evaluate potential groundwater issues for the Site.

SCG for Soil Vapor

The Final “Guidance for Evaluating Soil Vapor Intrusion in the State of New York,” (NYSDOH SVI Guidance) issued by the NYSDOH in October 2006 and last updated in February 2024, presents the screening levels that were used to evaluate potential soil vapor intrusion issues for the Site.

4.4 Soil/Fill Contamination

The following section provides a summary of the soil quality data that was generated by Roux during the RI and SRI.

Tables 2 through 8 show exceedances from Track 1 UUSCOs as well as Track 2 RRSCOs and PGWSCOs for all soil/fill at the Site. Figure 7 is a spider map that shows the location and summarizes exceedances from Track 1 UUSCOs, as well as Track 2 RRSCOs and PGWSCOs for all soil/fill. Laboratory analytical reports are provided in Appendix H.

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4.4.1 Summary of Soil/Fill Data

A total of 48 soil samples (including field duplicates) were collected and analyzed from 19 soil boring locations during the RI and submitted for laboratory analysis. A total of 36 soil samples (including field duplicates) were collected and analyzed from 13 soil boring locations during the SRI and submitted for laboratory analysis.

Site-wide analytical soil data was compared to the following NYCRR Part 375-6.8 (a-b) SCOs (revised December 31, 2025) as noted in the RIWP and SRIWP in order to evaluate Site-wide soil quality and to determine contamination in soil, if present:

- NYSDEC UUSCOs;
- NYSDEC RRSCOs; and
- NYSDEC PGWSCOs.

4.4.1.1 Volatile Organic Compounds In Soil

A summary of the VOC detections exceeding SCOs in the soil samples analyzed is provided below:

VOC Exceedances of SCOs in Soil

Analyte	UUSCO (mg/kg)	Detections above UUSCOs	RRSCOs (mg/kg)	Detections above RRSCOs	PGWSCOs (mg/kg)	Detections above PGWSCOs	Range in Concentration Above SCOs (mg/kg)	Soil Sample with Maximum Detection
Acetone	0.03	1	100	-	0.03	1	0.056	RISB-13_ (19-21)

– No exceedances detected
mg/kg – milligram per kilograms

Acetone is a common laboratory contaminant, which was the likely cause of the low-level exceedance of acetone that was detected in one of the RI soil samples. There is no indication of a Site-related source.

4.4.1.2 Semivolatile Organic Compounds in Soil

A summary of the SVOC detections exceeding SCOs in the soil samples analyzed is provided below:

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SVOC Exceedances of SCOs in Soil

Analyte	UUSCO (mg/kg)	Detections above UUSCOs	RRSCOs (mg/kg)	Detections above RRSCOs	PGWSCOs (mg/kg)	Detections above PGWSCOs	Range in Concentration Above SCOs (mg/kg)	Soil Sample with Maximum Detection (ft bls)
Benzo[a]anthracene	1	16	1.4	14	1	16	1.2 – 11	RISB-7_0-2
Benzo[a]pyrene	1	16	1	16	22	-	1.1 – 12	RISB-6_0-2
Benzo[b]fluoranthene	1	17	1.4	15	2.1	9	1.3 – 13	RISB-6_0-2
Benzo[g,h,i]perylene	0.64	17	4.9	2	1000	-	0.68J – 9.2	RISB-6_0-2
Benzo[k]fluoranthene	0.8	7	4.9	-	2	2	0.94 – 4.1	RISB-7_0-2
Chrysene	1	16	4.9	3	1	16	1.3 – 11	RISB-7_0-2
Dibenz(A,H)Anthracene	0.33	7	0.33	7	1000	-	0.4 – 1.4	RISB-7_0-2
Indeno [1,2,3-cd] pyrene	0.5	17	1.4	7	6.6	1	0.63J – 6.8	RISB-6_0-2
Phenanthrene	1.1	20	4.9	5	1000	-	1.2J - 16	RISB-7_0-2

- No exceedances detected

J – Estimated value

Sample counts above include exceedances in the duplicates

The SVOCs, exclusively PAHs, detected in soil are indicative of fill material. There were no exceedances of the RRSCOs or PGWSCOs for SVOCs in soil samples collected deeper than observed fill depths. There was only one exceedance of the UUSCOs for SVOCs in soil samples collected deeper than observed fill depths. This singular UUSCO exceedance was phenanthrene at RISB-15 (11-13) at an estimated concentration of 1.2J mg/kg.

4.4.1.3 Metals In Soil

A summary of the metal detections exceeding SCOs in the soil samples analyzed is provided below:

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Metals Exceedances of SCOs in Soil

Analyte	UUSCO (mg/kg)	Detections above UUSCOs	RRSCOs (mg/kg)	Detections above RRSCOs	PGWSCOs (mg/kg)	Detections above PGWSCOs	Range in Concentration Above SCOs (mg/kg)	Soil Sample with Maximum Detection (ft bls)
Arsenic	13	3	16	2	16	2	13.9 – 20.7	RISB-17 (4-6) DUP
Barium	410	7	410	7	820	2	427 – 2340	RISB-2 (2-4)
Beryllium	4.4	19	43	-	47	-	4.91 – 25.5	RISB-13_19-21
Chromium, Hexavalent	1	4	1	4	19	-	1.08J – 11.8	RISB-15 (9-11)
Chromium, Total	30	20	110	-	-	-	30.2 – 67.5	RISB-17 (4-6) DUP
Copper	50	8	280	-	1720	-	50.5 – 138	RISB-15_0-2
Lead	63	34	400	9	450	6	70.2 – 2910	RISB-15 (9-11)
Manganese	1600	2	2000	2	2000	2	2060 - 2610	RISB-10_17-19
Mercury	0.18	15	0.3	9	0.73	4	0.203 – 37.9	RISB-18 (2-4)
Nickel	30	5	320	-	130	-	31.6 – 57.5	RISB-10_17-19
Zinc	109	48	6600	-	2480	-	113 – 975	RISB-1_5-7

- No exceedances detected/no SCO available
J – Estimated value
Sample counts above include exceedances in the duplicates

The metals detected in shallow soil are indicative of fill material. Metals detected in exceedance of UUSCOs in soil from samples collected deeper than observed fill depths are beryllium, total and hexavalent chromium, manganese, nickel and zinc. There were no metal exceedances of RRSCOs or PGWSCOs detected in soil from samples collected deeper than observed fill depths, with the exception of manganese in RISB-10_17-19, which was collected from a sample depth comprised mostly of decomposed bedrock, and hexavalent chromium detected at estimated concentrations at RISB-6 15-17 and RISB-7 19-21.

4.4.1.4 Polychlorinated Biphenyls in Soil

A summary of PCB exceedances in soil samples is provided below:

Polychlorinated Biphenyl (PCB) Exceedances of SCOs in Soil

Analyte	UUSCO (mg/kg)	Detections above UUSCOs	RRSCOs (mg/kg)	Detections above RRSCOs	PGWSCOs (mg/kg)	Detections above PGWSCOs	Range in Concentration Above SCOs (mg/kg)	Soil Sample with Maximum Detection (ft bls)
PCBs	0.1	2	1	-	3.2	-	0.164 – 0.175	RISB-8 2-4

- No exceedances detected

PCBs in exceedance of the UUSCOs were detected in two soil samples. There were no exceedances of the respective RRSCOs or PGWSCOs. The PCBs detected in soil are indicative of fill material.

4.4.1.5 Pesticides and Herbicides in Soil

A summary of the Pesticide and Herbicide detections exceeding SCOs in the soil samples analyzed is provided below:

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Pesticide and Herbicide Exceedances of SCOs in Soil

Analyte	UUSCO (mg/kg)	Detections above UUSCOs	RRSCOs (mg/kg)	Detections above RRSCOs	PGWSCOs (mg/kg)	Detections above PGWSCOs	Range in Concentration Above SCOs (mg/kg)	Soil Sample with Maximum Detection (ft bls)
Cis-Chlordane	0.014	3	0.65	-	4.5	-	0.0178 – 0.0892	RISB-1_5-7
Dieldrin	0.005	2	0.075	-	0.1	-	0.00557 J – 0.00864	RISB-15_5-7
4,4'-DDD	0.0033	3	5	-	14	-	0.00445 – 0.00758	RISB-1_0-2
4,4'-DDE	0.0033	25	3.4	-	9.3	-	0.00341 – 0.7	RISB-1_5-7
4,4'-DDT	0.0033	26	3.8	-	135	-	0.00351 – 0.841	RISB-1_5-7

- No exceedances detected
J – Estimated value

No herbicides exceeded the RRSCOs or PGWSCOs. The pesticides detected in soil in exceedance of the UUSCOs may be attributed to the presence of fill and/or historical surficial pesticide application.

4.4.1.6 Emerging Contaminants in Soil

A summary of the emerging contaminants detections exceeding SCOs in the soil samples analyzed is provided below:

Emerging Contaminants Exceedances in Soil

Analyte	Unrestricted Use Soil Guidance Value (µg/kg)	Detections above Unrestricted Use Soil Guidance Values	Restricted Residential Soil Guidance Value (µg/kg)	Detections above Restricted Residential Soil Guidance Values	Protection of Groundwater Soil Guidance Value (µg/kg)	Detections above Protection of Groundwater Soil Guidance Values	Range in Concentration Above Soil Guidance Values (µg/kg)*	Soil Sample with Maximum Detection (ft bls)
Perfluorooctanesulfonic acid (PFOS)	0.88	3	44	-	1	2	0.926 – 2.29	RISB-2 0-2
Perfluorooctanoic acid (PFOA)	0.66	3	33	-	0.8	3	0.981 – 1.31	RISB-3 0-2

µg/kg – microgram per kilogram

* NYSDEC has published soil guidance values (not SCOs) for two PFAS compounds: PFOA and PFOS. These guidance values will be used to evaluate concentrations of these two compounds. The other PFAS compounds do not have SCOs or guidance values.

1,4-Dioxane and the 40 PFAS compounds were not detected at concentrations exceeding the Restricted Residential GVs. Only four shallow 0-2 ft interval soil samples exhibited PFOS or PFOA at concentrations exceeding the Unrestricted Use GVs and Protection of Groundwater GVs during the RI/SRI. Soil samples deeper than the observed fill material were collected and analyzed for PFOS and PFOA at the two soil boring locations with exceedances in the 0-2 ft interval (RISB-4 and RISB-17). There were no detections of PFOS or PFOA in deeper soil samples collected during the RI/SRI. There is no documented use of PFAS at the Site or any known historical Site operations that would indicate the potential use of these compounds. Therefore, the presence of PFAS is likely due to fill.

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4.4.2 Comparison of Soil/Fill with SCGS

In summary, the data generated during the RI and SRI indicate the following about Site-wide conditions:

- VOCs were not detected in soil at concentrations above their applicable UUSCOs, RRSCOs, and/or PGWSCOs across the Site, except for one exceedance of acetone, a common laboratory contaminant.
- SVOCs, exclusively PAHs, were detected at concentrations above their applicable UUSCOs, RRSCOs, and/or PGWSCOs in the fill material present across the Site.
- Metals were detected in soil at concentrations above applicable UUSCOs, RRSCOs, and/or PGWSCOs across the Site. Arsenic, barium, beryllium, hexavalent chromium, total chromium, copper, lead, manganese, mercury, nickel, and zinc were detected at concentrations above their applicable UUSCOs. Arsenic, barium, hexavalent chromium, lead, manganese and mercury were detected at concentrations exceeding their applicable RRSCOs. Metals contamination in shallow soil is likely related to the presence of fill material at the Site. The metal exceedances of UUSCOs detected deeper than the observed fill depth include beryllium, total and hexavalent chromium, manganese, nickel and zinc.
- PCBs were detected (above UUSCOs, but below RRSCOs and PGWSCOs) in two soil samples collected from the same boring during the RI and are likely related to the presence of fill material at the Site.
- Pesticides were detected at concentrations exceeding their applicable UUSCOs but not their respective RRSCOs. Pesticide concentrations exceeding UUSCOs are limited to the observed fill interval and may be a result of fill and/or historical surficial pesticide application. There were no herbicides detected at concentrations exceeding any applicable SCOs.
- PFAS compounds were detected above soil GVs in four shallow soil samples collected as part of the RI/SRI. There is no documented use of PFAS at the Site or any known historical Site operations that would indicate the past use of these compounds. PFOS and PFOA were only detected in samples collected from the shallow 0-2 ft soil interval during the RI/SRI and are likely due to fill material. Soil samples deeper than the observed fill material were collected and analyzed for PFOS and PFOA at two of the soil boring locations with exceedances in the 0-2 ft interval (RISB-4 and RISB-17). There were no detections of PFOS or PFOA in the deeper samples collected during the RI.

Tables 2 through 8 show exceedances from Track 1 UUSCOs as well as Track 2 RRSCOs and PGWSCOs for all soil/fill at the Site. Figure 7 is a spider map that shows the location and summarizes exceedances from Track 1 UUSCOs, as well as Track 2 RRSCOs and PGWSCOs for all soil/fill.

4.5 Groundwater Contamination

The following section provides a summary of the groundwater quality data that was generated by Roux during the RI/SRI.

Tables 9 through 14 shows exceedances of AWQSGVs in monitoring wells prior to the remedy. A spider map that indicates the locations of and summarizes exceedances of AWQSGVs prior to the remedy is shown in Figure 8. Laboratory analytical reports are provided in Appendix H.

4.5.1 Summary of Groundwater Data

Six groundwater samples (and one field duplicate) were collected from six of the eight groundwater monitoring wells during the RI. Addtionally, six groundwater samples (and one field duplicate) were collected from six of the eight monitoring wells during the SRI. The Site-wide analytical groundwater data

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was compared to NYSDEC AWQSGVs for Class GA groundwater as noted in the RIWP and SRIWP to evaluate groundwater quality and to determine the contamination in groundwater, if present. However, it should be noted that the groundwater beneath the Site is not currently used as a drinking water source and will not be used in the future.

Analytes that exceeded NYSDEC PGWSCOs in Site-wide soil were compared to analyte detections in Site-wide groundwater to assess whether, and to what extent, constituents detected in soil are impacting groundwater quality. An evaluation of soil exceedances and groundwater detections is provided in the below sections.

A summary of groundwater quality results is provided in the below sections.

4.5.1.1 Volatile Organic Compounds in Groundwater

There were no VOC exceedances in any of the RI groundwater samples.

4.5.1.2 Semivolatile Organic Compounds in Groundwater

A summary of the SVOC exceedances in the groundwater samples analyzed is provided below:

SVOC Exceedances of AWQSGVs in Groundwater

Analyte	AWQSGVs (µg/L)	Detections above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
Phenol	1	1	1.3J	RIMW-8

J – Estimated value
µg/L – microgram per liter

One minor SVOC exceedance of phenol (estimated value) was detected in one RI groundwater sample. There were no phenol exceedances of the relevant PGWSCO in any of the RI/SRI soil samples.

4.5.1.3 Metals in Groundwater

A summary of the metals exceedances in the groundwater samples analyzed is provided below:

Metals Exceedances of AWQSGVs in Groundwater

	Analyte	AWQSGVs (µg/L)	Detections above AWQSGVs	Range in Concentration Above AWQSGVs (µg/L)	Sample with Maximum Detection
Total	Iron	300	1	751	RIMW-7
	Magnesium	35000	7	35,300 – 85,700	RIMW-7
	Sodium	20,000	6	25,700 – 116,000	RIMW-8
Dissolved	Magnesium	300	6	41,900 – 82,300	RIMW-7
	Sodium	20,000	6	25,600 – 109,000	RIMW-8

Sample counts above include exceedances in the duplicates.

All of the metals detected above AWQSGVs during the RI are naturally occurring, and these data do not indicate that metals in soil are a source of groundwater impacts.

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4.5.1.4 Polychlorinated Biphenyls in Groundwater

PCBs were not detected in any of the RI groundwater samples.

4.5.1.5 Pesticides and Herbicides in Groundwater

Pesticides and Herbicides were not detected in any of the RI groundwater samples.

4.5.1.6 PFAS in Groundwater

A summary of the PFOS and PFOA detections exceeding AWQSGVs are provided in the table below:

PFAS Exceedances of AWQSGVs in Groundwater (in nanograms per liter [ng/L])

Analyte	AWQSGVs (ng/L)	Detections Above AWQSGVs	Detection Range (ng/L)	Groundwater Sample with Maximum Detection
PFOS	2.7	10	5.3EMPC – 25.5	RIMW-6
PFOA	6.7	10	14.2 – 50	RIMW-1

EMPC – Estimated maximum possible concentration
Sample counts above include exceedances in the duplicates.

There is no documented use of PFAS at the Site or any known historical Site operations that would indicate the use of these compounds. Therefore, the presence of PFAS is due to background levels of these compounds in New York City.

4.5.2 Comparison of Groundwater with SCGS

In summary, the data generated during the RI and PDI indicate the following about Site-wide conditions:

- No VOCs were detected in groundwater samples.
- Only one minor SVOC exceedance of phenol (1.3J ug/L) was detected in one groundwater sample that exceeded its AWQSGV of 1 ug/L. Phenol was not detected above its applicable PGWSCO in soil.
- All of the metals detected above AWQSGVs during the RI are naturally occurring, and these data do not indicate that metals in soil are a source of groundwater impacts.
- PCBs were not detected in any groundwater samples collected during the RI.
- Pesticides and herbicides were not detected in any of the groundwater samples collected during the RI.
- PFOS and PFOA were detected in groundwater exceeding AWQSGVs across the Site. There is no documented use of PFAS at the Site and no known historical Site use that would indicate the past use of these compounds. Therefore, the presence of PFAS is due to background levels of these compounds in New York City.

4.6 Soil Vapor Contamination

The following section provides a summary of the soil vapor quality data that was generated by Roux during the RI.

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A table of soil vapor data collected prior to the remedy is shown in Table 15. A spider map that indicates the locations of and summarizes soil vapor data prior to the remedy is shown in Figure 9. Laboratory analytical reports are provided in Appendix H.

VOC Detections in Soil Vapor

Analyte	Detections	Range in Concentrations (µg/m^3)	Sample with Maximum Detection
1,2,4-Trimethylbenzene	8	125 – 287	RISV-4
1,3,5-Trimethylbenzene (Mesitylene)	8	58 – 150	RISV-8
1,3-Butadiene	1	4.69	RISV-4
2,2,4-Trimethylpentane (Isooctane)	8	107 – 38200	RISV-8
4-Ethyltoluene	8	23.8 – 83.1	RISV-8
Acetone	8	23.8 – 165	RISV-4
Benzene	8	1.55 – 111	RISV-8
Carbon Disulfide	7	0.968 – 170	RISV-4
Chloroform	7	3.69 – 30.1	RISV-7
Cyclohexane	8	36.1 – 1750	RISV-8
Dichlorodifluoromethane	7	2.11 – 3.56	RISV-7 FD
Ethylbenzene	8	48.2 – 3270	RISV-8
Isopropanol	4	1.37 – 3.69	RISV-7
m,p-Xylene	8	178 – 8170	RISV-8
Methyl Ethyl Ketone (2-Butanone)	6	2.48 – 4.19	RISV-7
Naphthalene	6	1.21 – 18.1	RISV-4
N-Heptane	8	43.4 – 4340	RISV-8
N-Hexane	8	15 – 599	RISV-8
O-Xylene (1,2-Dimethylbenzene)	8	128 – 7690	RISV-8
Tert-Butyl Alcohol	7	5.43 – 36.4	RISV-4
Tetrachloroethylene (PCE)	7	10.7 – 21.8	RISV-4
Tetrahydrofuran	1	6.31J	RISV-7 FD
Toluene	8	46.4 – 4450	RISV-8
Trans-1,2-Dichloroethene	3	1.13 – 7.73J	RISV-7
Trichlorofluoromethane	5	1.21 – 2.12	RISV-7 FD

FD - Field Duplicate
J – Estimated value
µg/m^3 – microgram per cubic meter

Analytical data for soil vapor indicate detections of 25 different VOCs, consisting primarily of petroleum-related VOCs and CVOCs, in soil vapor across the Site.

4.6.1 Comparison of Soil Vapor with SCGS

The following CVOCs are discussed because they are included in the NYSDOH SVI Guidance for Matrices A through C.

- Matrix A provides guidance relative to Trichloroethylene (TCE), Cis-1,2-Dichloroethylene (Cis-1,2-DCE), 1,1-Dichloroethylene (1,1-DCE), and Carbon Tetrachloride;
- Matrix B provides guidance relative to Tetrachloroethylene (PCE), 1,1,1-Trichloroethane (1,1,1-TCA), and Methylene Chloride; and
- Matrix C provides guidance relative to Vinyl Chloride.

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The following petroleum-related VOCs are discussed because they are included in the NYSDOH SVI Guidance Matrices D through F.

- Matrix D provides guidance relative to Benzene, Ethylbenzene, Naphthalene, Cyclohexane, Isooctane (2,2,4-Trimethylpentane), 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and O-Xylene;
- Matrix E provides guidance relative to m,p-Xylene, N-Heptane, and N-Hexane; and
- Matrix F provides guidance relative to Toluene.

A summary of the detections is described below.

Matrix A Compounds

- TCE, Carbon Tetrachloride, Cis-1,2-DCE and 1,1-DCE were not detected in any soil vapor samples.

Matrix B Compounds

- PCE was detected in seven soil vapor samples, ranging in concentration from 10.7 µg/m^3 to 21.8 µg/m^3, with a maximum detection in soil vapor sample RISV-4.
- 1,1,1-TCA and Methylene Chloride were not detected in any soil vapor samples.

Matrix C Compound

- Vinyl Chloride was not detected in any soil vapor samples.

Matrix D Compounds

- Benzene was detected in eight soil vapor samples, ranging in concentration from 1.55 µg/m^3 to 111 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- Ethylbenzene was detected in eight soil vapor samples, ranging in concentration from 48.2 µg/m^3 to 3270 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- Naphthalene was detected in six soil vapor samples, ranging in concentration from 1.21 µg/m^3 to 18.1 µg/m^3, with a maximum detection in soil vapor sample RISV-4.
- Cyclohexane was detected in eight soil vapor samples, ranging in concentration from 36.1 J µg/m^3 to 1750 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- Isooctane (2,2,4-trimethylpentane) was detected in eight soil vapor samples, ranging in concentration from 107 µg/m^3 to 38200 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- 1,2,4-Trimethylbenzene was detected in eight soil vapor samples, ranging in concentration from 125 µg/m^3 to 287 µg/m^3, with a maximum detection in soil vapor sample RISV-4.
- 1,3,5-Trimethylbenzene was detected in eight soil vapor samples, ranging in concentration from 58 µg/m^3 to 150 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- O-xylene was detected in eight soil vapor samples, ranging in concentration from 128 µg/m^3 to 7690 µg/m^3, with a maximum detection in soil vapor sample RISV-8.

Matrix E Compounds

- m,p-Xylene was detected in eight soil vapor samples, ranging in concentration from 178 µg/m^3 to 8170 µg/m^3, with a maximum detection in soil vapor sample RISV-8.

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- Heptane was detected in eight soil vapor samples, ranging in concentration from 43.4 µg/m^3 to 4340 µg/m^3, with a maximum detection in soil vapor sample RISV-8.
- Hexane was detected in eight soil vapor samples, ranging in concentration from 15 µg/m^3 to 599 µg/m^3, with a maximum detection in soil vapor sample RISV-8.

Matrix F Compound

- Toluene was detected in eight soil vapor samples, ranging in concentration from 46.4 µg/m^3 to 4450 µg/m^3, with a maximum detection in soil vapor sample RISV-8.

The CVOCs and petroleum-related VOCs detected in soil vapor were not detected above the AWQSGVs in groundwater or above any SCOs in soil during the RI. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCs, the RI soil vapor detections are most likely related to off-site sources.

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5.0 CONCEPTUAL MODEL OF SITE CONTAMINATION

This section explains the occurrence of contaminants and their fate and transport at the Site in the context of the local Site stratigraphy and hydrogeology.

Based on results of the Phase II ESA and RI/SRI, shallow soil is impacted across the Site. Groundwater results indicate groundwater at the Site is not significantly impacted. Soil vapor at the Site has low-level concentrations of certain CVOCs and/or petroleum-related VOCs. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCS, the RI soil vapor detections are likely attributable to off-site sources. The spatial distribution of contaminants of potential concern in various media are shown in Figure 7 through Figure 9.

Based on the Site-wide detections and exceedances of UUSCOs, soil at the Site is impacted with SVOCs (exclusively PAHs), metals, PCBs, pesticides and PFAS, likely due to the historical emplacement of contaminated fill material across the Site. As inferred based on results of the Phase II ESA and supplemented by the results of the RI/SRI, the terminal depth of fill across the Site varies from approximately 1 to 12 ft bls, except at RISB-9 where no fill was observed. The metals detected in exceedance of UUSCOs in soil from samples collected deeper than observed fill depths are beryllium, total and hexavalent chromium, manganese, nickel and zinc. There were no metal exceedances of RRSCOs or PGWSCOs detected in soil from samples collected deeper than observed fill depths, with the exception of manganese in RISB-10 17-19, which was collected from a sample depth comprised mostly of decomposed bedrock, and hexavalent chromium detected at estimated concentrations at RISB-6 15-17 and RISB-7 19-21. The remedy selected for the Site will address all soil detections above applicable SCOs.

Groundwater is not significantly impacted. No VOC compounds, pesticides, herbicides, or PCBs were detected in groundwater in exceedance of applicable AWQSGVs. Only one minor SVOC exceedance of phenol (1.3J ug/L) was detected in one groundwater sample that exceeded its AWQSGV of 1 ug/L, but phenol was not detected above its PGWSCO in soil. All metals detected above AWQSGVs in groundwater samples are naturally occurring.

PFAS compounds were detected in soil samples and in all groundwater samples collected during the RI/SRI. There is no documented use of PFAS at the Site or any known historical Site operations that would indicate the use of these compounds. The soil GV exceedances of PFOS and PFOA in soil samples collected from the 0-2 ft interval is likely due to fill material. Soil samples deeper than the observed fill material were collected and analyzed for PFOS and PFOA at two of the soil boring locations with exceedances in the 0-2 ft interval (RISB-4 and RISB-17). There were no detections of PFOS or PFOA in the deeper soil samples collected during the RI. Although there is a lack of known historic usage and lack of PFAS in soil, except for the few exceedances of PFOS and PFOA in shallow soil, PFOS and PFOA are present in groundwater samples exceeding their respective AWQSGVs.

Low-level CVOCs and petroleum-related VOCs were detected in soil vapor samples across the Site. The CVOCs and petroleum-related VOCs detected in soil vapor were not detected above the AWQSGVs in groundwater or above any SCOs in soil during the RI/SRI. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCs, the RI soil vapor detections are most likely related to off-site sources.

Soil vapor intrusion may be a concern for the Site, and mitigation measures will be evaluated in this RAWP.

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6.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

As described in Appendix 3B of DER-10, *"The overall purpose of the Qualitative Human Health Exposure Assessment (or the exposure assessment) is to evaluate and document how people might be exposed to site related contaminants, and to identify and characterize the potentially exposed population(s) now and under the reasonably anticipated future use of the site."* The following section details the Qualitative Human Health Exposure Assessment based on data discussed in previous sections of this RAWP.

6.1 Soil Exposure

Soil samples collected during the RI and SRI indicated the presence of SVOCs, metals, PCBs, pesticides and PFOS/PFOA at concentrations above the NYSDEC UUSCOs or GVs. Individuals could be exposed to these contaminants through direct contact with soil during ground-intrusive work at the Site if they do not take precautionary measures to protect themselves as will be required during the BCP remediation. Direct contact without the use of proper personal protective equipment (PPE) and personal hygiene measures could lead to dermal contact and incidental ingestion of these compounds. Since the Site is currently fully fenced and will be fully fenced during construction activities, and access is controlled, potential contact with Site soil is restricted to remedial and construction contract workers at the Site performing ground-intrusive activities in addition to trespassers and passersby (through potential particulate matter in the air) to the extent the dust control measures are not implemented. The general public will not be exposed to direct contact with Site soil. CAMP and dust control measures will be implemented during intrusive activities to minimize the potential for offsite exposures by controlling soil/dust/vapor from leaving the Site.

6.2 Groundwater Exposure

Groundwater samples collected during the RI and SRI indicated that one SVOC (phenol), metals, and PFOS/PFOA are present at concentrations above the NYSDEC AWQSGVs. Exceedances for dissolved metals, however, were limited to magnesium and sodium, which are assumed to be naturally occurring. Groundwater is not used for drinking or other potable purposes pursuant to a local prohibition (the area is connected to the public water supply), and there is no direct contact with or ingestion of groundwater by the general public. Furthermore, no public water supply wells are located in the area surrounding the Site.

Individuals who perform intrusive work (i.e., utility construction and/or repair), perform groundwater sampling, or remedial activities may come into contact with contaminated groundwater. Proper PPE and personal hygiene measures will be required to prevent dermal contact and the potential for incidental ingestion of these compounds. Depth to groundwater on-Site ranges from 14.94 ft bls to 22.04 ft bls, with a fluctuating perched water table observed during the RI. Groundwater may be encountered during redevelopment depending on the final, selected remedy.

The proposed on-Site buildings will be serviced by the public water supply. Based on this, there is no public exposure pathway for contaminated groundwater, and the exposure pathway for workers with potential direct contact with contaminated groundwater will be reduced or eliminated via implementation of the HASP.

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6.3 Soil Vapor Exposure

Soil vapor samples collected during the RI indicated the presence of petroleum-related VOCs and CVOCs across the Site. Based on the RI/SRI soil and groundwater results indicating there is no on-site source for VOCs, the elevated concentrations are likely due to off-site sources.

Individuals who perform ground-intrusive work and passersby during the remedial action may be exposed to contaminated soil vapor, if HASP and CAMP measures are not employed. CAMP and odor/vapor control measures will be implemented during intrusive activities to minimize the potential for offsite exposures from vapors leaving the Site during the remedial action.

Soil vapor intrusion could be a concern for the occupants in the future on-Site building, if soil vapor intrusion mitigation measures are not proposed. Therefore, soil vapor mitigation measures will be considered as part of the remedy.

The following table summarizes the exposure assessment.

Environmental Media and Exposure Route	Human Exposure Assessment
Direct contact with subsurface soils (and incidental ingestion)	• Construction and remedial contractors can come into contact with soil if they complete ground intrusive work at the Site and have not implemented measures to protect themselves pursuant to a HASP. • During remediation, remedial workers, trespassers, passersby, and utility workers could come into contact with contaminated soil contained in dust through inhalation, incidental ingestion, and dermal contact. Implementation of the HASP, and dust controls during the remedial action and any future ground intrusive activities will mitigate potential exposures for future Site workers, occupants, and the surrounding neighborhood. In addition, implementation of the CAMP during the remedial action and any future ground-intrusive activities will mitigate potential exposures for the surrounding neighborhood. • Proper PPE and personal hygiene measures, as defined in the HASP, will be required to prevent dermal contact and the potential for incidental ingestion of impacted soil during construction. • Future building occupants' exposure will be eliminated by addressing contaminated soil through excavation as part of the proposed remedy.
Ingestion of groundwater	• Groundwater is not and will be not used for drinking water, as any future buildings proposed on the Site will be connected to the public water supply.
Direct contact with groundwater (and incidental ingestion)	• Remedial workers, trespassers, and utility workers could come into contact with contaminated groundwater through dermal contact and incidental ingestion during ground intrusive work if they have not implemented measures to protect themselves. • Proper PPE and personal hygiene measures, as defined in the HASP, will be required to prevent dermal contact and the potential for incidental ingestion of impacted groundwater during construction. • Future exposure to Site groundwater will be eliminated by the redevelopment that covers the entire Site.

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Environmental Media and Exposure Route	Human Exposure Assessment
Inhalation of air (exposures related to soil vapor intrusion)	• Remedial workers, trespassers, and utility workers may be exposed to contaminated soil vapor during ground intrusive activities if they do not protect themselves through implementation of the HASP. • Based on the RI/SRI soil and groundwater data, there is no on-site source for VOCs; therefore, there is currently no potential for on-site soil vapor to impact off-site receptors. Exposures to workers and passersby during the remedial action and future ground-intrusive activities will be reduced or eliminated through implementation of the HASP, and odor/vapor controls during construction. CAMP is not intended for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community from potential airborne contaminant releases as a direct result of investigative and remedial work activities. • Future indoor air exposure will be reduced or eliminated through installation of soil vapor mitigation measures.

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7.0 FISH AND WILDLIFE REMEDIAL IMPACT ANALYSIS

The RI/SRI for this Site did not identify fish and wildlife resources; therefore, a fish and wildlife assessment was not required for this Site.

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8.0 INTERIM REMEDIAL ACTION

To date, Interim Remedial Action has not been performed at the Site.

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9.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

9.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.

9.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

9.3 Soil Vapor

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

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10.0 DESCRIPTION OF REMEDIAL ACTION PLAN

The following is a detailed description of the alternatives analysis and remedy selection process to address impacted media on the Site.

This section of the RAWP was prepared in accordance with Subpart 375-3.8(f), Subpart 375-1.8(f), and Section 4.3 of DER-10. As required, a minimum of two remedial alternatives (one being an unrestricted use scenario) are evaluated, as follows:

- One alternative (Remedial Alternative 1) that will achieve an Unrestricted Use cleanup relative to all on-site soil (Track 1), as shown on Figure 12, without the use of institutional controls (ICs) or engineering controls (ECs); and
- One alternative (Remedial Alternative 2) that will achieve a Track 2 Restricted Residential Use cleanup for the Site, as shown on Figure 13 with the use of ICs and ECs.

Remedial Alternative 1: Track 1 Unrestricted Use Cleanup (Figure 12):

- Installation of support of excavation (SOE) to support the proposed remedial excavation depths.
- For remedial purposes, the estimated excavation and disposal of soil to achieve Track 1 Unrestricted Use cleanup is approximately 26,330 CY. The limits and approximate depths of the remedial excavation to 24 feet below grade are shown on Figure 12.
- Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work.
- Appropriate 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.
- To evaluate the performance of the remedy with respect to attainment of Track 1 UUSCOs, collection and analysis of post-excavation bottom confirmation endpoint samples at a frequency of one per 900 square feet to document that the SCOs were met. Based on this frequency, a total of 33 bottom endpoint samples would be required. Sidewall samples are not required where excavation extends to the property line.
- Backfill and compaction of clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in (if needed) to replace the excavated soil and establish the designed grades at the Site. Backfill and compaction of clean fill meeting UUSCOs, shall be in compliance with: (1) chemical limits and other specifications included in Table 18, (2) all Federal, State and local rules and regulations for handling and transport of material.
- Dewatering will be required to complete the remedial excavation. Dewatering will be conducted in compliance with city, state, and federal laws and regulations. Extracted groundwater will either be containerized for off-Site licensed or permitted disposal or will be treated on-Site under an NYSDEC SPDES equivalency permit and site connection permit from New York City Department of Environmental Protection to meet pretreatment requirements prior to discharge to a storm sewer system discharging to an outfall.
- As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

Remedial Alternative 2: Track 2 Restricted Residential Use Cleanup (Figure 13):

- Installation of SOE to support the proposed remedial excavation depths. SOE will be installed for excavations with a final depth of 4 feet or more. Interior excavation sidewalls may be sloped or benched to achieve the proposed excavation depths.

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- Excavation and offsite disposal of a total of approximately 4,300 CY of soil (i.e., all soil exceeding RRSCOs up to 15 ft bls over the entire Site. The anticipated remedial excavation depth will range from 2 ft to 11 ft bls (actual volume is subject to change based on observed field conditions, SOE requirements, and post-excavation endpoint sampling).
- Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work.
- Appropriate 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.
- Collection and analysis of post-excavation bottom documentation endpoint samples at a frequency of one per 900 square feet and post-excavation sidewall documentation endpoint samples at a frequency of one per 30 linear feet. Based on this frequency, a total of 35 bottom and 22 sidewall documentation endpoint samples would be required. The sidewall samples are located in between the remedial excavation grids with a difference in excavation depth of 2 ft or more. Sidewall samples are not required where excavation extends to the property line or SOE precludes sample collection.
- Backfill and compaction of clean fill meeting the lower of PGWSCOs or RRSCOs, if necessary. Import of materials to be used for backfill and cover shall be in compliance with: (1) chemical limits and other specifications included in Table 18, (2) all Federal, State and local rules and regulations for handling and transport of material.
- Dewatering is not expected to be required to complete the remedial excavation because the depth to groundwater is deeper than the proposed excavation depths. In the event that dewatering is required, it will be in compliance with city, state, and federal laws and regulations. As applicable, extracted groundwater will either be containerized for off-Site licensed or permitted disposal or will be treated on-Site under an NYSDEC SPDES equivalency permit and site connection permit from New York City Department of Environmental Protection to meet pretreatment requirements prior to discharge to a storm sewer system discharging to an outfall.
- Installation of a 20-mil vapor barrier below the foundation slab as part of the site construction.
- Installation of a passive sub-slab depressurization system (SSDS) with permanent sub-slab soil vapor sampling points. Indoor air and sub-slab soil vapor sampling will be completed, as part of an SVI Assessment following completion of the building, to determine if additional actions are necessary to address the potential for exposure via the SVI pathway. The passive SSDS system will have the capability to be converted to an active system, if the results of the assessment warrant it.
- Imposition of an institutional control in the form of an Environmental Easement for the Site to ensure proper site use and to prevent future exposure to any residual contamination remaining in these areas.
    - requires the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
    - allows the continued use and development of the controlled property for restricted residential (or less restrictive uses) 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 the NYSDOH or Article 141 of the NYCDOH code (groundwater restriction applies to the entire Site); and
    - requires compliance with the Department approved SMP.

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- An SMP is required for all portions of the Site since a Track 1 Unrestricted Use cleanup will not be achieved, which includes the following:
    - an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
    - Institutional Controls: The Environmental Easement discussed above.
    - Engineering Controls: The passive SSDS (activatable) and vapor sampling points discussed above.
    - a Monitoring Plan to assess the performance and effectiveness of the remedy, including, if necessary, monitoring for vapor intrusion for any buildings constructed on the Site.

10.1 Evaluation of Remedial Alternatives

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended, and reasonably anticipated future use of the property and other evaluation factors. Each remedial alternative is evaluated based on the factors listed below:

- Protection of human health and the environment;
- Compliance with standards, criteria, and guidelines (SCGs);
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance;
- Green and Sustainable Remediation (including climate resiliency); and
- Land use.

10.1.1 Overall Protection of Human Health and Environment

This criterion is an evaluation of the ability of each alternative or the remedy to protect public health and the environment.

Remedial Alternative 1, Track 1 will be protective of human health and the environment by removing all soil at the Site that exceeds the UUSCOs and backfilling the area with material meeting the UUSCOs (as necessary), thereby eliminating the potential for human and environmental exposure to contaminated soil/fill once construction is complete.

Remedial Alternative 2, Track 2 will be protective of human health and the environment by excavating and removing all soil above the RRSCOs to 15 ft bls within the Track 2 area and addressing residual contamination in soil exceeding UUSCOs with the implementation of ICs. ICs, in the form of a SMP and an Environmental Easement, will ensure long-term management of use restrictions for the Site. As an EC, a passive SSDS beneath the building footprint and permanent sub-slab soil vapor monitoring points will be installed to address residual soil vapor contamination. Indoor air and sub-slab soil vapor sampling will be

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completed, as part of an SVI Assessment following completion of the building, to determine if additional actions are necessary to address exposure via the SVI pathway. The passive SSDS system will have the capability to be converted to an active system, if the results of the assessment warrant it. An Environmental Easement will describe the actions to prohibit the use of groundwater as a source of potable or process water, without necessary water quality treatment, as determined and approved by the NYSDOH. The Site will be connected to the municipal water company and the use of groundwater beneath the Site is not expected considering a local prohibition.

During Site remediation (e.g., excavation of soil, etc.) and other construction activities performed pursuant to any of the Remedial Alternatives described above, workers may be exposed to impacted soil and soil vapor. Potential worker exposure during remediation activities will be mitigated through the implementation of the HASP, which includes the CAMP, and required worker training. Potential environmental exposures will be mitigated by implementing controls (e.g., dust suppression, odor control, and traffic control) during remedial construction. The SMP will describe the necessary ICs and ECs to be implemented during future ground-intrusive work to protect the workers and public from remaining on-Site contamination.

10.1.2 Standards, Criteria, and Guidance

The remedy must conform to officially promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance as appropriate.

Remedial Alternative 1 will achieve compliance with the UUSCOs in soil for all on-Site areas. The handling and management of contaminated materials will be in compliance with the applicable SCGs. The excavation would be backfilled with material meeting the Track 1 UUSCOs presented in the Part 375 Regulations.

Remedial Alternative 2 will achieve compliance with the RRSCOs to 15 ft bls within the Site boundaries. This Alternative will address residual contamination in soil with the implementation of ICs and will address any residual contamination in soil vapor with an EC (SSDS within the building). The handling and management of contaminated materials will be in compliance with the applicable SCGs.

10.1.3 Short-Term Effectiveness and Impacts

This criterion is an evaluation of the potential short-term adverse environmental impacts and human exposure during the construction and/or implementation of an alternative or remedy.

Remedial Alternatives 1 and 2 pose minimal health and environmental risks during implementation; however, Alternative 1 has longer short-term impacts due to deeper soil excavation required to achieve Track 1. The potential adverse impacts to the community and workers (e.g., increased traffic or exposure to contaminants during soil excavation and transportation) can be mitigated with ECs (e.g., HASP, CAMP, dust, odor, and traffic controls). Other potential risks of both Alternatives include material handling, electrical shock, vapor inhalation, general trip hazards, and noise. These potential impacts under both Alternatives are addressed in the Site-specific HASP and CAMP and the Soil/Materials Management Plan (SoMP), which detail monitoring during the construction and describe ECs to be implemented.

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Alternative 2 has fewer short-term impacts than Alternative 1 due to less truck traffic, and less soil management on-Site, shorter exposure impacts, and less soil to be disposed off-Site, which also makes it a greener remediation remedy.

10.1.4 Long-Term Effectiveness and Impacts

This criterion is an evaluation of the long-term effectiveness and permanence of an alternative or remedy after implementation.

Remedial Alternative 1 will remove all impacted soil above UUSCOs. Therefore, any incremental risk from soil contamination will be eliminated, ECs and ICs will not be necessary, and the remedy will continue to meet RAOs in the future, thereby providing a permanent remedy for the Site.

Remedial Alternative 2 will remove impacted soil above RRSCOs down to 15 ft bls and will address residual contamination in soil exceeding UUSCOs with the implementation of ICs. ICs, including a SMP and Environmental Easement, will ensure long-term management of use restrictions for the Site. As an EC, a passive SSDS beneath the building footprint and permanent sub-slab soil vapor monitoring points will be installed to address residual soil vapor contamination. The SMP will ensure long-term effectiveness of all ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as intended.

10.1.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

This criterion is an evaluation of the ability of an alternative or remedy to reduce the toxicity, mobility and volume of Site contamination. Preference should be given to remedies that permanently or significantly reduce the toxicity, mobility, or volume of the contamination at the Site. The following is the hierarchy of source removal and control measures, ranked from most preferable to least preferable:

- Removal and/or treatment;
- Containment;
- Elimination of exposure; and
- Treatment of source at the point of exposure.

Remedial alternatives that use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce the total volume of contaminated media are preferable.

Remedial Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants within the Site by removing all soil with concentrations that exceed the UUSCOs onsite.

Remedial Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants above the RRSCOs down to 15 ft bls. ICs, including a SMP and Environmental Easement, will provide a long-term remedy for the Site by eliminating potential exposure risks with respect to residual contamination. In addition, as an EC, a passive SSDS will be installed underneath the building with permanent sub-slab soil vapor monitoring points to address residual soil vapor contamination.

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10.1.6 Implementability

This criterion is an evaluation of the technical and administrative feasibility of implementing each alternative remedy. Both Remedial Alternatives are technically feasible and readily implementable. The techniques, materials and equipment to implement **Remedial Alternatives 1 and 2** are readily-available and have been proven effective in remediating the contaminants associated with the Site. Standard materials, services, and well-established technologies will be implemented. Implementation of Remedial Alternative 1 would prove more difficult when compared to Remedial Alternative 2 due to the excavation depths required to meet UUSCOs. Significant amounts of shoring and dewatering would be required to remove the soils exceeding UUSCOs which would have a negative impact on the implementability factor of Remedial Alternative 1.

10.1.7 Cost Effectiveness

This criterion is an evaluation of the overall cost effectiveness of an alternative or remedy.

Cost estimates for each alternative are shown in Tables 16 (Remedial Alternative 1) and 17 (Remedial Alternative 2).

The total cost for **Remedial Alternative 1** is approximately $13,300,000.

The total cost for **Remedial Alternative 2** is approximately $4,000,000 with $10,000/year for annual inspections and reporting in accordance with the SMP and post-remediation monitoring.

The costs associated with Remedial Alternative 1 are higher than Remedial Alternative 2 due to the additional support of excavation, deeper excavation, dewatering and additional off-Site disposal that will be required to achieve Track 1 UUSCOs throughout the Site. Remedial Alternative 2 includes long term costs associated with implementation of the SMP for the Site.

10.1.8 Community Acceptance

This criterion is evaluated after the public review of the remedy selection process as part of the final NYSDEC selection/approval of a remedy for a site.

1. Any public comment relative to these criteria will be considered by NYSDEC after the close of the public comment period.
2. Documentation of the public comments received is to be consistent with the citizen participation plan identified for a remedial program in accordance with applicable DEC policy.

Although a full evaluation of this criterion cannot be made until after the public comment period is complete, it is anticipated that both Remedial Alternatives will be equally acceptable to the community.

10.1.9 Green and Sustainable Remediation

Green and sustainable remediation practices are evaluated for the implementation of an alternative or remedy. Each remedial alternative includes the excavation and off-site disposal of on-site soil exceeding the appropriate SCO and the collection of endpoint samples. The magnitude of water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste generation, and material use would be similar, differing slightly in the amount of greenhouse gas emissions and waste generation.

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The Track 1 Unrestricted Use cleanup, which includes excavation and disposal of approximately 26,330 CY of soil will produce the most greenhouse gas emissions and waste. The Track 2 Restricted Residential Use Cleanup results in a protective remedy while generating less greenhouse gas emissions and waste due to the reduced anticipated soil disposal volumes (4,300 CY). A detailed summary of each evaluation is provided below.

Alternative 1

Alternative 1 was evaluated with respect to green and sustainable remediation principles. An environmental footprint analysis was conducted using SEFA™, which is a NYSDEC-accepted environmental footprint analysis calculator. Two components of the remedy were evaluated: site preparation and the remedy. The site preparation for the Track 1 remedy includes the waste characterization investigation. Waste characterization sampling will be performed exclusively for the purpose of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules and regulations and facility-specific permits. For the purpose of completing the SEFA™ analysis, we have assumed that the amount of contaminated soil to be characterized, excavated and disposed of off-site for implementation of the remedy is approximately 26,330 CY.

The remedy component includes the excavation of 26,330 CY of contaminated soil, construction of a SOE system extending to depths of 35 ft bgs to facilitate the contaminated soil removal down to depths up to 24 ft bgs, monitoring well abandonment, the collection of confirmation soil samples for performance monitoring purposes. The Track 1 remedy would be completed in approximately 6 months.

Using the above identified information, the SEFA™ model estimated the following emissions and total energy usage for the implementation of a Track 1 remedy:

Remedial Alternatives	Alternative 1 – Track 1
Greenhouse Gas (GHG) Emissions (metric ton)	3,541.2
Total Energy Used (MMBTU)	55,115.9
Water Consumption (gallons)	1,332
Total Nox Emissions (metric ton)	28,293.8
Total Sox Emissions (metric ton)	13,685.3
Total PM10 Emissions (metric ton)	19,042.8

Details regarding the input and output of the SEFA™ model are provided in Appendix I.

Alternative 2

Alternative 2 was also evaluated with respect to green and sustainable remediation principles using SEFA™. The components of the remedy that were evaluated include site preparation, the Track 2 remedy across the Site, and long-term monitoring. The site preparation for the Track 2 remedy includes the waste characterization investigation. Waste characterization sampling will be performed exclusively for the purpose of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules and regulations and facility-specific permits. For the purpose of completing the SEFA™ analysis, we have assumed that the amount of contaminated soil to be characterized, excavated and disposed of off-site for implementation of the remedy as well as for construction is approximately 4,300 CY.

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The remedy component as well as construction includes the excavation of 4,300 CY of contaminated soil in Track 2, construction of a SOE system extending to depths up to 16 feet bgs to facilitate the contaminated soil removal down to depths up to 11 ft bgs, construction of a SSDS, monitoring well abandonment, and the collection of documentation soil samples. The Track 2 remedy would be completed in 3 months. Long-term monitoring includes SSDS monitoring.

Using the above identified information, the SEFA™ model estimated the following emissions and total energy usage for the implementation of a Track 2 remedy:

Remedial Alternatives	Alternative 2 –Track 2
Greenhouse Gas (GHG) Emissions (metric ton)	400.7
Total Energy Used (MMBTU)	5,815.1
Water Consumption (gallons)	N/A
Total Nox Emissions (metric ton)	4,024.3
Total Sox Emissions (metric ton)	1,556.6
Total PM10 Emissions (metric ton)	2,891.7

Details regarding the input and output of the SEFA™ model are provided in Appendix I.

10.1.10 Land Use

This criterion is an evaluation of the current, intended and reasonably anticipated future use of the Site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved.

This evaluation has considered reasonably anticipated future uses of the Site and evaluates:

- Current use and historical and/or recent development patterns;
- Applicable zoning laws and maps;
- Applicable land use plans;
- Proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas;
- Environmental justice impacts, federal or state land use designations;
- Population growth patterns and projections;
- Accessibility to existing infrastructure;
- Proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site;
- Proximity to flood plains;
- Geography and geology; and
- Current ICs applicable to the Site.

Remedial Alternatives 1 and **2** are both compatible with land use and zoning and the regional land use patterns, which include the need for more housing and affordable housing.

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10.2 Selection of the Preferred Remedy

The Preferred Remedy for the Site, **Remedial Alternative 2** (Track 2), was selected for implementation since it adequately meets each of the evaluation criteria. In summary, the Preferred Remedy for the Site:

- Is protective of public health and the environment;
- Removes all soil with concentrations exceeding the RRSCOs up to a maximum depth of 15 ft bls over the entire footprint of the Site;
- Provides a high level of long-term effectiveness and permanence through removal all soil exceeding RRSCOs to 15 ft bls across the entire Site. The remedy also implements ICs to address remaining contamination exceeding UUSCOs;
- Reduces the toxicity, mobility, or volume of impacted material through removal of all soil exceeding RRSCOs to 15 ft bls across the entire Site. The remedy also implements ICs and ECs to provide a long-term remedy for the Site by eliminating potential exposure risks;
- Provides short-term effectiveness, including minimal impacts to workers or the surrounding neighborhood through the implementation of appropriate control measures during construction;
- Is readily implemented with reduced potential to impact adjacent structures;
- Should be acceptable to the community; and
- Is compatible with land use and zoning.

The Preferred Remedy for the Site is consistent with the approach for a Track 2 Restricted Residential use cleanup.

10.2.1 Preferred Remedy Land Use Factor Evaluation

A land use factor evaluation of the Preferred Remedy for the Site is provided below based on the following criteria as required by Article 27, Title 14 of the Environmental Conservation Law 27-1415.

10.2.1.1 Zoning

Zoning for the Site is currently labeled as “R7-1” which allows medium-density apartment house districts within this zoning district. The area surrounding the Site is similar with mixed uses of residential and commercial buildings.

The proposed mixed-use building is consistent with the current property zoning and patterns of development in the area. The proposed development is a part of the Seniors First program, launched by the New York City Department of Housing Preservation and Development (HPD), which includes developing new senior housing on NYCHA land. Sol on Park will aid in the HPD’s Seniors First program by developing new senior housing on NYCHA land. NYCHA is allocating a pipeline of underused sites to create new senior housing in order expand its commitment to affordable housing development

10.2.1.2 Applicable Comprehensive Community Master Plans or Land Use Plans

The proposed redevelopment of the Site is consistent with the City’s zoning laws and map.

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10.2.1.3 Surrounding Property Uses

The area surrounding the Site has historically been mixed residential and commercial use. To the north of the Site is NYCHA Morris I Building #16. To the south of the Site, beyond St Pauls Place, is a NYC Department of Education Public School building 128. To the west of the Site, beyond Park Avenue, is the Metro North rail line. To the east of the Site is NYCHA Morris I Building #17.

10.2.1.4 Citizen Participation

Citizen participation has been and will continue to be pursued throughout the remedial process in accordance with the Citizen Participation Plan (CPP) for the Site (Appendix J).

10.2.1.5 Environmental Justice

As established in DEC Commissioner Policy 29 on Environmental Justice (EJ) and Permitting (CP-29), potential EJ areas are 2000 U.S. Census block groups of 250 to 500 households each that, in the 2000 Census had populations that met or exceeded at least one of the following statistical thresholds:

a) At least 51.1% of the population in an urban area reported themselves to be members of minority groups; or

b) At least 33.8% of the population in a rural area reported themselves to be members of minority groups; or

c) At least 23.59% of the population in an urban or rural area had household incomes below the federal poverty level.

According to the NYSDEC database for environmental justice concerns, the Site is located in a Potential Environmental Justice Area (PEJA) and is surrounded by several EJ areas. As outlined in the NYSDEC-approved CPP, the Site is located in an area with sizable Hispanic American and African American populations nearby. Therefore, all fact sheets will be translated into Spanish.

10.2.1.6 Environmental Zones

According to the NYSDEC database and as established by the NYS Department of Labor's State Data Center, the Site is located within a Type A Environmental Zone (En-Zone), census tract 147.02. En-Zones are established at census tracts with a poverty rate of at least 20 percent and an unemployment rate of at least 125 percent of the New York State unemployment rate (Type A), or a poverty rate of at least double the rate for the county in which the tract is located (Type B).

10.2.1.7 Land Use Designations

There are no federal or state land use designations related to the Site.

10.2.1.8 Population Growth Patterns

According to population growth patterns and projections, a potential future redevelopment of the Site into a mixed-use building that provides residential housing and community health center space (with urgent care facilities) will be supportive of the growing community.

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10.2.1.9 Accessibility to Existing Infrastructure

The Site's location is accessible to existing infrastructure.

10.2.1.10 Proximity to Cultural Resources

There are no historic resources within a 600-foot radius of the Site. The proposed remedy would not result in significant adverse impacts to architectural or archaeological resources.

10.2.1.11 Proximity to Natural Resources

The Site is not located in, or adjacent to, regulated wetlands. The nearest natural surface water body is the Harlem River, located approximately 1.1 miles to the west of the western Site boundary.

10.2.1.12 Groundwater Vulnerability

There are no known wellhead protection areas or specifically designated groundwater recharge areas in the vicinity of the Site. Groundwater flows to the west. Groundwater is not used as a source of drinking water pursuant to a local prohibition.

10.2.1.13 Proximity to Floodplains

The Site is not located in the 100-year or 500-year flood zone.

10.2.1.14 Geography and Geology of the Site

The Site geography, geology and hydrogeology are described in Section 4.2. A groundwater contour map is presented on Figure 6.

10.2.1.15 Current Institutional Controls

There are currently no ICs on the property. However, ICs (SMP and Environmental Easement) will be implemented as elements of the Track 2 Restricted Residential cleanup pursuant to Selected Remedial Alternative 2. A chain link fence currently surrounds the Site to prevent access.

10.3 Summary of Selected Remedial Actions

The elements of the selected Track 2 Restricted Residential Use Cleanup are detailed below.

- Installation of SOE to support the proposed remedial excavation depths. SOE will be installed for excavations with a final depth of 4 feet or more. Interior excavation sidewalls may be sloped or benched to achieve the proposed excavation depths.
- Excavation and offsite disposal of a total of approximately 4,300 CY of soil (i.e., all soil exceeding RRSCOs up to 15 ft bls over the entire Site. The anticipated remedial excavation depth will range from 2 ft to 11 ft bls (actual volume is subject to change based on observed field conditions, SOE requirements, and post-excavation endpoint sampling).
- Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work.
- Appropriate 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.

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- Collection and analysis of post-excavation bottom confirmation endpoint samples at a frequency of one per 900 square feet as well as confirmation sidewall samples at a frequency of one per 30 linear feet to document that the SCOs were met. Based on this frequency, a total of 35 bottom endpoint samples and 22 sidewall samples would be required. The sidewall samples are located in between the remedial excavation grids with a difference in excavation depth of 2 ft or more. Sidewall samples are not required where excavation extends to the property line or SOE precludes sample collection.
- Backfill and compaction of clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in (if needed) to replace the excavated soil and establish the designed grades at the Site. Backfill and compaction of clean fill meeting the lower of RRSCOs and PGWSCOs, shall be in compliance with: (1) chemical limits and other specifications included in Table 18, (2) all Federal, State and local rules and regulations for handling and transport of material.
- Dewatering is not expected to be required to complete the remedial excavation because the depth to groundwater is deeper than the proposed excavation depths. In the event that limited shallow dewatering is required, it will be in compliance with city, state, and federal laws and regulations. As applicable, extracted groundwater will either be containerized for off-Site licensed or permitted disposal or will be treated on-Site under an NYSDEC SPDES equivalency permit and site connection permit from New York City Department of Environmental Protection to meet pretreatment requirements prior to discharge to a storm sewer system discharging to an outfall.
- As part of the Track 2 Restricted Residential Use cleanup, a soil vapor intrusion evaluation will be completed based on a review of RI data, post-remedial soil endpoint confirmation data and other elements (e.g., building foundation depth, installation of a passive SSDS, etc.). The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.
- Installation of a passive SSDS and permanent sub-slab soil vapor monitoring points to address residual soil vapor contamination. Indoor air and sub-slab soil vapor sampling will be completed, as part of an SVI Assessment following completion of the building, to determine if additional actions are necessary to address the potential for exposure via the SVI pathway. The passive SSDS system will have the capability to be converted to an active system, if the results of the assessment warrant it. Drawings detailing the passive SSDS design are included as Appendix P.
- Imposition of ICs in the form of an Environmental Easement to ensure proper Site use and prevent future exposure to any residual contamination by:
    - requiring the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
    - allowing the continued use and development of the controlled property for restricted residential (or less restrictive uses) as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
    - restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH (groundwater restriction applies to the entire Site); and
    - requiring compliance with the Department-approved SMP.
- Preparation of an SMP that includes the following:
    - an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
        - Institutional Controls: The Environmental Easement discussed above.
        - Engineering Controls: The passive SSDS (activatable) and soil vapor monitoring points discussed above.

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- a Monitoring Plan to assess the performance and effectiveness of the remedy, including, if necessary, monitoring for vapor intrusion for any buildings constructed on the Site.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the Department-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER.

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11.0 REMEDIAL ACTION PROGRAM

11.1 Governing Documents

11.1.1 Standards, Criteria and Guidance (SCGS)

The following standards, criteria, and guidance will be consulted and adhered to throughout the Remedial Action as applicable:

- 6 NYCRR Part 364 - NYS Waste Transporter Permits
- 6 NYCRR Part 360 - NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Part 375 - Environmental Remediation Programs
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 613 - Petroleum Bulk Storage
- 6 NYCRR Part 750 - State Pollutant Discharge Elimination System (SPDES) Permits
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- CP-43 - Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)
- CP-49 – Climate Change and DEC Action (2022)
- CP-51- Soil Cleanup Guidance (2010)
- DER-2 - Making Changes to Selected Remedies (April 2008)
- DER-10 – Technical Guidance for Site Investigation and Remediation (2010)
- DER-13 – Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York (2006)
- DER-23 – Citizen Participation Handbook for Remedial Programs (2010)
- DER-31 – Green Remediation (2010)
- DER-32 – Brownfield Cleanup Program Applications and Agreements (2017)
- DER-33 – Guide to Drafting and Recording Institutional Controls (2010)
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations (1998, Addenda 2000, 2004 and 2023)
- New York State Standards and Specifications for Erosion and Sediment Control (2016)
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006; amended 2024)
- New York State Climate Act (2019)
- NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (2023).

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11.1.2 Green and Sustainable Remediation and Climate Resiliency

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major Green and Sustainable Remediation (GSR) components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases, and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling, and increasing reuse of materials that would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible, including maximizing the planting of trees, shrubs, and other carbon dioxide sinks in redevelopment;
- Fostering green and healthy communities and working landscapes that balance ecological, economic, and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate GSR principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

To evaluate the remedy with respect to GSR principles as part of the remedial design program, water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use estimation, and goals for the project related to these GSR metrics, as well as goals for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate.

The proposed redevelopment to be completed alongside the remediation will include a newly constructed building that will not utilize fossil fuel-powered boiler(s) for the HVAC systems. These buildings will utilize electricity for both heat and hot water and will result in no on-Site-generated emissions. The proposed redevelopment and remediation of the Site will not have an adverse impact on any existing natural resources. The Site is not located in, or adjacent to, regulated wetlands. The Harlem River is approximately 1.1 miles west of the Site. Since the Site is currently vacant and the redevelopment will include NYCDEP-approved storm water management, there will not be significant adverse impacts to the River. The proposed redevelopment is not expected to generate more than 1,000 tons of solid waste per week and therefore will not have a significant adverse impact to the NYC solid waste management systems. The Site is located in an En-Zone Type A. The Site is also located in a disadvantaged community area. The proposed mixed-use building will include commercial and residential units with affordable housing for seniors and community facilities.

To further incorporate green remediation principles and techniques to the extent feasible in the future development at this Site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier to

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serve as the sealing under the foundation and which will also improve energy efficiency as an element of construction.

Additionally, the remedial design includes climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise have been identified, and measures to minimize the impact of climate change on potential identified vulnerabilities are summarized below:

Projected Hazard	Potential Implications
Sea Level Rise and Floodplain	**Current FEMA Flood Zones Maps**: The Project area is not located within the current 100-year flood plain or 500-year flood plain. The FEMA coastal flooding risk rating is relatively low, with a risk index score of 34.10 out of 100. **FEMA 2020 Flood Zones Maps and FEMA 2050 Flood Zones Maps**: The Site is not within the FEMA 2020 100-year flood plain or the FEMA 2050 500-year flood plain.
Precipitation	**2035**: 1.7% to 5.5% change in average annual precipitation. **2060**: 3.4% to 10.7% change in average annual precipitation.
Rising Temperatures	**2035**: 2.2 F to 3.0 F change in average annual temperature. **2060**: 4.3 F to 5.8 F change in average annual temperature.
Extreme Heat	Historical average 1 day over 100 F. **2035**: 3 days over 100 F. **2060**: 5 to 8 days over 100 F. The FEMA risk index rating for heat waves is very high, with a risk index score of 99.6 out of 100. The FEMA risk index rating for drought is very low, with a risk index score of 0.0 out of 100 (based on Agricultural [crop only] impacts).
Extreme Weather Events	**2035**: 1.5% to 9% change in 100-year storm intensity. **2060**: 3.0% to 17.5% change in 100-year storm intensity. The Site is not located in New York City (NYC) Hurricane Evacuation Zone; therefore the storm surge risk is low.
Seismic Activity	The potential impact due to seismic activity in the Site area is relatively low, with a risk index of 70.3 out of 100.
Hazardous Material/Toxic Chemical Spills	The NYSPILLS database does not indicate any on-site spill or releases. It is not anticipated that any petroleum bulk storage (PBS) will be included as part of redevelopment and remediation.
Wildfire	The USEPA Wildfire Conditions & Risk Map for Water Utilities reports fires larger than 1,000 acres throughout the period of 1984 through 2019. No wildfires have been reported within Bronx County during this time period. The wildfire risk is low.
Landslide	The United States Geological Survey (USGS) Landslide Inventory summarized the landslide confidence levels from High confidence in extent or nature of landslide through possible landslide. The Site is not located within any of the landslide confidence areas.

Notes:

1.) The FEMA Risk Ratings are a comparison of the risk factors for the Site area to the rest of the United States.
2.) The FEMA Risk Index scores are calculated using data for a single hazard type and reflect an area's relative risk for that hazard type.
3.) The 2035 and 2060 scenarios are based on the USEPA Climate Scenarios Projection Maps. These scenarios define a range of future climate conditions that can be considered for each time period (short- and long-term), from the hottest (and driest) to the wettest model results. All climate models project warming, the extent of warming varies per scenario. Note that due to the inherent uncertainty in using models to project future climate conditions, all scenarios have been considered to evaluate the resilience to impacts that could result from possible future climates and high impact/low probability events.

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Additionally, the American Society for Testing and Materials (ASTM) Standard Guide for Greener Cleanups will be taken into consideration during remediation implementation to minimize total energy use, air pollutants and greenhouse gas emissions, water use and impacts to water resources, recycling of materials and waste, and promote the protection of land and ecosystems.

In the FER, a Best Management Practices (BMPs) assessment and an environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), or a similar NYSDEC accepted tool. Further, progress with respect to GSR metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals established during the remedial design program.

11.1.3 Site Specific Health & Safety Plan (HASP)

The Site-specific HASP is included in Appendix K and the CAMP is included as Appendix L within the HASP. All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by the Federal Occupational Safety and Health Administration (OSHA).

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws.

The HASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

The Roux Site Safety Coordinator will be determined prior to implementation of the remedial action. A resume will be provided to NYSDEC prior to the start of remedial construction.

Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gases.

11.1.4 Quality Assurance Project Plan (QAPP)/ Field Sampling Plan (FSP)

The QAPP/FSP (Appendix M) includes all procedures to be followed for sampling and analysis. The QAPP/FSP includes all requirements outlined in DER-10 Section 2.4.

11.1.5 Construction Quality Assurance Plan (CQAP)

Quality assurance/quality control procedures for all construction activities associated with implementation of the remedial action construction are established in the Construction Quality Assurance Plan (CQAP), which is included in this section of the RAWP. The CQAP describes the Site-specific construction quality assurance and control measures that will be performed during remediation that will be implemented at the Site during implementation of the RAWP. The CQAP includes a program for construction observation and testing to verify performance of the remedial construction in accordance with the RAWP.

In general, the work to be addressed by this CQAP consists of the excavation and proper management/disposal of impacted soils.

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11.1.5.1 Organization/Personnel

The implementation of the remedial action construction will be sequenced based on construction requirements, environmental considerations, and logistic limitations posed by proximity of adjacent structures. The project team is comprised of the Owner/Volunteer (Sol on Park LLC), contractors, and consultants specializing in one or more critical aspects of the project. It is understood by the project team that close coordination and proper sequencing of all activities occurring on the Site will be crucial to the success of the remediation. The project team and associated responsibilities are as follows. If changes are made to the project team, the CQAP will be amended.

Company	Project Role	Name (title)	Contact Info (email or phone)
Sol on Park LLC	Owner/Volunteer	Michael Koenig (Project Manager)	MKoenig@nrpgroup.com (440) 655-4130
NRP Contractors II LLC	General Contractor	Jeremy Butterman	Jbutterman@nrpgroup.com (737) 887-3119
TBD	Soil Remedial Contractor	TBD	TBD
Soil Managers	Soil Disposal Contractor	Todd Sarett	Tsarett@gmail.com (973) 222-0145
Roux	Environmental Consultant	Charles J. McGuckin, P.E. (Project Principal/Remedial Engineer)	cmcguckin@rouxinc.com (631) 232-2600
		Dana Hignell (Project Manager/QA Officer)	dhignell@rouxinc.com (631) 232-2600
		TBD (Field Team Leader)	(631) 232-2600
EAI, Inc	SSDS Designer	Zarah Thanasides, P.E.	zaraht@eaienviro.com (201) 395-0010
Control Point Associates, Inc.	Surveying Firm	William Whimple	wwhimple@cpasurvey.com (646) 780-0411
Eurofins Environmental Testing Northeast LLC	Environmental Laboratory	Melissa Haas (Project Manager)	melissa.hass@eurofins.net (203) 308-0880

11.1.5.2 Sol on Park LLC (Owner/Volunteer) – Site Redevelopment and Regulatory Interaction

Michael Koenig, Redevelopment Environmental Project Manager/Remediation Oversight for Owner

As Site Volunteer, Sol on Park LLC's Environmental Project Manager representative for the Site will coordinate communications with regulatory agencies and will provide general oversight of all aspects of the remediation. Sol on Park LLC will be responsible for the review and submission of all documents, reports, correspondence, etc., required by the RAWP and/or the BCA with the NYSDEC.

Sol on Park's Environmental Project Manager representative will be responsible for community notifications and addressing concerns with the adjacent property owners and local community on all remediation-related

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issues. Sol on Park LLC will be immediately notified by the on-Site team of any complaints or concerns regarding the work raised by the adjacent property owners and or the general public.

11.1.5.3 General Contractor - NRP Contractors II LLC

Project Quality Control Officer

The General Contractor will be responsible for the quality assurance of all the tasks being implemented. The General Contractor will confirm that all components of the Site activities are conducted according to the requirements of the RAWP. The General Contractor will be responsible for verifying that the daily Site construction activities are in compliance with all the safety requirements and regulations governing the Site activity; however, each subcontractor is responsible for the health and safety of their own personnel. The General Contractor will be responsible for managing the transportation and disposal of any contaminated waste and materials generated during the construction, including:

- Fill/Soil;
- Contaminated Concrete, Bricks or Other Construction Debris;
- Personal Protective Equipment and Other Miscellaneous Debris (If Any); and
- Construction Wastewater (If any).

11.1.5.4 Soil Disposal Contractor – Soil Managers

The Soil Disposal Contractor is responsible for the hauling and disposal of Site soils to the selected and approved facilities

11.1.5.5 Soil Remedial Contractor – To Be Determined

The Soil Remedial Contractor is responsible for the excavation and disposal of portions of the Site to the required depths, construction and demolition debris and all other contaminated wastes generated, transportation and disposal of non-contaminated construction and demolition debris (if any), and decontamination of equipment. The primary environmental obligations of the Soil Remedial Contractor include safely managing all excavated materials, preventing the contaminated Site soils from being tracked off-site, dust/odor control and decontamination equipment, as necessary.

11.1.5.6 Roux Environmental Engineering and Geology. D.P.C. – RAWP and Environmental Monitoring Compliance

Charles J. McGuckin, P.E. – Project Principal/Remedial Engineer
Dana Hignell – Project Manager/ Quality Assurance Officer
TBD – Field Manager/Site Safety Officer (SSO)

Roux will coordinate all Site activities being implemented to achieve the remedial objectives defined in the RAWP. Roux will provide continual review of all quality control measures implemented by the contractors to ensure compliance with the Site's remedial objectives and the Site-specific HASP. As such, Roux will provide oversight services for the duration of the remedial activities.

Roux will provide ambient air quality monitoring for VOCs and particulates during all intrusive Site activities as part of the CAMP for the Site. CAMP monitoring data will be reported daily to the SSO and will be maintained on-site. CAMP monitoring data will also be provided to NYSDEC and NYSDOH Project Managers with the daily reports by the end of the next day. Any CAMP action level exceedances will be

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reported to the SSO, Sol on Park LLC, and General Contractor project managers and appropriate communication (with NYSDEC and NYSDOH) and action taken. All CAMP monitoring records will be included in the overall FER that will be submitted to the NYSDEC and NYSDOH and will include all of the CAMP data collected, daily monitoring station location maps, and copies of the action limit reports (if any). If an action limit report is generated due to VOC exceedances, the NYSDEC and NYSDOH will be notified within 24 hours of the exceedance. A brief summary of CAMP activities, including any action limit reports generated, will be provided in the daily report.

The Quality Assurance Officer is responsible for conducting reviews, inspections, and audits to ensure the data collection is conducted in accordance with the QAPP/FSP. The Quality Assurance Officer's responsibilities range from ensuring effective field equipment decontamination procedures and proper sample collection to the review of all laboratory analytical data for completeness and usefulness. The Quality Assurance Officer reports to the Project Manager and makes independent recommendations to the field team.

All on-site quality control persons identified in the CQAP will provide daily briefings and/or reports to Roux on-site personnel, identifying the tasks completed, the remedial measures achieved, and any other issues of concern. Additionally, Mr. Charles J. McGuckin, the "Remedial Engineer," a professional engineer licensed in the State of New York, will be responsible for certifying that the remediation construction was completed in substantial conformance with the approved RAWP and/or any NYSDEC-approved field changes.

11.1.5.7 Environmental Laboratory – Eurofins Environmental Testing

The need for an environmental laboratory is specific to soil endpoint sampling and clean backfill sampling. Eurofins Environment Testing Northeast LLC (Eurofins) will be utilized for all remediation construction-related analytical requirements. Eurofins is a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory. All results will be reported in electronic format deliverables prepared in accordance with NYSDEC requirements. Formal laboratory qualifications and QA/QC information packages for Eurofins and any other analytical laboratories proposed for the project will be submitted to the NYSDEC or disposal facilities, if requested.

11.1.5.8 Surveying Firm – Control Point Associates

William Whimple, Construction Quality Control

Control Point Associates, a NYS-licensed surveying firm will be contracted to provide lines, grades, boundaries, benchmarks, topographic surveys, as-built drawings, and any other survey work required for the proper execution and documentation of the work as required by the RAWP.

11.1.5.9 SSDS Designer – EAI Inc.

An SSDS installed under all enclosed occupiable space under the proposed building is a required element of the remedy. EAI will be responsible for the design and installation of the SSDS in accordance with the manufacturer's recommendations and the approved RAWP. All materials supplied for the SSDS will be the same or equivalent, as approved by the Remedial Engineer, as those specified in the design drawings.

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11.1.5.10 Data Validation – TBD

A DUSR will be prepared to evaluate the endpoint samples by a data validation third party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10.

11.1.5.11 Waste Disposal Facilities

Waste from the Site will be transported to appropriately permitted waste disposal facilities. The waste disposal facilities selected for this project will be determined once the bidding process is completed. The selected waste disposal facilities will be determined based on the analytical results of the waste characterization sampling completed at the Site.

If any is generated, non-impacted construction debris will be transported to a registered construction and demolition disposal facility.

11.1.5.12 Waste Transporter and Disposal Facility Qualifications

A qualifications package for each vendor contracted to transport waste from the Site to the designated soil disposal facilities and each designated disposal facility will be included in the FER. The package will include the following:

- Proof of insurance and all current necessary waste transport permits for the waste type(s) being transported.
- Letters of commitment from all waste haulers and from all transfer, treatment, storage and disposal facilities to be used for the project. The letters of commitment shall specifically identify the types and quantities of waste that the facility will be able to accept, the permit numbers for all facilities where the waste will be accepted, and all waste characterization requirements, if additional to waste characterization samples already collected. In the event that a facility (such as a privately-owned treatment works) is prohibited from issuing a letter of commitment without a sample of the waste, a conditional-type letter will be acceptable. Such a conditional letter shall specifically state what types and quantities of waste the facility will accept.
    - For each waste hauler:
        - Name and federal and state identification numbers, as applicable;
        - Address;
        - Name of responsible contact for the hauler;
        - Telephone number for the contact;
        - List of types and sizes of all transport vehicles and equipment to be used;
        - A description of proposed transportation route, method and procedures for hauling waste material, including type of vehicles that will be used for each type of waste; and
        - Copies of any and all necessary permits and authorizations for each type of waste transported.
    - For each transfer, treatment, storage and disposal facility, the Contractor shall submit the following information:
        - Facility name and federal and state identification numbers;
        - Facility location;
        - Name of responsible contact for the facility;
        - Telephone number for contact;
        - Signed letter of agreement to accept waste;

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- Unit of measure utilized at facility for costing purposes; and
- Copies of all permits, licenses, letters of approval, and other authorizations to operate, held by the proposed facility as they pertain to receipt, and management of waste derived from this Contract.

11.1.5.13 Construction Quality Control Testing

Implementation of quality control testing and measurement will be performed by the contractors conducting the specific Site tasks. The quality control officers will be responsible for providing documentation of all testing and measurement results to Roux. Roux will be responsible for verifying that all quality control testing has been conducted in compliance with the RAWP and as specified herein.

Prior to initial quality control testing procedures:

1. Verify that the testing procedures are within the manufacturer's recommendations.
2. Verify that the facilities' testing equipment is available and comply with testing standards.
3. Check testing instrument calibrations against certified standards.
4. Verify the recording forms, including all the test documentation requirements that have been prepared.

Qualifications of all independent environmental testing firms and laboratories will be submitted to Roux and Sol on Park LLC for approval prior to any quality control testing and/or lab analysis as an obligation of this CQAP.

Specific task-driven testing/certification obligations as they relate to environmental aspects of the project are as follows:

- A NYS-licensed surveyor will conduct all of the necessary measurements and provide associated documentation to verify that the excavation limits are achieved.
- All endpoint sampling will be surveyed in the field by a surveyor or the use of GPS equipment.
- In-Situ waste characterization will be completed once the RAWP is approved and prior to the start of the remedial action to supplement the RI samples. The in-situ waste characterization sampling and analysis will allow the excavated impacted soils to be direct loaded for waste transport and disposal, to the extent practicable. Waste characterization analysis parameters and frequency for any additional samples will be determined by the waste disposal facility's acceptance requirements. Results of the waste characterization program will be provided to the disposal facility for review, along with data generated during the RI and previous on-site investigations.
- The CAMP requires continuous real-time monitoring of VOCs and particulates during all intrusive Site activities. This monitoring equipment will be inspected periodically throughout each day to check and manually record the concentrations of VOCs and particulates and to ensure that the equipment is working properly. The equipment will be repaired, recalibrated, or replaced, as necessary. The periodic measurements will be used to identify any potential risks of off-site migration. This monitoring data will be collected and logged for review daily by Roux and made available for regulatory agency review. Action Limit Reports will be completed to document any and all action level exceedances and will be submitted to NYSDEC and NYSDOH, as defined in the CAMP.

All testing data will be managed in accordance with the above requirements, the QAPP/FSP, and will be included in the FER to be prepared by Roux upon completion of all remedial objectives defined in the RAWP.

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11.1.5.14 Project Coordination

During implementation of the remedial action construction, progress meetings/conference calls will be conducted periodically to assess the progress of the work, overall progress to date, quality control requirements, environmental and construction health and safety requirements, and future progress expectations. Those in attendance will include representatives from the Volunteer, the General Contractor, Roux and other subcontractors, as necessary. This will provide the opportunity for all Site tasks to be integrated and discussed collectively and provide for coordination of all Site activities to maintain the overall construction schedule. Routine task meetings will also be conducted on an as-needed basis to insure proper communication between the contractors, tradesman, and supervisory personnel.

11.1.6 Soil/Material Management Plan (SOMP)

The SoMP is included in Section 12.5 of this RAWP.

11.1.7 Stormwater Pollution Prevention

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared by the Site Owner's selected Contractor and reviewed/approved by Roux. The stormwater pollution prevention and erosion and sediment controls will be in conformance with the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001) requirements. The soil erosion and sediment controls will be in conformance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, the New York State Stormwater Design Manual, dated January 2015.

As necessary, hay bales will be placed at locations upgradient of excavation areas to control stormwater runoff and surface water from entering or exiting the excavation. Catch basin inlets immediately adjacent to the work area will be protected to prevent disturbed soil from entering. Construction water will be managed in accordance with the SoMP described in Section 12.5.

Details related to erosion and sediment controls to be followed during construction will be prepared by the Site civil engineer and will be submitted to NYSDEC prior to construction.

11.1.8 Community Air Monitoring Plan (CAMP)

All invasive work will be completed in accordance with the CAMP that is included at Appendix L.

11.1.9 Contractors Site Operations Plan (SOP)

The Remedial Engineer will review all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and will confirm that they are in compliance with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

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11.1.10 Citizen Participation Plan

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing. Fact sheets will be sent electronically by the NYSDEC project manager.

A certification of mailing will be sent by the Volunteer 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 Sheet; (4) a list of recipients (site contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

The approved Citizen Participation Plan for this project is attached in Appendix J.

Document repositories have been established at the following locations and contain all applicable project documents:

Morrisania Library
610 East 169th
Bronx, NY 10456
Attn: Colbert Nembhard

Bronx Community Board Three
1426 Boston Road
Bronx, New York 10456
Tel: 718-378-8054 ext. 141
Email: eritter@cb.nyc.gov
Acting District Manager: Etta F. Ritter
Chairperson: Rev. Frederick Crawford
Environmental Committee Chairperson

Bronx Community Board Four
1650 Selwyn Avenue, Suite 11A
Bronx, New York 10457
Telephone: 718-299-0800
Email: bx04@cb.nyc.gov
Thomas Alexander - District Manager
Mr. Robert Garmendiz - Chairperson
Mr. Jackson Strong - Housing & Land Use Committee Chairperson

Access project documents through the DECinfo Locator: https://www.dec.ny.gov/data/DecDocs/C203169/

11.2 General Remedial Construction Information

11.2.1 Project Organization

A copy of professional profiles for the Project Principal/Remedial Engineer, Quality Assurance Officer, Project Manager, and Field Manager/SSO (resumes are provided for a number of staff that may oversee the field work) for Roux are presented in Appendix N.

An organization chart is included in Figure 14.

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11.2.2 Remedial Engineer

The Remedial Engineer for this project will be Charles J. McGuckin, P. E. 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 remedial program for the project (NYSDEC BCP Site No. C203169). The Remedial Engineer will certify in the FER that the remedial activities were observed by qualified environmental professionals under her supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this Remedial Action Work Plan and will certify compliance in the Final Engineering Report.

The Remedial Engineer will provide the certifications listed in Section 14.1 in the Final Engineering Report.

11.2.3 Remedial Action Construction Schedule

A schedule for the major elements of the remedial construction and portions of the redevelopment construction is presented in Section 17.

11.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Volunteer of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

11.2.5 Site Security

Security for the work, equipment, materials, supplies, facilities, personnel, and incidentals will be provided throughout the performance of the work at the Site. The Site will be fully fenced with construction fencing conforming to New York City Department of Buildings requirements. This fencing will be maintained throughout the remedial construction work. Temporary fencing and barricades will be used to delineate and secure areas of ongoing remediation activities. Site security personnel will be employed as needed.

11.2.6 Traffic Control

All construction work will take place between 7 A.M. and 6 P.M. from Monday to Friday. The contractors may work longer hours and/or weekends, as permitted by the proper authorities. If work beyond these hours or on weekends is required, the proper authorities will be notified. Disturbances to the local community will be minimized to the extent practical.

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For any trucking required, the proposed truck routes for ingress and egress to the Site are shown in Figure 15.

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 take 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, to the extent practicable; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

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

The contractors operating on the Site will be responsible for providing all necessary personnel and materials (i.e., traffic lanes, safety cones, etc.) to control traffic entering and exiting the Site and for coordinating traffic control measures with the New York City Police Department, as necessary. Contractors operating on the Site shall be responsible for all applicable NYCDOT traffic control and notification requirements and incorporating those elements into this Traffic Control Plan.

11.2.7 Contingency Plan

The Contingency Plan is described in Section 12.5.11.

11.2.8 Worker Training and Monitoring

All excavation work will be performed in accordance with the Site-specific HASP and CAMP. Removal of impacted soil will be performed by qualified contractors and trained personnel (Minimum 24HR OSHA HAZWOPER). In the event that removal of UST is required, work will be performed by a qualified contractor and trained personnel (Minimum 40HR OSHA HAZWOPER) in accordance with DER-10, NYSDEC PBS regulations and NYC Fire Department regulations.

11.2.9 Agency Approvals

The Volunteer will address all State Environmental Quality Review Act (SEQRA) requirements for this Site, as appropriate for future redevelopment. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The potential future end use for the Site is in conformance with the zoning for the property as determined by New York City Department of Planning.

A complete list of all local, regional and national governmental permits, certificates, or other approvals or authorizations required to perform the remedial work will be included in the Final Engineering Report. This list will include a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency.

11.2.10 NYSDEC BCP Signage

A BCP project sign is not required for this Site.

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11.2.11 Pre-Construction Meeting with NYSDEC

A project kick-off meeting will be conducted with the Volunteer, Roux, NYSDEC, the General Contractor, and the selected Remedial Contractor prior to the commencement of any intrusive remedial activities proposed in this RAWP.

11.2.12 Emergency Contact Information

The Site-specific HASP (Appendix K) will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency. Since the contractors have not yet been selected, the emergency contact list will be prepared prior to the start of work and the HASP will be updated.

11.2.13 Remedial Action Costs

The total cost for Remedial Alternative 2 is estimated to be $4,000,000 with $10,000/year for annual inspections and reporting in accordance with the SMP and post-remediation monitoring. An itemized and detailed summary of estimated costs for all remedial activity is attached as Table 17.

11.3 Site Preparation

11.3.1 Mobilization

The soil contractors shall supply any labor and materials required for the removal and disposal of contaminated soil. Mobilization and Site preparation activities include:

1. Mobilization of equipment to the work area.
2. Installation/maintenance of the perimeter construction fencing, temporary fencing and traffic barricades to delineate the work zone and act as a work Site security measure. Security personnel will be on-site as needed.
3. Implementation of erosion and sediment control measures in accordance with the New York Guidelines for Urban Erosion and Sediment Control.
4. Set-up of decontamination facilities.

11.3.2 Monitoring Well / Vapor Point Decommissioning

Existing groundwater monitoring wells will be properly decommissioned in accordance with NYSDEC Commissioners Policy CP-43. Similarly, existing soil vapor points will be fully removed during remediation.

11.3.3 Erosion and Sedimentation Controls

Implementation of erosion and sediment controls will be in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Construction water will be managed in accordance with the SoMP described in Section 12.5.

11.3.4 Stabilized Construction Entrances

Stabilized construction entrances will be installed at all points of vehicle ingress and egress to the Site. The truck wash/decontamination pad and the stone-based egress path will be continuous so that trucks do not get re-contaminated prior to departure from the Site.

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Any soil spilled on the sidewalk or street immediately adjacent to the Site will be promptly removed and the street will be cleaned.

11.3.5 Utility Marker and Easements Layout

The Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Volunteer and its contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

11.3.6 Structural Stability/Support Of Excavation

Appropriate management of structural stability of on-site or off-site structures during on-site activities that include excavation is the sole responsibility of the Volunteer and its contractors. The Volunteer and its contractors must obtain any local, State or Federal permits or approvals that may be required to perform this work under this RAWP. Further, the Volunteer and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of this work under the approved RAWP.

11.3.7 Equipment and Material Staging

An equipment and materials staging area will be established in a designated area on-site.

11.3.8 Decontamination Area

A temporary decontamination pad/truck wash will be constructed to decontaminate trucks and other vehicles/equipment leaving the Site. The decontamination pad will be sized to accommodate the largest construction vehicle used and located prior to the stabilized construction egress. The decontamination pad may be integrated with the stabilized construction entrance. Dry decontamination will be employed to the extent practical, within a designated area of the Site. All liquid decontamination material will be collected and properly disposed of off-site or treated using an on-site treatment system prior to discharge to the New York City sewer system. The truck decontamination area/construction entrance will be adequately sloped toward the interior of the Site to prevent off-site tracking of soils.

11.3.9 Site Fencing

The Site will be remain fenced and enclosed from public access at all times.

11.3.10 Demobilization

Demobilization from the Site will include:

- Removal and restoration of off-site equipment and materials storage areas;
- Removal of all temporary fencing and barricades;

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- Restoration of disturbed access areas to pre-remediation conditions, as appropriate;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- Equipment decontamination, as required; and
- General refuse disposal.

11.4 Reporting

All daily and monthly Reports will be included in the Final Engineering Report.

11.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of the next day following the reporting period and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP results, including excursions;
- A list of all samples collected, if any;
- An explanation of notable Site conditions;
- A look ahead portion that describes immediate future work; and
- Photos of site activity.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

A Site map for use in identifying locations described in reports submitted to NYSDEC is attached on Figure 2.

The NYSDEC assigned project number will appear on all reports.

11.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th of the month following the end of the month of the reporting period and will include:

- 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.);

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- 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 the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

11.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the Final Engineering Report.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals established during the remedial program. Regular updates to the metrics used (SEFA, SiteWise™ or otherwise approved method) should be included. The Climate Screening process and results will be documented in the form of a completed checklist and brief letter report. If the Climate Screening results indicate that a Climate Vulnerability Assessment (CVA) is necessary, a complete CVA Report will be developed. The CVA Report will be included as an Appendix or Attachment in the FER and/or submitted as a standalone report.

Job-Site record keeping for all remedial work will be appropriately documented. These records will be maintained on-site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

11.4.4 Complaint Management Plan

If an odor or dust complaint is received, the following procedure will be implemented:

1. Work in the affected area will be halted, and the source of odors/dust will be identified.
2. NYSDEC, NYSDOH, and the Volunteer will be notified of the complaint.
3. Nuisance odors, if any, will be abated through covering/containerizing excavated materials, backfilling open excavations in a timely manner; and/or using a foam unit or other appropriate measures.
4. As described in NYSDEC DER-10, Appendix 1B – Fugitive Dust Control, nuisance dust, if any, will be abated through applying water on haul roads; wetting equipment and excavation faces; spraying water on buckets during excavation and dumping; hauling materials in properly tarped or watertight containers; restricting vehicle speeds to 10 mph; covering excavated areas and material after excavation activity ceases; and reducing the excavation size and/or number of excavations.
5. Work will resume in the affected area when the nuisance odors/dust have been abated, as determined by the Roux on-site personnel.

11.4.5 Deviations from the Remedial Action Work Plan

Deviations from the RAWP will be reported to NYSDEC for approval and fully explained in the FER.

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12.0 REMEDIAL ACTION IMPLEMENTATION

12.1 Material Removal From Site

All contaminated soils exceeding the RRSCOs up to 15 ft bls are planned to be removed from the Site. The materials and waste management efforts will consider greener and sustainable approaches related to both the purchase of greener products and material reuse or recycling versus disposal wherever practical.

A summary of the excavation depths, soil removal volume, and soil samples yielding analytical results is included in Section 12.3 below. Following remedial excavation, post-excavation confirmation endpoint samples will be collected in accordance with Section 12.3 and the QAPP.

12.2 Soil Cleanup Objectives

The Soil Cleanup Objectives for this Site are listed in Table 18. The SCOs for this Site are the RRSCOs. Soil and materials management on-site and off-site will be conducted in accordance with the SoMP as described below.

Tables 2 through 9 present all soil samples that exceed the RRSCOs proposed for this Remedial Action. Figure 7 shows all soil samples that exceed the RRSCOs proposed for this Remedial Action.

UST closures will, at a minimum, conform to criteria defined in DER-10.

12.3 Remedial Performance Evaluation (Post Excavation Endpoint Sampling)

Endpoint sampling and reporting will be conducted in accordance with DER-10 and the QAPP and is discussed in the sections below.

A confirmation sample means a sample taken during the course of a remedial action to determine whether cleanup requirements have been achieved or whether further remediation is required.

A documentation sample means a sample taken after remedial action is complete to document the level of contamination remaining.

12.3.1 End-Point Sampling Frequency

Bottom Sampling

Bottom confirmation sampling will be conducted at a frequency of one sample per approximately 900 square feet of excavation area to document the soil quality remaining on-site after remedial excavation is completed per guidance provided in NYSDEC DER-10 5.4.

A total of 35 confirmation samples will be collected at the Site and will be analyzed for the full suite of parameters (VOCs, SVOCs, metals, pesticides, PCBs, and ECs). Samples will be distributed throughout the Site, in a grid-like fashion, and will be biased toward impacts, if any are observed. Locations of endpoint confirmation samples are shown in Figure 13.

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Sidewall Sampling

As part of the remedial action, sidewall confirmation endpoint samples will be collected to properly confirm the remaining sidewall soil quality. Sidewall samples will be collected at a frequency of one sidewall sample per 30 linear feet (22 sidewall samples total) in between the excavated grid areas with a difference in excavation depth of 2 ft or more. Sidewall samples are not required where excavation extends to the property line or SOE precludes sample collection. The frequency of sidewall sampling proposed for this alternative is consistent with the guidance provided in NYSDEC DER-10 5.4. Locations of sidewall confirmation samples are shown in Figure 13.

12.3.2 Methodology

Endpoint samples will be collected in accordance with DER-10 Section 5.4(b). Each sample will be inspected for visual evidence of contamination (i.e., staining, presence of petroleum or odors) and field screened for VOCs using a PID. Soil samples to be submitted for analysis will be placed in a laboratory sample jar, placed in an iced cooler and transported to the laboratory.

12.3.3 Reporting of Results

The laboratory will report analytical results for endpoint samples in ASP Category B deliverable packages. An EDD in the required NYSDEC format will also be provided by the laboratory.

All endpoint sample data generated for the remedial action will be logged in a database and organized to facilitate data review and evaluation. The electronic dataset will include the data flags provided in accordance with USEPA Laboratory Data Validation Functional Guidelines for Evaluating Organic Analysis and Inorganic Analyses, as well as additional comments of the data review for ASP analyses. The data flags include such items as: 1) concentration below required detection limit; 2) estimated concentration due to poor recovery below required detection limit; 3) estimated concentration due to poor spike recovery; and 4) concentration of chemical also found in laboratory blank.

12.3.4 QA/QC

QA/QC samples serve as checks on both the sampling and measurement systems and assist in determining the overall data quality with regard to representation, accuracy, and precision. The QAPP/FSP, included as Appendix M to this RAWP, describes QA/QC procedures and sampling for the project.

12.3.5 DUSR

A DUSR will be prepared to evaluate the endpoint samples by a party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10. The QAPP/FSP, included as Appendix M to this RAWP, describes the DUSR to be prepared for the project.

12.3.6 Reporting of Endpoint Data in FER

Chemical laboratories used for all endpoint sample results and contingency sampling will be NYSDOH ELAP certified. Endpoint sampling frequency is described in Section 12.3.1. The FER will provide a tabular and map summary of all endpoint sample results and exceedances of SCOs.

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12.4 Estimated Material Removal Quantities

The estimated quantity of soil/fill to be removed from the Site is 7,500 CY for construction purposes, including approximately 4,300 CY for remedial purposes (see Figure 13). The estimated quantity of soil to be imported into the Site for backfill and cover soil is 0 cubic yards. The estimated quantity of soil/fill expected to be reused/relocated on Site is 0 cubic yards.

12.5 Soil/Materials Management Plan

The following sections provide the SoMP to be implemented during the Remedial Action.

12.5.1 Soil Screening Methods

Visual, olfactory, and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the direction of the Remedial Engineer during all remedial and development excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) uncovered during the remedial action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

Resumes will be provided for all personnel responsible for field screening (i.e., those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

12.5.2 Stockpile Methods

Although direct loading of trucks will be performed to the extent practicable, stockpiles, if any, will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpiles, if any, will always be kept covered with appropriately anchored tarps when not actively used. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced.

Soil stockpiles, if any, will be continuously encircled with silt fences or hay bales. Hay bales will be used as needed near catch basins and other discharge points.

Water will be available on-site at suitable supply and pressure for use in dust control.

12.5.3 Materials Excavation and Load Out

The Remedial Engineer or a qualified environmental professional under her supervision will oversee all invasive work and the excavation and load-out of all excavated material.

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

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A truck wash will be operated on-site. The Remedial Engineer or their designated representative will be responsible for ensuring that all outbound trucks will be free of Site soil clinging to their exterior before leaving the Site until the remedial construction is complete.

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

The Remedial Engineer or their designated representative will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

If required, each hotspot and structure to be remediated (USTs, vaults and associated piping, transformers, etc.) will be removed and endpoint remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Mechanical processing of historic fill and contaminated soil on-site is prohibited.

12.5.4 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.

Truck transport routes are as described in Section 11.2.6. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes.

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

Cleaning of trucks prior to exiting the Site is discussed in Section 11.3.8.

12.5.5 Materials Disposal Off-Site

The disposal locations will be determined prior to implementation of the remedial action and will be reported to the NYSDEC Project Manager.

The total remedial quantity of material expected to be disposed of off-site is approximately 4,300 in-place CY of soil exceeding RRSCOs across the Site.

All soil/fill/solid waste that is excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to

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NYSDEC's Project Manager. Unregulated off-site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 UUSCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-15 Registration Facility).

The required documentation will be obtained and reported by the Remedial Engineer, as summarized in Section 11.1.5.12. These documents will be included in the FER.

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Materials Management (DMM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DMM. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-site or off-site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, urban fill, solid waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

A Bill of Lading system or equivalent will be used to manage the off-site movement of non-hazardous wastes and contaminated soils. This information will be reported in the Final Engineering Report.

12.5.6 Materials Reuse On-Site

Although not planned, on-site soil may be reused for backfill. In the event this occurs, chemical criteria for on-site reuse of material are listed in Table 18. The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-site.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC project manager for review and approval prior to material reuse on the site. A copy of the form is presented in Appendix O.

Contaminated on-site material, including contaminated fill material and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer (if required), within landscaping berms, or as backfill for subsurface utility lines.

12.5.7 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP.

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Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. Dewatering fluids will be managed off-Site.

Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, river and/or storm sewer) is prohibited without a SPDES permit.

12.5.8 Backfill From Off-Site Sources

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and DER-10, section 5.4(e) will be brought in to replace the excavated soil and establish the designed grades at the Site, if necessary. Any backfill requiring sampling will be analyzed for the full suite of Part 375 parameters and ECs.

Solid waste, material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. Material from other environmental remediation sites will not be imported to the Site without prior approval of NYSDEC.

The Final Engineering Report will include the following certification by the Remedial Engineer: “I certify that all import of soils from off-site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.”

All imported soil will meet NYSDEC-approved backfill or cover soil quality objectives for this Site. These NYSDEC-approved backfill or cover soil quality objectives are the lower of the RRSCOs or PGWSCOs, and are listed in Table 18. Non-compliant soil will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

Soils that meet ”general 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. Nothing in this RAWP should be construed as an approval for this purpose.

A “Request to Import/Reuse Fill Material” form will be filed with the NYSDEC project manager for review and approval prior to import to the site. A copy of the form is presented in Appendix O.

Backfill material that may be used for this Site includes soil, gravel or stone.

12.5.9 Stormwater Pollution Prevention

Stormwater pollution prevention measures are discussed in Section 11.1.7.

12.5.10 Contingency Plan

In the event that any unknown underground tanks or other previously unidentified contaminant sources are found during on-site remedial excavation, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full suite of parameters (VOCs, SVOCs, metals, pesticides, PCBs, and ECs), or a more limited list as approved by NYSDEC. Analyses will not be otherwise limited

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without NYSDEC approval. Discovery of underground storage tanks will be handled in accordance with NYSDEC DER-10, Section 5.5.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will also be included in daily and monthly reports and in the FER.

12.5.10.1 Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the Volunteer will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to NYSDEC at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911.

Petroleum spills will be reported to NYSDEC within 2 hours of identification and consistent with State regulations. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Dewatering will be performed as needed and in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified, as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained, as necessary.

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If soil or fill materials are discharged off site to adjacent properties, property owners and NYSDEC will be notified, and corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of site access by the property owner. Impacted off-site areas may require characterization based on site conditions, at the discretion of NYSDEC.

If on-site petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYSDEC's Spill Hotline at (800) 457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

Storm Response Reporting

A site inspection report will be submitted to NYSDEC at the completion of site inspection. An inspection report will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the NYSDEC project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of on-site or off-site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; schedule for corrective actions.

This report should be completed and submitted to NYSDEC project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

12.5.11 Community Air Monitoring Plan

CAMP will be conducted during any intrusive activities at the Site. The CAMP is included as Appendix L. A map showing the location of mobile sampling stations will be provided in each daily CAMP report.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the daily report.

12.5.12 Odor, Dust and Nuisance Control Plan

The FER will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

12.5.12.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. Specific odor control methods to be used on a routine basis will include limiting open excavation areas and covering

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excavated soil (i.e., with polyethylene sheeting or in covered roll off containers). If nuisance odors are identified, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Volunteer's Remedial Engineer, who is responsible for certifying the Final Engineering Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils (if foam is used, it will be immediately removed after use). If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) use of chemical odorants in spray or misting systems; and (e) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

12.5.12.2 Dust Control Plan

A dust suppression plan that addresses dust management during invasive on-site work, will include, at a minimum, the items listed below and will comply with NYSDEC DER-10 Appendix 1B – Fugitive Dust Control:

- Dust suppression will be achieved through applying water on haul roads; wetting equipment and excavation faces; spraying water on buckets during excavation and dumping; hauling materials in properly tarped or watertight containers; restricting vehicle speeds to 10 mph; covering excavated areas and material after excavation activity ceases; and reducing the excavation size and/or number of excavations.
- Clearing and grubbing will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to limit dust generation.

12.5.12.3 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 and will conform, at a minimum, to NYCDEP noise control standards.

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13.0 RESIDUAL CONTAMINATION TO REMAIN ONSITE

The goal of the remedial action for this Site is a Track 2 Restricted Residential Use cleanup, and remaining contamination exceeding the RRSCOs is not anticipated to be present at the Site to 15 ft bls following the completion of the remedy. Any remaining contamination will be addressed through the implementation of ICs and ECs to protect human health and the environment. Long-term management of ICs, ECs and of residual contamination would be executed under a Site-specific SMP that will be developed and included in the FER.

The FER will report the results of the confirmation endpoint samples collected from the Site in tabular and map form.

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14.0 Vapor Intrusion Mitigation System

14.1 Sub-Slab Depressurization System

As an EC, a passive SSDS will be installed under all enclosed occupiable space under the building. The system will influence the enclosed occupied spaces, which have the potential to accumulate vapors from the soil below.

The sub-slab vapor barrier will be a minimum 20-mil vapor barrier made of polyethylene and EVOH resins that is ASTM E 1745 Class A, B, and C compliant, resistant to puncturing and has high tensile strength. The permeance of the vapor barrier will be compliant with ASTM E 154 Sections 8, 11, 12, and 13. The vapor barrier will not deteriorate, decompose, or degrade below concrete slabs when buried and has an indefinite life expectancy. The proposed vapor barrier for under slab applications is Cetco VI-20 (or approved equivalent) with Liquid Boot Compound A (or approved equivalent) sprayed on all seams and penetrations throughout the vapor barrier. Manufacturer's specifications are provided as Appendix P. As an element of development/construction, all vapor barriers will be installed in accordance with Manufacturer's recommendations including, but not limited to, recommended overlapping distance, seam installation, seam products, subbase layer preparation, and material. Appropriate subbase layer will include sand or gravel to prevent punctures during installation. Additionally, a geotextile fabric will be placed on top of the vapor barrier to protect it against punctures prior to concrete slab pours.

The SSDS will include a network of trenches (i.e., branches) of 1" by 12" Geovent low-profile vapor collection system piping wrapped in filter fabric and installed within minimum 5-inch-thick gravel bedding trenches. The sub-slab piping network will be connected to 4" iron or steel building ventilation exhaust riser pipes. The SSDS risers will be vented adjacent to the first floor outdoor generator enclosure area having a minimum 10-foot exhaust radius with a valved connection, sample ports, and gauges. Eight permanent sub-slab soil vapor monitoring points will be installed within the first floor at the approximate locations noted on "Drawing ENV100" included in Appendix P. The SSDS will be incorporated into the design of the new building and will be installed during construction. Modifications may be made to the SSDS layouts when the new building design is finalized, or as needed based on field conditions.

The proposed SSDS layout and piping details are included in Appendix P.

14.2 Indoor Air Quality Monitoring

A post-construction soil vapor intrusion assessment work plan, submitted to NYSDEC and NYSDOH for review and approval, will describe the sampling to be performed at the Site. The sampling will be used to determine if additional actions are necessary to address exposure via the SVI pathway. It is anticipated that baseline indoor air and sub-slab samples will be collected when the buildings are fully enclosed, unit and community spaces are constructed, and HVAC systems are operational. The vapor intrusion assessment will be completed to determine if additional actions are needed (activation of the SSDS) to remedy vapor intrusion conditions at the Site.

Sub-slab soil vapor and indoor air samples will be analyzed against the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (matrices were updated in February 2024).

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15.0 Institutional Controls

After the remedy is complete, portions of the Site will have remaining contamination in place and ICs will be implemented for areas of the Site. Two elements have been designed to ensure continual and proper management of remaining contamination in perpetuity: an Environmental Easement and a SMP.

A Site-specific Environmental Easement will be recorded with the Bronx County Clerk to provide an enforceable means of ensuring the continual and proper management of remaining contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all ECs/ICs placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

15.1 Environmental Easement

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when remaining contamination is left on-Site after the Remedial Action is complete. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the Bronx County Clerk. The recorded Environmental Easement will be submitted as part of the FER and part of the SMP.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement:

1. Requires the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
2. Allows the continued use and development of the controlled property for restricted residential (or less restrictive uses) as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
3. Restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and
4. Requires compliance with the Department-approved SMP.

The Environmental Easement must be filed with the Bronx County Clerk's Office before the Certificate of Completion can be issued by NYSDEC.

A series of ICs are required under this remedy to implement, maintain and monitor the Site-specific EC systems, prevent future exposure to remaining contamination by controlling disturbances of the subsurface soil, and restrict the use of all areas of the Site to restricted residential (and less restrictive uses defined in 6 NYCRR Part 375) use(s) only. These ICs are requirements or restrictions placed on the Controlled Property that are listed in, and required by, the Environmental Easement. ICs can, generally, be subdivided between controls that support ECs, and those that place general restrictions on Site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

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The ICs that support ECs are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices, if any, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and
- ECs may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these ICs for the Site is mandated by the Environmental Easement and will be implemented under the SMP (discussed in the next Section).

The Controlled Property will also have a series of ICs in the form of Site restrictions and requirements. The restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited, with the exception of raised planters;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose and approved by DEC/DOH for such purposes;
- All future activities on the Controlled Property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;
- The Controlled Property may be used for restricted residential use (and less restrictive uses defined in 6 NYCRR Part 375) only, provided the long-term ECs and ICs included in the SMP are employed;
- The Controlled Property may not be used for a higher level of use, such as residential or unrestricted use, without an amendment or extinguishment of this Environmental Easement; and
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property 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 such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or per an alternate frequency that NYSDEC may allow. This annual statement must be certified by a QEP or a P.E.

15.2 Site Management Plan

Site Management for the Controlled Property is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the COC for the Remedial Action. Site Management will be conducted as described below pursuant to a forthcoming Site Management Plan ("SMP"), which will be a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure all Site Management responsibilities defined in the Environmental Easement and the SMP are performed.

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The SMP is intended to provide a detailed description of the procedures required to manage remaining contamination left in place at the Controlled Property following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all ECs and ICs; and (2) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC.

A SMP is required for the Controlled Property, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
    - Institutional Controls: The Environmental Easement discussed in Section 15.1 of this RAWP.
    - Engineering Controls: The passive SSDS and vapor monitoring points discussed in Section 14 of this RAWP.

This Control Plan will include:

- an Excavation Plan that details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- provisions for the management and inspection of the identified engineering controls;
- maintaining Site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. Monitoring Plan to assess the performance and effectiveness of the remedy, including, if necessary, monitoring for vapor intrusion for any buildings constructed on the Site.
c. A Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The first certification will be due 16 months after issuance of the COC and annually (or at another frequency as approved by NYSDEC) thereafter.

All handling of remaining contaminated material will be subject to provisions contained in the SMP.

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16.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading as well as the complete SMP. The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling, and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

The FER must include a discussion of the green remediation practices/technologies employed throughout the remedial program. A final footprint analysis using a DER accepted model, and any tracking methods

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used through the construction including restoration activities. Before approval of a FER and issuance of a COC, all project reports must be submitted in digital form on electronic media (PDF).

16.1 Certifications

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The FER will be prepared, stamped and the following certification signed by an individual licensed or otherwise authorized in accordance with article 145 of the education law to practice the profession of engineering. The certification will include the following statements:

I, Charles J. McGuckin, certify that I 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 was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan 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, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by 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.

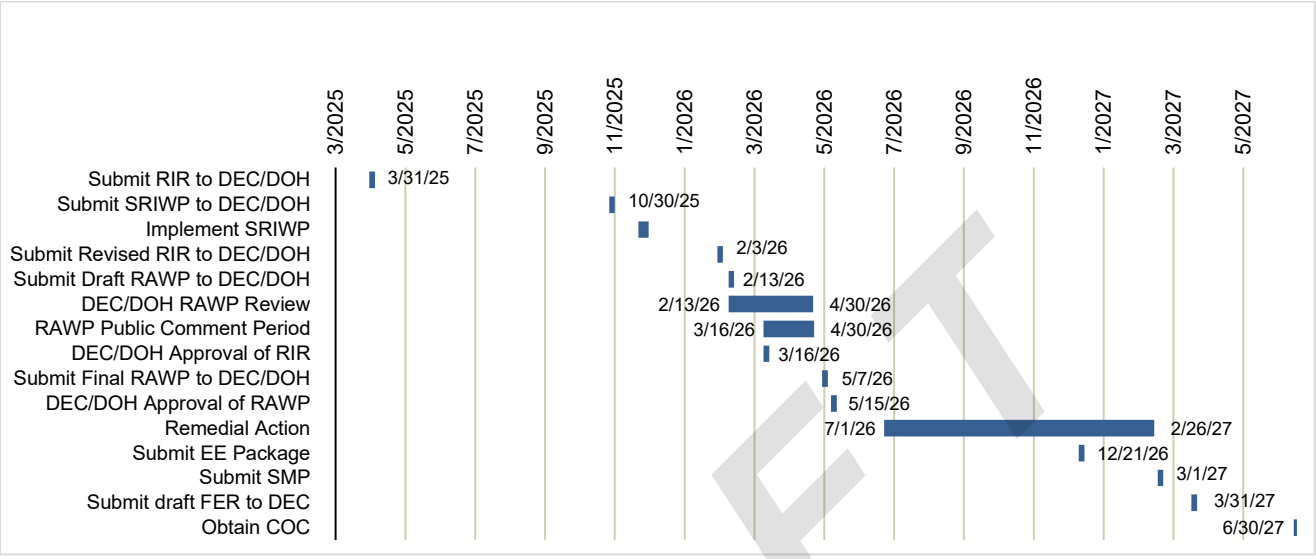
I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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17.0 SCHEDULE

A detailed tentative schedule for the proposed Remedial Action is presented below.



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TABLES

1. Summary of Water Level Data, October 4, 2024
2. Summary of Volatile Organic Compounds in Soil
3. Summary of Semivolatile Organic Compounds in Soil
4. Summary of Metals in Soil
5. Summary of Polychlorinated Biphenyl Compounds in Soil
6. Summary of Pesticides and Herbicides in Soil
7. Summary of General Chemistry in Soil
8. Summary of Per- and Polyfluoroalkyl Substances in Soil
9. Summary of Volatile Organic Compounds in Groundwater
10. Summary of Semivolatile Organic Compounds in Groundwater
11. Summary of Metals in Groundwater
12. Summary of Polychlorinated Biphenyl Compounds in Groundwater
13. Summary of Pesticides and Herbicides in Groundwater
14. Summary of Per- and Polyfluoroalkyl Substances in Groundwater
15. Summary of Volatile Organic Compounds in Soil Vapor
16. Remedial Alternative 1 Cost Estimate
17. Remedial Alternative 2 Cost Estimate
18. Track 1 and Track 2 Soil Cleanup Objectives

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Table 1. Summary of Groundwater Gauging Data, 3728 Park Avenue, Bronx, New York

Monitoring Well Identification	Gauging Date	Land Surface Elevation (ft NAVD 88)	Top of Casing Elevation (ft NAVD 88)	Depth to Water (ft btoc)	Water Table Elevation (ft NAVD 88)
RIMW-1	10/4/2024	35.89	35.46	14.94	20.52
RIMW-2	10/4/2024	49.15	48.90	--	--
RIMW-3	10/4/2024	48.91	48.49	--	--
RIMW-4	10/4/2024	38.59	38.08	17.26	20.82
RIMW-5	10/4/2024	36.31	35.69	16.44	19.25
RIMW-6	10/4/2024	38.12	37.83	16.63	21.20
RIMW-7	10/4/2024	37.04	36.62	15.39	21.23
RIMW-8	10/4/2024	45.38	44.75	22.04	22.71

Notes:
ft - feet
NAVD 88 - North American Vertical Datum of 1988
btoc - below top of casing

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Notes Utilized Throughout Tables	
Soil Tables	
J -	Estimated value
J+ -	Estimated value, high bias
J- -	Estimated value, low bias
U -	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit
T -	Indicates that a quality control parameter has exceeded laboratory limits
UJ -	Analyte was not detected. The associated reported quantitation limit is an estimate
NJ -	Detection is tentative in identification and estimated in value
R -	Sample results rejected by validator
ft bls -	Feet below land surface
FD -	Duplicate sample
mg/kg -	Milligrams per kilogram
µg/kg -	Micrograms per kilogram
NYSDEC -	New York State Department of Environmental Conservation
SCO -	Soil Cleanup Objectives
--	No SCO available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use SCO	
Shaded data indicates that parameter was detected above the NYSDEC Part 375 Restricted Residential SCO	
Red data indicates that parameter was detected above the NYSDEC Part 375 Protection of Groundwater SCO	
Per- and Polyfluoroalkyl Substances (PFAS)	
GV -	Guidance Values issued January 2020 and updated March 2023
Bold data indicates that parameter exceeded the NYSDEC Unrestricted Use Guidance Values	
Shaded data indicates that parameter exceeded the NYSDEC Restricted Residential Guidance Values	
Red data indicates that parameter exceeded the NYSDEC Protection of Groundwater Guidance Values	
Groundwater Tables	
J -	Estimated Value
J+ -	Estimated value, high bias
U -	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit
UJ -	Analyte was not detected. The associated reported quantitation limit is an estimate
R -	Sample results rejected by validator
EMPC -	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample
FD -	Duplicate
NA -	Compound was not analyzed for by laboratory
µg/L -	Micrograms per liter
NYSDEC -	New York State Department of Environmental Conservation
AWQSGVs -	Ambient Water-Quality Standards and Guidance Values
--	No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs	
Soil Vapor/Ambient Air	
J -	Estimated value
U -	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit
UJ -	Analyte was not detected. The associated reported quantitation limit is an estimate
FD -	Duplicate sample
ug/m3 -	Micrograms per cubic meter
Bold data indicates that parameter was detected	

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Table 2. Summary of Volatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-1 09/06/2024 0 - 2 N	RISB-1 09/18/2024 5 - 7 N	RISB-2 09/10/2024 0 - 2 N	RISB-2 09/17/2024 7 - 9 N	RISB-3 09/10/2024 0 - 2 N	RISB-3 09/10/2024 0 - 2 FD	RISB-3 09/17/2024 5 - 7 N	RISB-4 09/04/2024 0 - 2 N	RISB-4 09/13/2024 20 - 22 N	RISB-5 12/04/2025 0 - 2 N	RISB-5 12/04/2025 2 - 4 N	RISB-5 12/04/2025 2 - 4 FD	RISB-5 12/04/2025 4 - 6 N	RISB-5 12/04/2025 6 - 8 N	RISB-5 12/04/2025 8 - 10 N	RISB-5 09/17/2024 17 - 19 N	RISB-6 09/05/2024 0 - 2 N	RISB-6 09/13/2024 15 - 17 N	RISB-7 09/05/2024 0 - 2 N	RISB-7 09/13/2024 19 - 21 N	RISB-8 09/06/2024 0 - 2 N	RISB-8 09/06/2024 2 - 4 N	RISB-9 09/05/2024 0 - 2 N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	NA	NA	NA	NA	NA	NA	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG	0.00054 UJ	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 UJ	0.00064 UJ	0.00065 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	--	MG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	--	--	--	MG/KG	0.0011 UJ	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 UJ	0.0013 UJ	0.0013 U
1,1-Dichloroethane	0.27	47	0.27	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
1,1-Dichloroethene	0.24	0.98	0.33	MG/KG	0.0011 U	0.0015 UJ	0.0014 UJ	0.0011 U	0.0013 UJ	0.002 UJ	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 UT	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
1,1-Dichloropropene	--	--	--	MG/KG	0.00054 U	0.00077 UJ	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	NA	NA	NA	NA	NA	NA	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,2,3-Trichloropropane	--	--	--	MG/KG	0.0022 UJ	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 UJ	0.0026 UJ	0.0026 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,2,4-Trimethylbenzene	5.9	100	5.9	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG	0.0032 U	0.0046 U	0.0042 U	0.0034 U	0.004 U	0.0059 U	0.004 U	0.0039 U	0.0037 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 UT	0.0032 U	0.004 U	0.0041 U	0.0039 U	0.0046 U	0.0035 U	0.0038 U	0.0039 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,2-Dichloroethane	0.02	5.8	0.02	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
1,2-Dichloropropane	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
1,3,5-Trimethylbenzene (Mesitylene)	3.1	100	3.1	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,3-Dichloropropane	--	--	--	MG/KG	0.0022 UJ	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 UJ	0.0026 UJ	0.0026 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,4-Diethyl Benzene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG	0.086 R	0.12 R	0.11 R	0.091 R	0.11 R	0.16 R	0.1 R	0.1 R	0.1 R	NA	NA	NA	NA	NA	NA	0.086 R	0.11 R	0.11 R	0.1 R	0.12 R	0.093 R	0.1 R	0.1 R
2,2-Dichloropropane	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
2-Chlorotoluene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
2-Hexanone	--	--	--	MG/KG	0.011 U	0.015 U	0.014 U	0.011 U	0.013 U	0.02 U	0.013 U	0.013 U	0.012 U	0.0051 U	0.0052 U	0.0049 U	0.0053 U	0.0051 U	0.0054 U	0.011 U	0.013 U	0.014 U	0.013 U	0.015 U	0.012 U	0.013 U	0.013 U
4-Chlorotoluene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
4-Ethyltoluene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Acetone	**0.03**	100	0.03	MG/KG	0.011 U	0.015 U	0.014 U	0.0074 J	0.013 U	0.02 U	0.0073 J	0.013 U	0.012 U	0.0061 U	0.0062 U	0.0059 U	0.0064 U	0.0062 U	0.0065 U	0.0068 J	0.013 U	0.014 U	0.013 U	0.015 U	0.012 U	0.013 U	0.013 U
Acrylonitrile	--	--	--	MG/KG	0.0043 U	0.0061 U	0.0056 U	0.0045 U	0.0053 U	0.0079 U	0.0053 U	0.0052 U	0.005 U	NA	NA	NA	NA	NA	NA	0.0043 U	0.0053 U	0.0055 U	0.0052 U	0.0062 U	0.0046 U	0.0051 U	0.0052 U
Benzene	0.06	3.7	0.06	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Bromobenzene	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Bromochloromethane	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Bromodichloromethane	--	--	--	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Bromoform	--	--	--	MG/KG	0.0043 UJ	0.0061 U	0.0056 UJ	0.0045 U	0.0053 UJ	0.0079 UJ	0.0053 U	0.0052 U	0.005 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0043 U	0.0053 U	0.0055 U	0.0052 U	0.0062 U	0.0046 UJ	0.0051 UJ	0.0052 U
Bromomethane	--	--	--	MG/KG	0.0022 U	0.0031 UJ	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 UJ	0.002 U	0.0021 U	0.002 U	0.0021 U	0.0021 U	0.0022 U	0.0022 U	0.0027 U	0.0027 UJ	0.0026 U	0.0031 UJ	0.0023 U	0.0026 U	0.0026 U
Carbon Disulfide	--	--	--	MG/KG	0.011 U	0.015 U	0.014 U	0.011 U	0.013 U	0.02 U	0.013 U	0.012 U	0.012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 UT	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Carbon Tetrachloride	0.76	7.1	0.76	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Chlorobenzene	4.5	100	4.5	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Chloroethane	--	--	--	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Chloroform	0.37	24	0.37	MG/KG	0.0016 U	0.0023 U	0.0021 U	0.0017 U	0.002 U	0.0029 U	0.002 U	0.0019 U	0.0019 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0016 U	0.002 U	0.002 U	0.002 U	0.0023 U	0.0017 U	0.0019 U	0.002 U
Chloromethane	--	--	--	MG/KG	0.0043 U	0.0061 U	0.0056 U	0.0045 U	0.0053 U	0.0079 U	0.0053 U	0.0052 U	0.005 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0043 U	0.0053 U	0.0055 U	0.0052 U	0.0062 U	0.0046 U	0.0051 U	0.0052 U
Cis-1,2-Dichloroethylene	0.19	41	0.19	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Cyclohexane	--	--	--	MG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	NA	NA	NA	NA	NA	NA	NA	NA
Cymene	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	NA	NA	NA	NA	NA	NA	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Dibromochloromethane	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Dibromomethane	--	--	--	MG/KG	0.0022 UJ	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 UJ	0.0026 UJ	0.0026 U
Dichlorodifluoromethane	--	--	--	MG/KG	0.011 U	0.015 UJ	0.014 U	0.011 U	0.013 U	0.02 U	0.013 U	0.013 U	0.012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.011 U	0.013 U	0.014 U	0.013 U	0.015 U	0.012 U	0.013 U	0.013 U
Dichloroethylenes	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	NA	NA	NA	NA	NA	NA	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG	0.0022 UJ	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	NA	NA	NA	NA	NA	NA	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 UJ	0.0026 UJ	0.0026 U
Ethylbenzene	1	76	1	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.00029 J	0.0013 U	0.002 U	0.00045 J	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00044 J	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Hexachlorobutadiene	--	--	--	MG/KG	0.0043 U	0.0061 U	0.0056 U	0.0045 U	0.0053 U	0.0079 U	0.0053 U	0.0052 U	0.005 U	NA	NA	NA	NA	NA	NA	0.0043 U	0.0053 U	0.0055 U	0.0052 U	0.0062 U	0.0046 U	0.0051 U	0.0052 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
m,p-Xylene	0.26	100	1.2	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0012 J	0.0026 U	0.0039 U	0.002 J	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0019 J	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Methyl Acetate	--	--	--	MG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0051 U	0.0052 U	0.0049 U	0.0053 U	0.0051 U	0.0054 U	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	0.1	100	0.1	MG/KG	0.011 U	0.015 U	0.014 U	0.011 U	0.013 U	0.02 U	0.013 U	0.013 U	0.012 U	0.0051 U	0.0052 U	0.0049 U	0.0053 U	0.0051 U	0.0054 U	0.011 U	0.013 U	0.014 U	0.013 U	0.015 U	0.012 U	0.013 U	0.013 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG	0.011 U	0.015 U	0.014 U	0.011 U	0.013 U	0.02 U	0.013 U	0.013 U	0.012 U	0.0051 U	0.0052 U	0.0049 U	0.0053 U	0.0051 U	0.0054 U	0.011 U	0.013 U	0.014 U	0.013 U	0.015 U	0.012 U	0.013 U	0.013 U
Methylcyclohexane	--	--	--	MG/KG	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	81	0.05	MG/KG	0.0054 U	0.0077 U	0.007 U	0.0057 U	0.0066 U	0.0098 U	0.0066 U	0.0065 U	0.0062 U	0.002 U	0.0021 U	0.002 U	0.0021 U	0.0021 U	0.0022 U	0.0054 U	0.0067 U	0.0069 U	0.0066 U	0.0077 U	0.0058 U	0.0064 U	0.0065 U
Naphthalene	12	100	12	MG/KG	0.0043 U	0.0061 U	0.0056 U	0.0045 U	0.0053 U	0.0079 U	0.0053 U	0.0052 U	0.005 U	NA	NA	NA	NA	NA	NA	0.0043 U	0.0053 U	0.0055 U	0.0052 U	0.0062 U	0.0046 U	0.0051 U	0.0052 U
N-Butylbenzene	18	100	18	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
N-Propylbenzene	5	100	5	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
O-Xylene (1,2-Dimethylbenzene)	0.26	100	1.2	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Sec-Butylbenzene	25	100	25	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Styrene	--	--	--	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
T-Butylbenzene	11	100	11	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Tert-Butyl Methyl Ether	0.1	100	0.1	MG/KG	0.0022 U	0.0031 U	0.0028 U	0.0023 U	0.0026 U	0.0039 U	0.0026 U	0.0026 U	0.0025 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0022 U	0.0027 U	0.0027 U	0.0026 U	0.0031 U	0.0023 U	0.0026 U	0.0026 U
Tetrachloroethylene (PCE)	1.3	18	1.3	MG/KG	0.00054 U	0.00077 UJ	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Toluene	0.7	100	0.7	MG/KG	0.0011 U	0.0015 U	0.0014 U	0.0026 J+	0.0013 U	0.002	0.0033 J+	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0031 J+	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 U	0.0013 U	0.0013 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	NA	NA	NA	NA	NA	NA	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG	0.0016 U	0.0023 U	0.0021 U	0.0017 U	0.002 U	0.0029 U	0.002 U	0.0019 U	0.0019 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0016 U	0.002 U	0.002 U	0.002 U	0.0023 U	0.0017 U	0.0019 U	0.002 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG	0.0011 UJ	0.0015 U	0.0014 U	0.0011 U	0.0013 U	0.002 U	0.0013 U	0.0013 U	0.0012 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0013 U	0.0014 U	0.0013 U	0.0015 U	0.0012 UJ	0.0013 UJ	0.0013 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG	0.0054 U	0.0077 U	0.007 U	0.0057 U	0.0066 U	0.0098 U	0.0066 U	0.0065 U	0.0062 U	NA	NA	NA	NA	NA	NA	0.0054 U	0.0067 U	0.0069 U	0.0066 U	0.0077 U	0.0058 U	0.0064 U	0.0065 U
Trichloroethylene (TCE)	0.47	6.4	0.47	MG/KG	0.00054 U	0.00077 U	0.0007 U	0.00057 U	0.00066 U	0.00098 U	0.00066 U	0.00065 U	0.00062 U	0.001 U	0.001 U	0.00098 U	0.0011 U	0.001 U	0.0011 U	0.00054 U	0.00067 U	0.00069 U	0.00066 U	0.00077 U	0.00058 U	0.00064 U	0.00065 U
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Table 2. Summary of Volatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-9	RISB-10	RISB-10	RISB-10	RISB-10	RISB-11	RISB-11	RISB-12	RISB-12	RISB-12	RISB-13	RISB-13	RISB-13	RISB-14	RISB-14	RISB-14	RISB-15	RISB-15	RISB-16	RISB-16	RISB-17	RISB-17	RISB-18
					Sample Date:	09/05/2024	09/05/2024	09/05/2024	09/09/2024	09/09/2024	09/04/2024	09/09/2024	09/04/2024	09/04/2024	09/09/2024	09/04/2024	09/04/2024	09/09/2024	09/04/2024	09/09/2024	09/09/2024	09/06/2024	09/12/2024	09/06/2024	09/06/2024	09/06/2024	09/10/2024	09/10/2024	09/05/2024
					Sample Depth (ft bls):	2 - 4	0 - 2	0 - 2	7 - 9	17 - 19	0 - 2	13 - 15	0 - 2	2 - 4	4 - 6	0 - 2	17 - 19	19 - 21	0 - 2	9 - 11	13 - 15	0 - 2	5 - 7	0 - 2	3 - 5	0 - 2	12 - 14	0 - 2
					Normal Sample or Field Duplicate:	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 UJ	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 U	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 UJ	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 UJ	0.00088 U	0.0007 UJ	0.00065 UJ	0.00066 U	0.00054 U	0.00063 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	--	MG/KG		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 UJ	0.0018 U	0.0014 UJ	0.0013 UJ	0.0013 U	0.0011 U	0.0013 U
1,1-Dichloroethane	0.27	47	0.27	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
1,1-Dichloroethene	0.24	0.98	0.33	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 UJ	0.0011 UJ	0.0013 U
1,1-Dichloropropene	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 U	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,2,3-Trichloropropane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 UJ	0.0035 U	0.0028 UJ	0.0026 UJ	0.0026 U	0.0022 U	0.0025 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.014	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,2,4-Trimethylbenzene	5.9	100	5.9	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0016 J	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG		0.0034 U	0.0041 U	0.0039 U	0.004 U	0.0036 U	0.0038 U	0.0038 U	0.0038 U	0.0035 U	0.0035 U	0.0044 UJ	0.0038 U	0.0035 U	0.0032 U	0.0031 U	0.0034 U	0.0043 U	0.0053 U	0.0042 U	0.0039 U	0.004 U	0.0032 U	0.0038 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.0012 U	0.001 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,2-Dichloroethane	0.02	5.8	0.02	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
1,2-Dichloropropane	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
1,3,5-Trimethylbenzene (Mesitylene)	3.1	100	3.1	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0022 J	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,3-Dichloropropane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 UJ	0.0035 U	0.0028 UJ	0.0026 UJ	0.0026 U	0.0022 U	0.0025 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,4-Diethyl Benzene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0067	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG		0.09 R	0.11 R	0.1 R	0.11 R	0.095 R	0.1 R	0.1 R	0.1 R	0.093 R	0.094 R	0.12 R	0.1 R	0.094 R	0.086 R	0.082 R	0.091 R	0.11 R	0.14 R	0.11 R	0.1 R	0.1 R	0.087 R	0.1 R
2,2-Dichloropropane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
2-Chlorotoluene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
2-Hexanone	--	--	--	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U	0.015 UJ	0.013 U	0.012 U	0.011 U	0.01 U	0.011 U	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.011 U	0.013 U
4-Chlorotoluene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
4-Ethyltoluene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0052	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Acetone	**0.03**	100	0.03	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.014	0.013 U	0.011 J	0.013 U	0.013	0.008 J	0.015 U	0.0067 J	**0.056**	0.011 U	0.0078 J	0.0082 J	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.011	0.013 U
Acrylonitrile	--	--	--	MG/KG		0.0045 U	0.0055 U	0.0052 U	0.0054 U	0.0048 U	0.0051 U	0.0051 U	0.0051 U	0.0047 U	0.0047 U	0.0059 UJ	0.005 U	0.0047 U	0.0043 U	0.0041 U	0.0046 U	0.0057 U	0.007 U	0.0056 U	0.0052 U	0.0053 U	0.0043 U	0.0051 U
Benzene	0.06	3.7	0.06	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 U	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
Bromobenzene	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Bromochloromethane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Bromodichloromethane	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 UJ	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
Bromoform	--	--	--	MG/KG		0.0045 U	0.0055 U	0.0052 U	0.0054 U	0.0048 U	0.0051 U	0.0051 U	0.0051 U	0.0047 U	0.0047 U	0.0059 UJ	0.005 U	0.0047 U	0.0043 U	0.0041 U	0.0046 U	0.0057 UJ	0.007 U	0.0056 UJ	0.0052 UJ	0.0053 UJ	0.0043 UJ	0.0051 U
Bromomethane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 UJ	0.0024 UJ	0.0025 U	0.0026 UJ	0.0025 U	0.0023 U	0.0023 UJ	0.003 U	0.0025 UJ	0.0024 UJ	0.0022 U	0.0021 UJ	0.0023 UJ	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Carbon Disulfide	--	--	--	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.01 U	0.011 U	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.011 U	0.013 U
Carbon Tetrachloride	0.76	7.1	0.76	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Chlorobenzene	4.5	100	4.5	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 UJ	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
Chloroethane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Chloroform	0.37	24	0.37	MG/KG		0.0017 U	0.0021 U	0.0019 U	0.002 U	0.0018 U	0.0019 U	0.0019 U	0.0019 U	0.0017 U	0.0018 U	0.0022 U	0.0019 U	0.0018 U	0.0016 U	0.0015 U	0.0017 U	0.0021 U	0.0026 U	0.0021 U	0.0019 U	0.002 U	0.0016 U	0.0019 U
Chloromethane	--	--	--	MG/KG		0.0045 U	0.0055 U	0.0052 U	0.0054 U	0.0048 U	0.0051 U	0.0051 U	0.0051 U	0.0047 U	0.0047 U	0.0059 U	0.005 U	0.0047 U	0.0043 U	0.0041 U	0.0046 U	0.0057 U	0.007 U	0.0056 U	0.0052 U	0.0053 U	0.0043 U	0.0051 U
Cis-1,2-Dichloroethylene	0.19	41	0.19	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 UJ	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
Cyclohexane	--	--	--	MG/KG		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.012	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Dibromochloromethane	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Dibromomethane	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 UJ	0.0035 U	0.0028 UJ	0.0026 UJ	0.0026 U	0.0022 U	0.0025 U
Dichlorodifluoromethane	--	--	--	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U	0.015 U	0.013 U	0.012 U	0.011 U	0.01 U	0.011 U	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.011 U	0.013 U
Dichloroethylenes	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.0012 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 UJ	0.0035 U	0.0028 UJ	0.0026 UJ	0.0026 U	0.0022 U	0.0025 U
Ethylbenzene	1	76	1	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.00026 J	0.00029 J	0.0013 U	0.00033 J	0.0013 U	0.0012 U	0.00029 J	0.0015 UJ	0.00019 J	0.00029 J	0.0011 U	0.00019 J	0.00023 J	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Hexachlorobutadiene	--	--	--	MG/KG		0.0045 U	0.0055 U	0.0052 U	0.0054 U	0.0048 U	0.0051 U	0.0051 U	0.0051 U	0.0047 U	0.0047 U	0.0059 UJ	0.005 U	0.0047 U	0.0043 U	0.0041 U	0.0046 U	0.0057 U	0.007 U	0.0056 U	0.0052 U	0.0053 U	0.0043 U	0.0051 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0013 U	0.006	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
m,p-Xylene	0.26	100	1.2	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0018 J	0.0018 J	0.0025 U	0.0019 J	0.0025 U	0.0023 U	0.0018 J	0.003 UJ	0.0014 J	0.0016 J	0.0022 U	0.0013 J	0.0015 J	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Methyl Acetate	--	--	--	MG/KG		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	0.1	100	0.1	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.012 U	0.013 U	0.0051 J	0.013 U	0.012 U	0.012 U	0.015 UJ	0.013 U	0.0033 J	0.011 U	0.01 U	0.0058 J	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.0027 J	0.013 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG		0.011 U	0.014 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U	0.015 U	0.013 U	0.012 U	0.011 U	0.01 U	0.011 U	0.014 U	0.018 U	0.014 U	0.013 U	0.013 U	0.011 U	0.013 U
Methylcyclohexane	--	--	--	MG/KG		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	81	0.05	MG/KG		0.0056 U	0.0069 U	0.0065 U	0.0067 U	0.006 U	0.0063 U	0.0064 U	0.0064 U	0.0058 U	0.0059 U	0.0074 UJ	0.0063 U	0.0059 U	0.0054 U	0.0052 U	0.0057 U	0.0071 U	0.0088 U	0.007 U	0.0065 U	0.0066 U	0.0054 U	0.0063 U
Naphthalene	12	100	12	MG/KG		0.0045 U	0.0055 U	0.0052 U	0.0054 U	0.0048 U	0.0051 U	0.0051 U	0.0051 U	0.0047 U	0.0047 U	0.0059 UJ	0.005 U	0.0022 J	0.0021 J	0.0041 U	0.0046 U	0.0057 U	0.0024 J	0.0056 U	0.0052 U	0.0053 U	0.0043 U	0.0051 U
N-Butylbenzene	18	100	18	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.011	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
N-Propylbenzene	5	100	5	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.01	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
O-Xylene (1,2-Dimethylbenzene)	0.26	100	1.2	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.00091 J	0.0008 J	0.0013 U	0.0009 J	0.0013 U	0.0012 U	0.00081 J	0.0015 UJ	0.00079 J	0.00082 J	0.0011 U	0.00068 J	0.00074 J	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Sec-Butylbenzene	25	100	25	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0015 UJ	0.0013 U	0.0083	0.0011 U	0.001 U	0.0011 U	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Styrene	--	--	--	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.00092 J	0.00078 J	0.0013 U	0.00094 J	0.0013 U	0.0012 U	0.00084 J	0.0015 UJ	0.00087 J	0.00087 J	0.0011 U	0.00074 J	0.00083 J	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
T-Butylbenzene	11	100	11	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 UJ	0.0025 U	0.0013 J	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Tert-Butyl Methyl Ether	0.1	100	0.1	MG/KG		0.0023 U	0.0027 U	0.0026 U	0.0027 U	0.0024 U	0.0025 U	0.0026 U	0.0025 U	0.0023 U	0.0023 U	0.003 U	0.0025 U	0.0024 U	0.0022 U	0.0021 U	0.0023 U	0.0028 U	0.0035 U	0.0028 U	0.0026 U	0.0026 U	0.0022 U	0.0025 U
Tetrachloroethylene (PCE)	1.3	18	1.3	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 UJ	0.0006 UJ	0.00063 U	0.00064 UJ	0.00064 U	0.00058 U	0.00059 UJ	0.00074 U	0.00063 UJ	0.00059 UJ	0.00054 U	0.00052 UJ	0.00057 UJ	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U	0.00054 U	0.00063 U
Toluene	0.7	100	0.7	MG/KG		0.0011 U	0.0014 U	0.0013 U	0.0021	0.0022	0.0013 U	0.0029	0.0013 U	0.0012 U	0.0024	0.0015 U	0.0016	0.0021	0.0011 U	0.0019	0.0021	0.0014 U	0.0018 U	0.0014 U	0.0013 U	0.0013 U	0.0011 U	0.0013 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG		0.00056 U	0.00069 U	0.00065 U	0.00067 U	0.0006 U	0.00063 U	0.00064 U	0.00064 U	0.00058 U	0.00059 U	0.00074 U	0.00063 U	0.00059 U	0.00054 U	0.00052 U	0.00057 U	0.00071 U	0.00088 U	0.0007 U	0.00065 U	0.00066 U

Table 2. Summary of Volatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-18	RISB-18	RISB-19	RISB-19
					Sample Date: 09/12/2024	09/12/2024	09/10/2024	09/12/2024
					Sample Depth (ft bls): 8 - 10	8 - 10	0 - 2	5 - 7
					Normal Sample or Field Duplicate: N	FD	N	N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	--	MG/KG	NA	NA	NA	NA
1,1,2-Trichloroethane	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
1,1-Dichloroethane	0.27	47	0.27	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
1,1-Dichloroethene	0.24	0.98	0.33	MG/KG	0.0016 U	0.0016 U	0.0014 UJ	0.0014 U
1,1-Dichloropropene	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,2,3-Trichloropropane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 UJ
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,2,4-Trimethylbenzene	5.9	100	5.9	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG	0.005 U	0.0047 U	0.0044 U	0.0041 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,2-Dichloroethane	0.02	5.8	0.02	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
1,2-Dichloropropane	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
1,3,5-Trimethylbenzene (Mesitylene)	3.1	100	3.1	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,3-Dichloropropane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
1,4-Diethyl Benzene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 UJ
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG	0.13 R	0.12 R	0.12 R	0.11 R
2,2-Dichloropropane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
2-Chlorotoluene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
2-Hexanone	--	--	--	MG/KG	0.016 U	0.016 U	0.014 U	0.014 U
4-Chlorotoluene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
4-Ethyltoluene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Acetone	**0.03**	100	0.03	MG/KG	0.016 U	0.0093 J	0.014 U	0.014 U
Acrylonitrile	--	--	--	MG/KG	0.0066 U	0.0063 U	0.0058 U	0.0055 U
Benzene	0.06	3.7	0.06	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Bromobenzene	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Bromochloromethane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Bromodichloromethane	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Bromoform	--	--	--	MG/KG	0.0066 U	0.0063 U	0.0058 UJ	0.0055 U
Bromomethane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Carbon Disulfide	--	--	--	MG/KG	0.016 U	0.016 U	0.014 U	0.014 U
Carbon Tetrachloride	0.76	7.1	0.76	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Chlorobenzene	4.5	100	4.5	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Chloroethane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Chloroform	0.37	24	0.37	MG/KG	0.0025 U	0.0024 U	0.0022 U	0.002 U
Chloromethane	--	--	--	MG/KG	0.0066 U	0.0063 U	0.0058 U	0.0055 U
Cis-1,2-Dichloroethylene	0.19	41	0.19	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Cyclohexane	--	--	--	MG/KG	NA	NA	NA	NA
Cymene	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Dibromochloromethane	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Dibromomethane	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Dichlorodifluoromethane	--	--	--	MG/KG	0.016 U	0.016 U	0.014 U	0.014 U
Dichloroethylenes	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Ethylbenzene	1	76	1	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Hexachlorobutadiene	--	--	--	MG/KG	0.0066 U	0.0063 U	0.0058 U	0.0055 UJ
Isopropylbenzene (Cumene)	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
m,p-Xylene	0.26	100	1.2	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Methyl Acetate	--	--	--	MG/KG	NA	NA	NA	NA
Methyl Ethyl Ketone (2-Butanone)	0.1	100	0.1	MG/KG	0.016 U	0.016 U	0.014 U	0.014 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG	0.016 U	0.016 U	0.014 U	0.014 U
Methylcyclohexane	--	--	--	MG/KG	NA	NA	NA	NA
Methylene Chloride	0.05	81	0.05	MG/KG	0.0083 U	0.0078 U	0.0073 U	0.0068 U
Naphthalene	12	100	12	MG/KG	0.0066 U	0.0063 U	0.0058 U	0.0055 U
N-Butylbenzene	18	100	18	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 UJ
N-Propylbenzene	5	100	5	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
O-Xylene (1,2-Dimethylbenzene)	0.26	100	1.2	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Sec-Butylbenzene	25	100	25	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Styrene	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
T-Butylbenzene	11	100	11	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Tert-Butyl Methyl Ether	0.1	100	0.1	MG/KG	0.0033 U	0.0031 U	0.0029 U	0.0027 U
Tetrachloroethylene (PCE)	1.3	18	1.3	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Toluene	0.7	100	0.7	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG	0.0025 U	0.0024 U	0.0022 U	0.002 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG	0.0083 U	0.0078 U	0.0073 U	0.0068 U
Trichloroethylene (TCE)	0.47	6.4	0.47	MG/KG	0.00083 U	0.00078 U	0.00073 U	0.00068 U
Trichlorofluoromethane	--	--	--	MG/KG	0.0066 U	0.0063 U	0.0058 U	0.0055 U
Vinyl Acetate	--	--	--	MG/KG	0.016 U	0.016 U	0.014 U	0.014 UJ
Vinyl Chloride	0.03	0.48	0.03	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U
Xylenes	0.26	100	1.2	MG/KG	0.0016 U	0.0016 U	0.0014 U	0.0014 U

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Table 3. Summary of Semivolatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-1	RISB-1	RISB-2	RISB-2	RISB-2	RISB-2	RISB-3	RISB-3	RISB-3	RISB-3	RISB-4	RISB-4	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-6	RISB-6	RISB-6
					Sample Date:	09/06/2024	09/18/2024	09/10/2024	12/02/2025	12/02/2025	09/17/2024	09/10/2024	09/10/2024	12/02/2025	09/17/2024	09/04/2024	09/13/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/17/2024	09/05/2024	12/03/2025	12/03/2025
					Sample Depth (ft bls):	0 - 2	5 - 7	0 - 2	2 - 4	4 - 6	7 - 9	0 - 2	0 - 2	3 - 5	5 - 7	0 - 2	20 - 22	0 - 2	2 - 4	2 - 4	4 - 6	6 - 8	8 - 10	17 - 19	0 - 2	2 - 4	4 - 6
					Normal Sample or Field Duplicate:	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.039 U	0.042 U	0.18 U	0.9 U	0.9 U	0.04 U	0.19 U	0.18 U	0.19 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.19 U	0.96 U	0.038 U	0.04 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG		0.028 U	0.028 U	0.14 U	0.039 U	0.042 U	0.026 U	0.14 U	0.14 U	0.04 U	0.028 U	0.028 U	0.029 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.029 U	0.14 U	0.038 U	0.04 U
2,3,4,6-Tetrachlorophenol	--	--	--	MG/KG		NA	NA	NA	0.39 U	0.42 U	NA	NA	NA	0.4 U	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	NA	NA	0.38 U	0.4 U
2,4,5-Trichlorophenol	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2,4,6-Trichlorophenol	--	--	--	MG/KG		0.11 U	0.11 U	0.55 U	0.16 U	0.17 U	0.1 U	0.54 U	0.54 U	0.16 U	0.11 U	0.11 U	0.12 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.12 U	0.58 U	0.15 U	0.16 U
2,4-Dichlorophenol	--	--	--	MG/KG		0.17 U	0.17 U	0.82 U	0.16 U	0.17 U	0.16 U	0.82 U	0.81 U	0.16 U	0.17 U	0.17 U	0.17 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.17 U	0.87 U	0.15 U	0.16 U
2,4-Dimethylphenol	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2,4-Dinitrophenol	--	--	--	MG/KG		0.88 U	0.9 U	4.4 U	0.31 U	0.33 U	0.85 U	4.3 U	4.3 U	0.32 U	0.9 U	0.89 U	0.93 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.29 U	0.92 U	4.6 U	0.31 U	0.32 U
2,4-Dinitrotoluene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.079 U	0.084 U	0.18 U	0.9 U	0.9 U	0.08 U	0.19 U	0.18 U	0.19 U	0.067 U	0.067 U	0.068 U	0.067 U	0.067 U	0.072 U	0.19 U	0.96 U	0.077 U	0.08 U
2,6-Dinitrotoluene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.079 U	0.084 U	0.18 U	0.9 U	0.9 U	0.08 U	0.19 U	0.18 U	0.19 U	0.067 U	0.067 U	0.068 U	0.067 U	0.067 U	0.072 U	0.19 U	0.96 U	0.077 U	0.08 U
2-Chloronaphthalene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2-Chlorophenol	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2-Methylnaphthalene	--	--	--	MG/KG		0.064 J	0.043 J	1.1 U	0.39 U	0.42 U	0.21 U	1.1 U	1.1 U	0.4 U	0.23 U	0.22 U	0.23 U	0.33 U	0.037 J	0.33 U	0.33 U	0.33 U	0.36 U	0.23 U	0.17 J	0.38 U	0.4 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2-Nitroaniline	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
2-Nitrophenol	--	--	--	MG/KG		0.4 U	0.4 U	2 U	0.39 U	0.42 U	0.38 U	2 U	2 U	0.4 U	0.41 U	0.4 U	0.42 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.41 U	2.1 U	0.38 U	0.4 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.16 U	0.17 U	0.18 U	0.9 U	0.9 U	0.16 U	0.19 U	0.18 U	0.19 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.19 U	0.96 U	0.15 U	0.16 U
3-Nitroaniline	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG		0.48 U	0.49 U	2.4 U	0.31 U	0.33 U	0.46 U	2.4 U	2.3 U	0.32 U	0.49 U	0.48 U	0.5 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.29 U	0.5 U	2.5 U	0.31 U	0.32 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
4-Chloroaniline	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 UT	0.33 UT	0.33 UT	0.33 UT	0.33 UT	0.36 UT	0.19 U	0.96 U	0.38 U	0.4 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
4-Methylphenol (P-Cresol)	0.33	100	0.33	MG/KG		NA	NA	NA	0.39 U	0.42 U	NA	NA	NA	0.4 U	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	NA	NA	0.38 U	0.4 U
4-Nitroaniline	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
4-Nitrophenol	--	--	--	MG/KG		0.26 U	0.26 U	1.3 U	0.79 U	0.84 U	0.25 U	1.3 U	1.3 U	0.8 U	0.26 U	0.26 U	0.27 U	0.67 U	0.67 U	0.68 U	0.67 U	0.67 U	0.72 U	0.27 U	1.3 U	0.77 U	0.8 U
Acenaphthene	20	100	98	MG/KG		0.29	0.091 J	0.11 J	0.39 U	0.42 U	0.14 U	0.72 U	0.19 J	0.4 U	0.15 U	0.04 J	0.16 U	0.33 U	0.098 J	0.017 J	0.33 U	0.33 U	0.36 U	0.15 U	0.34 J	0.38 U	0.4 U
Acenaphthylene	100	100	365	MG/KG		1	0.1 J	0.73 U	0.39 U	0.42 U	0.14 U	0.72 U	0.25 J	0.4 U	0.15 U	0.038 J	0.16 U	0.33 U	0.043 J	0.041 J	0.33 U	0.33 U	0.36 U	0.15 U	2.1	0.38 U	0.4 U
Acetophenone	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Anthracene	100	100	1000	MG/KG		1.4	0.34	0.33 J	0.39 U	0.42 U	0.1 U	0.21 J	0.54	0.4 U	0.11 U	0.13	0.12 U	0.33 U	0.27 J	0.094 J	0.33 U	0.33 U	0.36 U	0.12 U	2	0.38 U	0.4 U
Atrazine	--	--	--	MG/KG		NA	NA	NA	0.16 U	0.17 U	NA	NA	NA	0.16 U	NA	NA	NA	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	NA	NA	0.15 U	0.16 U
Benzaldehyde	--	--	--	MG/KG		NA	NA	NA	0.39 U	0.42 U	NA	NA	NA	0.4 U	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	NA	NA	0.38 U	0.4 U
Benzo(A)Anthracene	**1**	1.4	1	MG/KG		**5**	0.74	1	0.039 U	0.042 U	0.1 U	0.69	**1.6**	0.04 U	0.11 U	0.47	0.12 U	0.076	0.72	0.45	0.026 J	0.033 U	0.036 U	0.12 U	**9.7**	0.038 U	0.04 U
Benzo(A)Pyrene	**1**	1	22	MG/KG		**5.4**	0.61	0.94	0.039 U	0.042 U	0.14 U	0.65 J	**1.5**	0.04 U	0.15 U	0.47	0.16 U	0.071	0.59	0.41	0.022 J	0.033 U	0.036 U	0.15 U	**12**	0.012 J	0.04 U
Benzo(B)Fluoranthene	**1**	1.4	2.1	MG/KG		**6.7**	0.74	**1.3**	0.017 J	0.042 U	0.1 U	0.82 J	**2.4**	0.04 U	0.11 U	0.61	0.12 U	0.1	0.77	0.56	0.033	0.033 U	0.036 U	0.12 U	**13**	0.015 J	0.04 U
Benzo(G,H,I)Perylene	**0.64**	4.9	1000	MG/KG		**3.4**	0.4	**0.68 J**	0.017 J	0.42 U	0.14 U	0.47 J	**1.1**	0.4 U	0.15 U	0.3	0.16 U	0.053 J	0.34	0.27 J	0.33 U	0.33 U	0.36 U	0.15 U	**9.2**	0.38 U	0.4 U
Benzo(K)Fluoranthene	**0.8**	4.9	2	MG/KG		**2**	0.28	0.33 J	0.0081 J	0.042 U	0.1 U	0.28 J	0.57	0.04 U	0.11 U	0.19	0.12 U	0.041	0.28	0.19	0.018 J	0.033 U	0.036 U	0.12 U	**2.6**	0.038 U	0.04 U
Benzoic Acid	--	--	--	MG/KG		0.6 U	0.61 U	3 U	0.39 U	0.42 U	0.57 U	2.9 U	2.9 U	0.4 U	0.61 U	0.6 U	0.63 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.62 U	3.1 U	0.38 U	0.4 U
Benzyl Alcohol	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Benzyl Butyl Phthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Biphenyl (Diphenyl)	--	--	--	MG/KG		0.42 U	0.43 U	2.1 U	0.39 U	0.42 U	0.4 U	2.1 U	2.1 U	0.4 U	0.43 U	0.42 U	0.44 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.44 U	2.2 U	0.38 U	0.4 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG		0.2 U	0.2 U	0.99 U	0.39 U	0.42 U	0.19 U	0.98 U	0.98 U	0.4 U	0.2 U	0.2 U	0.21 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.21 U	1 U	0.38 U	0.4 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG		0.17 U	0.17 U	0.82 U	0.039 U	0.042 U	0.16 U	0.82 U	0.81 U	0.04 U	0.17 U	0.17 U	0.17 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.17 U	0.87 U	0.038 U	0.04 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG		0.22 U	0.22 U	1.1 U	0.39 U	0.42 U	0.21 U	1.1 U	1.1 U	0.4 U	0.23 U	0.22 U	0.23 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.23 U	1.2 U	0.38 U	0.4 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.4 J	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Caprolactam	--	--	--	MG/KG		NA	NA	NA	0.39 U	0.42 U	NA	NA	NA	0.4 U	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	NA	NA	0.38 U	0.4 U
Carbazole	--	--	--	MG/KG		0.51	0.16 J	0.21 J	0.39 U	0.42 U	0.18 U	0.12 J	0.34 J	0.4 U	0.19 U	0.072 J	0.19 U	0.33 U	0.1 J	0.037 J	0.33 U	0.33 U	0.36 U	0.19 U	0.47 J	0.38 U	0.4 U
Chrysene	**1**	4.9	1	MG/KG		**4.4**	0.76	0.9	0.39 U	0.42 U	0.1 U	0.68	**1.4**	0.4 U	0.11 U	0.47	0.12 U	0.12 J	0.79	0.46	0.033 J	0.33 U	0.36 U	0.12 U	**10**	0.38 U	0.4 U
Cresols, M & P	0.33	100	0.33	MG/KG		NA	NA	NA	0.39 U	0.42 U	NA	NA	NA	0.4 U	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	NA	NA	0.38 U	0.4 U
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG		**0.83**	0.096 J	0.14 J	0.039 U	0.042 U	0.1 U	0.1 J	0.23 J	0.04 U	0.11 U	0.074 J	0.12 U	0.033 U	0.11	0.07	0.033 U	0.033 U	0.036 U	0.12 U	**1.3**	0.038 U	0.04 U
Dibenzofuran	2.1	18	110	MG/KG		0.14 J	0.079 J	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.12 J	0.4 U	0.19 U	0.024 J	0.19 U	0.33 U	0.081 J	0.012 J	0.33 U	0.33 U	0.36 U	0.19 U	0.2 J	0.38 U	0.4 U
Diethyl Phthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Dimethyl Phthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Di-N-Butyl Phthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Di-N-Octylphthalate	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Fluoranthene	85	100	1000	MG/KG		6.9	1.5	2.3	0.39 U	0.42 U	0.1 U	1.6 J	3.7 J	0.4 U	0.11 U	1	0.12 U	0.19 J	1.6	0.85	0.054 J	0.33 U	0.36 U	0.12 U	17	0.024 J	0.4 U
Fluorene	30	100	386	MG/KG		0.28	0.11 J	0.12 J	0.39 U	0.42 U	0.18 U	0.9 U	0.22 J	0.4 U	0.19 U	0.044 J	0.19 U	0.33 U	0.12 J	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.58 J	0.38 U	0.4 U
Hexachlorobenzene	0.33	0.33	3.2	MG/KG		0.11 U	0.11 U	0.55 U	0.039 U	0.042 U	0.1 U	0.54 U	0.54 U	0.04 U	0.11 U	0.11 U	0.12 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.12 U	0.58 U	0.038 U	0.04 U
Hexachlorobutadiene	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.079 U	0.084 U	0.18 U	0.9 U	0.9 U	0.08 U	0.19 U	0.18 U	0.19 U	0.067 U	0.067 U	0.068 U	0.067 U	0.067 U	0.072 U	0.19 U	0.96 U	0.077 U	0.08 U
Hexachlorocyclopentadiene	--	--	--	MG/KG		0.53 U	0.54 U	2.6 R	0.39 U	0.42 U	0.5 U	2.6 R	2.6 R	0.4 U	0.54 U	0.53 U	0.56 UJ	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.55 U	2.8 UJ	0.38 U	0.4 U
Hexachloroethane	--	--	--	MG/KG		0.15 U	0.15 U	0.73 U	0.039 U	0.042 U	0.14 U	0.72 U	0.72 U	0.04 U	0.15 U	0.15 U	0.16 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.15 U	0.77 U	0.038 U	0.04 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	1.4	6.6	MG/KG		**3.5**	0.37	**0.63 J**	0.043	0.042 U	0.14 U	0.43 J	**1**	0.04 U	0.15 U	0.3	0.16 U	0.052	0.35	0.28	0.015 J	0.033 U	0.036 U	0.15 U	**6.8**	0.038 U	0.04 U
Isophorone	--	--	--	MG/KG		0.17 U	0.17 U	0.82 U	0.16 U	0.17 U	0.16 U	0.82 U	0.81 U	0.16 U	0.17 U	0.17 U	0.17 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.17 U	0.87 U	0.15 U	0.16 U
M+P MethylPhenol	0.33	100	0.33	MG/KG		0.046 J	0.27 U	1.3 U	NA	NA	0.25 U	1.3 U	1.3 U	NA	0.27 U	0.27 U	0.28 U	NA	NA	NA	NA	NA	NA	0.28 U	1.4 U	NA	NA
Naphthalene	12	100	12	MG/KG		0.12 J	0.094 J	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.13 J	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.059 J	0.012 J	0.33 U	0.33 U	0.36 U	0.19 U	0.25 J	0.38 U	0.4 U
Nitrobenzene	0.08	1.8	0.08	MG/KG		0.17 U	0.17 U	0.82 U	0.039 U	0.042 U	0.16 U	0.82 U	0.81 U	0.04 U	0.17 U	0.17 U	0.17 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.17 U	0.87 U	0.038 U	0.04 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG		0.18 U	0.19 U	0.92 U	0.039 U	0.042 U	0.18 U	0.9 U	0.9 U	0.04 U	0.19 U	0.18 U	0.19 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.036 U	0.19 U	0.96 U	0.038 U	0.04 U
N-Nitrosodiphenylamine	--	--	--	MG/KG		0.15 U	0.15 U	0.73 U	0.39 U	0.42 U	0.14 U	0.72 U	0.72 U	0.4 U	0.15 U	0.15 U	0.16 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.15 U	0.77 U	0.38 U	0.4 U
Pentachlorophenol	0.8	1.3	0.8	MG/KG		0.15 U	0.15 U	0.73 U	0.31 U	0.33 U	0.14 U	0.72 U	0.72 U	0.32 U	0.15 U	0.15 U	0.16 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.29 U	0.15 U	0.77 U	0.31 U	0.32 U
Phenanthrene	**1.1**	4.9	1000	MG/KG		**4.4**	**1.4**	**1.4**	0.39 U	0.42 U	0.1 U	0.9 J	**2.3 J**	0.4 U	0.11 U	0.56	0.12 U	0.13 J	**1.4**	0.46	0.033 J	0.33 U	0.36 U	0.12 U	**8.3**	0.38 U	0.4 U
Phenol	0.33	100	0.33	MG/KG		0.18 U	0.19 U	0.92 U	0.39 U	0.42 U	0.18 U	0.9 U	0.9 U	0.4 U	0.19 U	0.18 U	0.19 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.36 U	0.19 U	0.96 U	0.38 U	0.4 U
Pyrene	64	100	1000	MG/KG		6.5	1.4	1.9	0.39 U	0.42 U	0.1 U	1.4 J	3.2 J	0.4 U	0.11 U	0.88	0.12 U	0.19 J	1.6	0.93	0.056 J	0.33 U	0.36 U	0.12 U	26	0.026 J	0.4 U

Table 3. Summary of Semivolatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-6	RISB-7	RISB-7	RISB-7	RISB-7	RISB-8	RISB-8	RISB-8	RISB-8	RISB-8	RISB-8	RISB-9	RISB-9	RISB-10	RISB-10	RISB-10	RISB-10	RISB-10	RISB-10	RISB-11	RISB-11	RISB-12
					Sample Date:	09/13/2024	09/05/2024	12/03/2025	12/03/2025	09/13/2024	09/06/2024	09/06/2024	09/06/2024	12/02/2025	12/02/2025	12/02/2025	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/09/2024	12/03/2025	12/03/2025	09/09/2024	09/04/2024	09/09/2024	09/04/2024
					Sample Depth (ft bls):	15 - 17	0 - 2	2 - 4	4 - 6	19 - 21	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	0 - 2	2 - 4	0 - 2	0 - 2	7 - 9	3 - 5	5 - 7	17 - 19	0 - 2	13 - 15	0 - 2
					Normal Sample or Field Duplicate:	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG		0.22 U	0.93 U	0.038 U	0.039 U	0.24 U	0.18 U	0.18 U	0.18 R	0.054 U	0.033 U	0.035 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.035 U	0.035 U	0.19 U	0.18 U	0.17 U	0.18 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG		0.033 U	0.14 U	0.038 U	0.039 U	0.036 U	0.027 U	0.028 U	0.027 R	0.054 U	0.033 U	0.035 U	0.028 U	0.026 U	0.029 U	0.028 U	0.029 U	0.035 U	0.035 U	0.028 U	0.027 U	0.025 U	0.028 U
2,3,4,6-Tetrachlorophenol	--	--	--	MG/KG		NA	NA	0.38 U	0.39 U	NA	NA	NA	NA	0.54 U	0.33 U	0.35 U	NA	NA	NA	NA	NA	0.35 U	0.35 U	NA	NA	NA	NA
2,4,5-Trichlorophenol	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2,4,6-Trichlorophenol	--	--	--	MG/KG		0.13 U	0.56 U	0.15 U	0.16 U	0.14 U	0.11 U	0.11 U	0.11 R	0.22 U	0.13 U	0.14 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.14 U	0.14 U	0.11 U	0.11 U	0.1 U	0.11 U
2,4-Dichlorophenol	--	--	--	MG/KG		0.2 U	0.84 U	0.15 U	0.16 U	0.22 U	0.16 U	0.17 U	0.16 R	0.22 U	0.13 U	0.14 U	0.17 U	0.16 U	0.17 U	0.17 U	0.17 U	0.14 U	0.14 U	0.17 U	0.16 U	0.15 U	0.17 U
2,4-Dimethylphenol	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2,4-Dinitrophenol	--	--	--	MG/KG		1.1 U	4.5 U	0.31 U	0.31 U	1.2 U	0.87 U	0.89 U	0.88 R	0.43 U	0.27 U	0.29 U	0.89 U	0.84 U	0.92 U	0.89 U	0.92 U	0.29 U	0.28 U	0.91 U	0.87 U	0.8 U	0.89 U
2,4-Dinitrotoluene	--	--	--	MG/KG		0.22 U	0.93 U	0.078 U	0.078 U	0.24 U	0.18 U	0.18 U	0.18 R	0.11 U	0.067 U	0.072 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.072 U	0.07 U	0.19 U	0.18 U	0.17 U	0.18 U
2,6-Dinitrotoluene	--	--	--	MG/KG		0.22 U	0.93 U	0.078 U	0.078 U	0.24 U	0.18 U	0.18 U	0.18 R	0.11 U	0.067 U	0.072 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.072 U	0.07 U	0.19 U	0.18 U	0.17 U	0.18 U
2-Chloronaphthalene	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2-Chlorophenol	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2-Methylnaphthalene	--	--	--	MG/KG		0.27 U	0.33 J	0.38 U	0.026 J	0.29 U	0.22 U	0.052 J	0.07 J-	0.54 U	0.33 U	0.35 U	0.22 U	0.21 U	0.03 J	0.22 U	0.23 U	0.35 U	0.35 U	0.23 U	0.22 U	0.2 U	0.052 J
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2-Nitroaniline	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
2-Nitrophenol	--	--	--	MG/KG		0.48 U	2 U	0.38 U	0.39 U	0.52 U	0.39 U	0.4 U	0.4 R	0.54 U	0.33 U	0.35 U	0.4 U	0.38 U	0.41 U	0.4 U	0.41 U	0.35 U	0.35 U	0.41 U	0.39 U	0.36 U	0.4 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG		0.22 U	0.93 U	0.15 U	0.16 U	0.24 U	0.18 U	0.18 U	0.18 R	0.22 U	0.13 U	0.14 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.14 U	0.14 U	0.19 U	0.18 U	0.17 U	0.18 U
3-Nitroaniline	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG		0.58 U	2.4 U	0.31 U	0.31 U	0.63 U	0.47 U	0.48 U	0.48 R	0.43 U	0.27 U	0.29 U	0.48 U	0.46 U	0.5 U	0.48 U	0.5 R	0.29 U	0.28 U	0.49 R	0.47 U	0.44 R	0.48 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4-Chloroaniline	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4-Methylphenol (P-Cresol)	0.33	100	0.33	MG/KG		NA	NA	0.38 U	0.39 U	NA	NA	NA	NA	0.54 U	0.33 U	0.35 U	NA	NA	NA	NA	NA	0.35 U	0.35 U	NA	NA	NA	NA
4-Nitroaniline	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
4-Nitrophenol	--	--	--	MG/KG		0.31 U	1.3 U	0.78 U	0.78 U	0.34 U	0.25 U	0.26 U	0.26 R	1.1 U	0.67 U	0.72 U	0.26 U	0.24 U	0.27 U	0.26 U	0.27 U	0.72 U	0.7 U	0.27 U	0.25 U	0.23 U	0.26 U
Acenaphthene	20	100	98	MG/KG		0.026 J	1.3	0.02 J	0.39 U	0.19 U	0.044 J	0.062 J	0.054 J-	0.54 U	0.33 U	0.35 U	0.15 U	0.14 U	0.057 J	0.1 J	0.15 U	0.35 U	0.35 U	0.15 U	0.022 J	0.13 U	0.15
Acenaphthylene	100	100	365	MG/KG		0.14 J	1.2	0.38 U	0.39 U	0.19 U	0.15	0.9	1 J-	0.54 U	0.33 U	0.35 U	0.15 U	0.14 U	0.15 U	0.031 J	0.15 U	0.35 U	0.35 U	0.15 U	0.14 U	0.13 U	0.17
Acetophenone	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Anthracene	100	100	1000	MG/KG		0.12 J	3.7	0.047 J	0.39 U	0.14 U	0.2	0.65	0.63 J-	0.54 U	0.33 U	0.35 U	0.11 U	0.1 U	0.15	0.26	0.11 U	0.35 U	0.35 U	0.11 U	0.073 J	0.1 U	0.37
Atrazine	--	--	--	MG/KG		NA	NA	0.15 U	0.16 U	NA	NA	NA	NA	0.22 U	0.13 U	0.14 U	NA	NA	NA	NA	NA	0.14 U	0.14 U	NA	NA	NA	NA
Benzaldehyde	--	--	--	MG/KG		NA	NA	0.38 U	0.39 U	NA	NA	NA	NA	0.54 U	0.33 U	0.35 U	NA	NA	NA	NA	NA	0.35 U	0.35 U	NA	NA	NA	NA
Benzo(A)Anthracene	**1**	1.4	1	MG/KG		0.56	**11**	0.17	0.039 U	0.14 U	0.58	**1.6**	**1.7 J-**	0.054 U	0.033 U	0.035 U	0.088 J	0.1 U	0.59	0.86	0.044 J	0.035 U	0.035 U	0.11 U	0.27	0.027 J	1.2
Benzo(A)Pyrene	**1**	1	22	MG/KG		0.7	**10**	0.14	0.039 U	0.19 U	0.59	**1.8**	**1.4 J-**	0.054 U	0.033 U	0.035 U	0.08 J	0.14 U	0.56	0.78	0.15 U	0.035 U	0.035 U	0.15 U	0.28	0.13 U	**1.2**
Benzo(B)Fluoranthene	**1**	1.4	2.1	MG/KG		0.73	**12**	0.19	0.039 U	0.14 U	0.8	**2.4**	**1.9 J-**	0.054 U	0.033 U	0.035 U	0.11	0.1 U	0.77	0.97	0.054 J	0.035 U	0.035 U	0.11 U	0.36	0.032 J	**1.6**
Benzo(G,H,I)Perylene	**0.64**	4.9	1000	MG/KG		0.5	**6.8**	0.096 J	0.39 U	0.19 U	0.4	**1.4**	**1.2 J-**	0.54 U	0.33 U	0.35 U	0.051 J	0.14 U	0.35	0.45	0.029 J	0.35 U	0.35 U	0.15 U	0.18	0.13 U	**0.82**
Benzo(K)Fluoranthene	**0.8**	4.9	2	MG/KG		0.16	**4.1**	0.08	0.039 U	0.14 U	0.2	0.62	0.73 J-	0.054 U	0.033 U	0.035 U	0.032 J	0.1 U	0.21	0.36	0.11 U	0.035 U	0.035 U	0.11 U	0.1 J	0.1 U	0.48
Benzoic Acid	--	--	--	MG/KG		0.72 U	3 U	0.38 U	0.39 U	0.78 U	0.59 U	0.6 U	0.59 R	0.54 U	0.33 U	0.35 U	0.6 U	0.57 U	0.62 U	0.6 U	0.62 U	0.35 U	0.35 U	0.62 U	0.59 U	0.54 U	0.6 U
Benzyl Alcohol	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Benzyl Butyl Phthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.2
Biphenyl (Diphenyl)	--	--	--	MG/KG		0.51 U	2.1 U	0.38 U	0.39 U	0.55 U	0.41 U	0.42 U	0.024 J-	0.54 U	0.33 U	0.35 U	0.42 U	0.4 U	0.44 U	0.42 U	0.44 U	0.35 U	0.35 U	0.43 U	0.41 U	0.38 U	0.42 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG		0.24 U	1 U	0.38 U	0.39 U	0.26 U	0.2 U	0.2 U	0.2 R	0.54 U	0.33 U	0.35 U	0.2 U	0.19 U	0.21 U	0.2 U	0.21 U	0.35 U	0.35 U	0.2 U	0.2 U	0.18 U	0.2 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG		0.2 U	0.84 U	0.038 U	0.039 U	0.22 U	0.16 U	0.17 U	0.16 R	0.054 U	0.033 U	0.035 U	0.17 U	0.16 U	0.17 U	0.17 U	0.17 U	0.035 U	0.035 U	0.17 U	0.16 U	0.15 U	0.17 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG		0.27 U	1.1 U	0.38 U	0.39 U	0.29 U	0.22 U	0.22 U	0.22 R	0.54 U	0.33 U	0.35 U	0.22 U	0.21 U	0.23 U	0.22 U	0.23 U	0.35 U	0.35 U	0.23 U	0.22 U	0.2 U	0.22 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.27	0.07 J	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.098 J	0.13 J	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.35
Caprolactam	--	--	--	MG/KG		NA	NA	0.38 U	0.39 U	NA	NA	NA	NA	0.54 U	0.33 U	0.35 U	NA	NA	NA	NA	NA	0.35 U	0.35 U	NA	NA	NA	NA
Carbazole	--	--	--	MG/KG		0.032 J	1.5	0.022 J	0.39 U	0.24 U	0.094 J	0.34	0.35 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.09 J	0.13 J	0.19 U	0.35 U	0.35 U	0.19 U	0.034 J	0.17 U	0.21
Chrysene	**1**	4.9	1	MG/KG		0.59	**11**	0.18 J	0.39 U	0.14 U	0.57	**1.6**	**1.6 J-**	0.54 U	0.33 U	0.35 U	0.082 J	0.1 U	0.58	0.86	0.041 J	0.35 U	0.35 U	0.11 U	0.27	0.026 J	**1.3**
Cresols, M & P	0.33	100	0.33	MG/KG		NA	NA	0.38 U	0.39 U	NA	NA	NA	NA	0.54 U	0.33 U	0.35 U	NA	NA	NA	NA	NA	0.35 U	0.35 U	NA	NA	NA	NA
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG		0.075 J	**1.4**	0.021 J	0.039 U	0.14 U	0.094 J	0.3	0.28 J-	0.054 U	0.033 U	0.035 U	0.11 U	0.1 U	0.083 J	0.12	0.11 U	0.035 U	0.035 U	0.11 U	0.044 J	0.1 U	0.2
Dibenzofuran	2.1	18	110	MG/KG		0.22 U	0.65 J	0.38 U	0.39 U	0.24 U	0.026 J	0.09 J	0.12 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.026 J	0.045 J	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.11 J
Diethyl Phthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Dimethyl Phthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Di-N-Butyl Phthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.1 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Di-N-Octylphthalate	--	--	--	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.18 U	0.18 R	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Fluoranthene	85	100	1000	MG/KG		0.99	22	0.37 J	0.02 J	0.14 U	1.2	3.5	3.1 J-	0.54 U	0.33 U	0.35 U	0.17	0.1 U	1.2	1.8	0.087 J	0.35 U	0.35 U	0.11 U	0.55	0.068 J	2.6
Fluorene	30	100	386	MG/KG		0.038 J	1.1	0.022 J	0.39 U	0.24 U	0.049 J	0.13 J	0.14 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.051 J	0.1 J	0.19 U	0.35 U	0.35 U	0.19 U	0.022 J	0.17 U	0.15 J
Hexachlorobenzene	0.33	0.33	3.2	MG/KG		0.13 U	0.56 U	0.038 U	0.039 U	0.14 U	0.11 U	0.11 U	0.11 R	0.054 U	0.033 U	0.035 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.035 U	0.035 U	0.11 U	0.11 U	0.1 U	0.11 U
Hexachlorobutadiene	--	--	--	MG/KG		0.22 U	0.93 U	0.078 U	0.078 U	0.24 U	0.18 U	0.18 U	0.18 R	0.11 U	0.067 U	0.072 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.072 U	0.07 U	0.19 U	0.18 U	0.17 U	0.18 U
Hexachlorocyclopentadiene	--	--	--	MG/KG		0.64 UJ	2.7 UJ	0.38 U	0.39 U	0.69 UJ	0.52 U	0.53 U	0.52 R	0.54 U	0.33 U	0.35 U	0.53 UJ	0.5 UJ	0.55 UJ	0.53 UJ	0.55 R	0.35 U	0.35 U	0.54 R	0.52 U	0.48 R	0.53 U
Hexachloroethane	--	--	--	MG/KG		0.18 U	2.74 U	0.038 U	0.039 U	0.19 U	0.14 U	0.15 U	0.15 R	0.054 U	0.033 U	0.035 U	0.15 U	0.14 U	0.15 U	0.15 U	0.15 U	0.035 U	0.035 U	0.15 U	0.14 U	0.13 U	0.15 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	1.4	6.6	MG/KG		0.4	**6.4**	0.092	0.039 U	0.19 U	0.4	**1.4**	**1.1 J-**	0.054 U	0.033 U	0.035 U	0.046 J	0.14 U	0.34	0.45	0.028 J	0.035 U	0.035 U	0.15 U	0.17	0.13 U	**0.81**
Isophorone	--	--	--	MG/KG		0.2 U	0.84 U	0.15 U	0.16 U	0.22 U	0.16 U	0.17 U	0.16 R	0.22 U	0.13 U	0.14 U	0.17 U	0.16 U	0.17 U	0.17 U	0.17 U	0.14 U	0.14 U	0.17 U	0.16 U	0.15 U	0.17 U
M+P MethylPhenol	0.33	100	0.33	MG/KG		0.32 U	1.3 U	NA	NA	0.35 U	0.26 U	0.08 J	0.092 J-	NA	NA	NA	0.27 U	0.25 U	0.28 U	0.27 U	0.28 U	NA	NA	0.27 U	0.26 U	0.24 U	0.26 U
Naphthalene	12	100	12	MG/KG		0.22 U	0.67 J	0.0084 J	0.034 J	0.24 U	0.027 J	0.15 J	0.21 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.028 J	0.035 J	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.11 J
Nitrobenzene	0.08	1.8	0.08	MG/KG		0.2 U	0.84 U	0.038 U	0.039 U	0.22 U	0.16 U	0.17 U	0.16 R	0.054 U	0.033 U	0.035 U	0.17 U	0.16 U	0.17 U	0.17 U	0.17 U	0.035 U	0.035 U	0.17 U	0.16 U	0.15 U	0.17 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG		0.22 U	0.93 U	0.038 U	0.039 U	0.24 U	0.18 U	0.18 U	0.18 R	0.054 U	0.033 U	0.035 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.035 U	0.035 U	0.19 U	0.18 U	0.17 U	0.18 U
N-Nitrosodiphenylamine	--	--	--	MG/KG		0.18 U	0.74 U	0.38 U	0.39 U	0.19 U	0.14 U	0.15 U	0.15 R	0.54 U	0.33 U	0.35 U	0.15 U	0.14 U	0.15 U	0.15 U	0.15 U	0.35 U	0.35 U	0.15 U	0.14 U	0.13 U	0.15 U
Pentachlorophenol	0.8	1.3	0.8	MG/KG		0.18 U	0.74 U	0.31 U	0.31 U	0.19 U	0.14 U	0.15 U	0.15 R	0.43 U	0.27 U	0.29 U	0.15 U	0.14 U	0.15 U	0.15 U	0.15 U	0.29 U	0.28 U	0.15 U	0.14 U	0.13 U	0.15 U
Phenanthrene	**1.1**	4.9	1000	MG/KG		0.48	**16**	0.29 J	0.057 J	0.14 U	0.68	**2**	**1.9 J-**	0.54 U	0.33 U	0.35 U	0.11	0.1 U	0.63 J	1.1 J	0.041 J	0.35 U	0.35 U	0.11 U	0.28	0.057 J	**1.9**
Phenol	0.33	100	0.33	MG/KG		0.22 U	0.93 U	0.38 U	0.39 U	0.24 U	0.18 U	0.09 J	0.12 J-	0.54 U	0.33 U	0.35 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.35 U	0.35 U	0.19 U	0.18 U	0.17 U	0.18 U
Pyrene	64	100	1000	MG/KG		1.6	21	0.36 J	0.032 J	0.14 U	1	2.9	2.7 J-	0.54 U	0.33 U	0.35 U	0.15	0.1 U	1	1.5	0.075 J	0.35 U	0.35 U	0.11 U	0.49	0.056 J	2.4

Table 3. Summary of Semivolatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-12 09/04/2024 2 - 4 N	RISB-12 09/09/2024 4 - 6 N	RISB-13 09/04/2024 0 - 2 N	RISB-13 12/04/2025 2 - 4 N	RISB-13 12/04/2025 4 - 6 N	RISB-13 12/04/2025 6 - 8 N	RISB-13 12/04/2025 8 - 10 N	RISB-13 12/04/2025 10 - 12 N	RISB-13 09/09/2024 17 - 19 N	RISB-13 09/09/2024 19 - 21 N	RISB-14 09/04/2024 0 - 2 N	RISB-14 12/04/2025 3 - 5 N	RISB-14 12/04/2025 5 - 7 N	RISB-14 12/04/2025 7 - 9 N	RISB-14 09/09/2024 9 - 11 N	RISB-14 09/09/2024 13 - 15 N	RISB-15 09/06/2024 0 - 2 N	RISB-15 09/12/2024 5 - 7 N	RISB-15 09/12/2024 7 - 9 N	RISB-15 12/04/2025 9 - 11 N	RISB-15 12/04/2025 11 - 13 N	RISB-16 09/06/2024 0 - 2 N
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.21 U	0.19 U	0.18 U	0.039 U	0.039 U	0.037 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.037 U	0.17 U	0.19 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG	0.027 U	0.025 U	0.028 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.032 U	0.028 U	0.028 U	0.039 U	0.039 U	0.037 U	0.026 U	0.029 U	0.026 U	0.028 U	0.026 R	0.037 U	0.17 U	0.028 U
2,3,4,6-Tetrachlorophenol	--	--	--	MG/KG	NA	NA	NA	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	NA	NA	NA	0.39 U	0.39 U	0.37 U	NA	NA	NA	NA	NA	0.37 U	1.7 U	NA
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.11 U	0.1 U	0.11 U	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.13 U	0.11 U	0.11 U	0.16 U	0.16 U	0.15 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 R	0.15 U	0.68 U	0.11 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.16 U	0.15 U	0.17 U	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.19 U	0.17 U	0.16 U	0.16 U	0.16 U	0.15 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 R	0.15 U	0.68 U	0.17 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.86 U	0.81 U	0.89 U	0.31 U	0.3 U	0.32 U	0.27 U	0.29 U	1 U	0.9 U	0.88 U	0.31 U	0.31 U	0.3 U	0.84 U	0.92 U	0.84 U	0.89 U	0.85 R	0.3 U	1.4 U	0.91 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.078 U	0.074 U	0.081 U	0.069 U	0.072 U	0.21 U	0.19 U	0.18 U	0.078 U	0.079 U	0.075 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.075 U	0.34 U	0.19 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.078 U	0.074 U	0.081 U	0.069 U	0.072 U	0.21 U	0.19 U	0.18 U	0.078 U	0.079 U	0.075 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.075 U	0.34 U	0.19 U
2-Chloronaphthalene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2-Chlorophenol	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2-Methylnaphthalene	--	--	--	MG/KG	0.055 J	0.2 U	0.12 J	0.38 U	0.058 J	0.4 U	0.34 U	0.35 U	0.25 U	0.22 U	0.14 J	0.39 U	0.39 U	0.37 U	0.21 U	0.23 U	0.21 U	0.15 J	0.21 R	0.37 U	0.14 J	0.036 J
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2-Nitroaniline	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
2-Nitrophenol	--	--	--	MG/KG	0.38 U	0.36 U	0.4 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.45 U	0.4 U	0.4 U	0.39 U	0.39 U	0.37 U	0.38 U	0.41 U	0.38 U	0.4 U	0.38 R	0.37 U	1.7 U	0.41 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.21 U	0.19 U	0.18 U	0.16 U	0.16 U	0.15 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.15 U	0.68 U	0.19 U
3-Nitroaniline	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.46 U	0.44 R	0.48 U	0.31 U	0.3 U	0.32 U	0.27 U	0.29 U	0.55 R	0.49 R	0.48 U	0.31 U	0.31 U	0.3 U	0.46 R	0.5 R	0.46 U	0.48 U	0.46 R	0.3 U	1.4 U	0.49 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
4-Chloroaniline	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 UT	0.37 UT	0.4 UT	0.34 UT	0.35 UT	0.21 U	0.19 U	0.18 U	0.39 UT	0.39 UT	0.37 UT	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 UT	1.7 UT	0.19 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
4-Methylphenol (P-Cresol)	0.33	100	0.33	MG/KG	NA	NA	NA	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	NA	NA	NA	0.39 U	0.39 U	0.37 U	NA	NA	NA	NA	NA	0.37 U	1.7 U	NA
4-Nitroaniline	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
4-Nitrophenol	--	--	--	MG/KG	0.25 U	0.24 U	0.26 U	0.78 U	0.74 U	0.81 U	0.69 U	0.72 U	0.29 U	0.26 U	0.26 U	0.78 U	0.79 U	0.75 U	0.25 U	0.27 U	0.25 U	0.26 U	0.25 R	0.75 U	3.4 U	0.27 U
Acenaphthene	20	100	98	MG/KG	0.15	0.14 U	0.35	0.072 J	0.16 J	0.04 J	0.34 U	0.35 U	0.17 U	0.15 U	0.4	0.39 U	0.39 U	0.37 U	0.14 U	0.15 U	0.032 J	0.081 J	0.028 J-	0.015 J	0.37 J	0.15
Acenaphthylene	100	100	365	MG/KG	0.3	0.14 U	0.4	0.38 U	0.045 J	0.011 J	0.34 U	0.35 U	0.17 U	0.15 U	1.1	0.39 U	0.39 U	0.37 U	0.14 U	0.15 U	0.15	0.66	0.14 R	0.03 J	1.7 U	0.26
Acetophenone	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Anthracene	100	100	1000	MG/KG	0.49	0.1 U	1	0.11 J	0.36 J	0.061 J	0.34 U	0.35 U	0.13 U	0.11 U	1.3	0.39 U	0.39 U	0.37 U	0.1 U	0.11 U	0.18	0.56	0.042 J-	0.054 J	0.23 J	0.57
Atrazine	--	--	--	MG/KG	NA	NA	NA	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	NA	NA	NA	0.16 U	0.16 U	0.15 U	NA	NA	NA	NA	NA	0.15 U	0.68 U	NA
Benzaldehyde	--	--	--	MG/KG	NA	NA	NA	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	NA	NA	NA	0.39 U	0.39 U	0.37 U	NA	NA	NA	NA	NA	0.37 U	1.7 U	NA
Benzo(A)Anthracene	**1**	1.4	1	MG/KG	**1.6**	0.027 J	**2.7 J**	0.31	**1.2**	0.2	0.034 U	0.049	0.13 U	0.11 U	**4.3**	0.039 U	0.039 U	0.037 U	0.1 U	0.11 U	0.49	**1.7**	0.13 J-	0.25	0.32	**1.5**
Benzo(A)Pyrene	**1**	1	22	MG/KG	**1.5**	0.14 U	**2.4 J**	0.25	**1.1**	0.21	0.034 U	0.056	0.17 U	0.15 U	**4.2**	0.039 U	0.039 U	0.037 U	0.14 U	0.15 U	0.48	**1.6**	0.12 J-	0.23	0.23	**1.5**
Benzo(B)Fluoranthene	**1**	1.4	2.1	MG/KG	**2**	0.1 U	**3.1 J**	0.36	**1.4**	0.3	0.012 J	0.086	0.13 U	0.11 U	**5.1**	0.039 U	0.039 U	0.037 U	0.1 U	0.11 U	0.62	**2.1**	0.15 J-	0.31	0.15 J	**2**
Benzo(G,H,I)Perylene	**0.64**	4.9	1000	MG/KG	**1.1**	0.14 U	**1.6**	0.16 J	**0.74**	0.13 J	0.34 U	0.35 U	0.17 U	0.15 U	**2.9**	0.39 U	0.39 U	0.37 U	0.14 U	0.15 U	0.32	**1.1**	0.083 J-	0.16 J	0.11 J	**1**
Benzo(K)Fluoranthene	**0.8**	4.9	2	MG/KG	0.66	0.1 U	**0.94**	0.14	0.54	0.14	0.0069 J	0.04	0.13 U	0.11 U	**1.3**	0.039 U	0.039 U	0.037 U	0.1 U	0.11 U	0.17	0.63	0.043 J-	0.11	0.17 U	0.62
Benzoic Acid	--	--	--	MG/KG	0.58 U	0.55 U	0.6 R	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.68 U	0.61 U	0.6 U	0.39 U	0.39 U	0.37 U	0.57 U	0.62 U	0.57 U	0.6 U	0.57 R	0.37 U	1.7 U	0.62 U
Benzyl Alcohol	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.41 U	0.38 U	0.039 J	0.38 U	0.016 J	0.4 U	0.34 U	0.35 U	0.48 U	0.43 U	0.049 J	0.39 U	0.39 U	0.37 U	0.4 U	0.44 U	0.4 U	0.036 J	0.4 R	0.37 U	1.7 U	0.43 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.19 U	0.18 U	0.2 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.23 U	0.2 U	0.2 U	0.39 U	0.39 U	0.37 U	0.19 U	0.21 U	0.19 U	0.2 U	0.19 R	0.37 U	1.7 U	0.2 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.16 U	0.15 U	0.17 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.19 U	0.17 U	0.16 U	0.039 U	0.039 U	0.037 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 R	0.037 U	0.17 U	0.17 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.21 U	0.2 U	0.22 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.25 U	0.22 U	0.22 U	0.39 U	0.39 U	0.37 U	0.21 U	0.23 U	0.21 U	0.22 U	0.21 R	0.37 U	1.7 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.1 J	0.17 U	0.11 J	1.2	0.038 J	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.41
Caprolactam	--	--	--	MG/KG	NA	NA	NA	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	NA	NA	NA	0.39 U	0.39 U	0.37 U	NA	NA	NA	NA	NA	0.37 U	1.7 U	NA
Carbazole	--	--	--	MG/KG	0.24	0.17 U	0.55	0.067 J	0.23 J	0.037 J	0.34 U	0.35 U	0.21 U	0.19 U	0.87	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.055 J	0.28	0.017 J-	0.022 J	1.7 U	0.29
Chrysene	**1**	4.9	1	MG/KG	**1.6**	0.025 J	**2.5 J**	0.37 J	**1.3**	0.3 J	0.018 J	0.1 J	0.13 U	0.11 U	**4.7**	0.39 U	0.39 U	0.37 U	0.1 U	0.11 U	0.45	**1.6**	0.14 J-	0.29 J	0.82 J	**1.4**
Cresols, M & P	0.33	100	0.33	MG/KG	NA	NA	NA	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	NA	NA	NA	0.39 U	0.39 U	0.37 U	NA	NA	NA	NA	NA	0.37 U	1.7 U	NA
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.26	0.1 U	**0.4**	0.04	0.19	0.029 J	0.034 U	0.035 U	0.13 U	0.11 U	**0.69**	0.039 U	0.039 U	0.037 U	0.1 U	0.11 U	0.071 J	0.26	0.1 R	0.045	0.17 U	0.24
Dibenzofuran	2.1	18	110	MG/KG	0.12 J	0.17 U	0.29	0.034 J	0.12 J	0.024 J	0.34 U	0.35 U	0.21 U	0.19 U	0.44	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.027 J	0.17 J	0.024 J-	0.37 U	0.22 J	0.075 J
Diethyl Phthalate	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.027 J	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Dimethyl Phthalate	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.06 J	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.18 U	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.37 U	1.7 U	0.19 U
Fluoranthene	85	100	1000	MG/KG	3.2	0.054 J	5 J	0.87	2.7	0.63	0.021 J	0.16 J	0.13 U	0.11 U	12	0.39 U	0.39 U	0.37 U	0.1 U	0.11 U	0.97	3.6	0.26 J-	0.52	0.14 J	3.2
Fluorene	30	100	386	MG/KG	0.19	0.17 U	0.43	0.056 J	0.16 J	0.038 J	0.34 U	0.35 U	0.21 U	0.19 U	0.66	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.034 J	0.15 J	0.02 J-	0.37 U	0.49 J	0.16 J
Hexachlorobenzene	0.33	0.33	3.2	MG/KG	0.11 U	0.1 U	0.11 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.13 U	0.11 U	0.11 U	0.039 U	0.039 U	0.037 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 R	0.037 U	0.17 U	0.11 U
Hexachlorobutadiene	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.078 U	0.074 U	0.081 U	0.069 U	0.072 U	0.21 U	0.19 U	0.18 U	0.078 U	0.079 U	0.075 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.075 U	0.34 U	0.19 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.51 U	0.48 R	0.53 UJ	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.6 R	0.54 R	0.53 U	0.39 U	0.39 U	0.37 U	0.5 R	0.55 R	0.5 U	0.53 UJ	0.5 R	0.37 U	1.7 U	0.54 U
Hexachloroethane	--	--	--	MG/KG	0.14 U	0.14 U	0.15 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.17 U	0.15 U	0.15 U	0.039 U	0.039 U	0.037 U	0.14 U	0.15 U	0.14 U	0.15 U	0.14 R	0.037 U	0.17 U	0.15 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	1.4	6.6	MG/KG	**1**	0.14 U	**1.6**	0.16	**0.76**	0.13	0.034 U	0.035 U	0.17 U	0.15 U	**2.9**	0.039 U	0.039 U	0.037 U	0.14 U	0.15 U	0.32	**1.2**	0.074 J-	0.16	0.17 U	**1**
Isophorone	--	--	--	MG/KG	0.16 U	0.15 U	0.17 U	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.19 U	0.17 U	0.16 U	0.16 U	0.16 U	0.15 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 R	0.15 U	0.68 U	0.17 U
M+P MethylPhenol	0.33	100	0.33	MG/KG	0.26 U	0.24 U	0.032 J	NA	NA	NA	NA	NA	0.3 U	0.27 U	0.063 J	NA	NA	NA	0.25 U	0.28 U	0.25 U	0.07 J	0.25 R	NA	NA	0.27 U
Naphthalene	12	100	12	MG/KG	0.18	0.17 U	0.27	0.019 J	0.15 J	0.033 J	0.34 U	0.35 U	0.21 U	0.19 U	0.28	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.041 J	0.42	0.029 J-	0.017 J	1.7 U	0.068 J
Nitrobenzene	0.08	1.8	0.08	MG/KG	0.16 U	0.15 U	0.17 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.19 U	0.17 U	0.16 U	0.039 U	0.039 U	0.037 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 R	0.037 U	0.17 U	0.17 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.18 U	0.17 U	0.18 U	0.038 U	0.037 U	0.04 U	0.034 U	0.035 U	0.21 U	0.19 U	0.18 U	0.039 U	0.039 U	0.037 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 R	0.037 U	0.17 U	0.19 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.14 U	0.14 U	0.15 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.17 U	0.15 U	0.15 U	0.39 U	0.39 U	0.37 U	0.14 U	0.15 U	0.14 U	0.15 U	0.14 R	0.37 U	1.7 U	0.15 U
Pentachlorophenol	0.8	1.3	0.8	MG/KG	0.14 U	0.14 U	0.15 U	0.31 U	0.3 U	0.32 U	0.27 U	0.29 U	0.17 U	0.15 U	0.15 U	0.31 U	0.31 U	0.3 U	0.14 U	0.15 U	0.14 U	0.15 U	0.14 R	0.3 U	1.4 U	0.15 U
Phenanthrene	**1.1**	4.9	1000	MG/KG	**2.2**	0.036 J	**4.2 J**	0.8	**2.3**	0.48	0.34 U	0.098 J	0.13 U	0.11 U	**6.2**	0.39 U	0.39 U	0.37 U	0.1 U	0.11 U	0.59	**2.5**	0.22 J-	0.36 J	**1.2 J**	**2**
Phenol	0.33	100	0.33	MG/KG	0.18 U	0.17 U	0.18 U	0.38 U	0.37 U	0.4 U	0.34 U	0.35 U	0.21 U	0.19 U	0.042 J	0.39 U	0.39 U	0.37 U	0.18 U	0.19 U	0.18 U	0.036 J	0.18 R	0.37 U	1.7 U	0.19 U
Pyrene	64	100	1000	MG/KG	2.9	0.048 J	4.5 J	0.79	2.6	0.61	0.022 J	0.15 J	0.13 U	0.11 U	6.9	0.39 U	0.39 U	0.37 U	0.1 U	0.11 U	0.9	3	0.26 J-	0.56	0.59 J	2.7

Table 3. Summary of Semivolatile Organic Compounds in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-16	RISB-17	RISB-17	RISB-17	RISB-17	RISB-17	RISB-17	RISB-18	RISB-18	RISB-18	RISB-18	RISB-18	RISB-18	RISB-19	RISB-19	RISB-19
					Sample Date:	09/06/2024	09/10/2024	12/03/2025	12/03/2025	12/03/2025	12/03/2025	09/10/2024	09/05/2024	12/02/2025	12/02/2025	12/02/2025	12/02/2025	09/12/2024	09/12/2024	09/10/2024	12/02/2025	09/12/2024
					Sample Depth (ft bls):	3 - 5	0 - 2	2 - 4	4 - 6	4 - 6	6 - 8	12 - 14	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	8 - 10	FD	0 - 2	3 - 5	5 - 7
					Normal Sample or Field Duplicate:	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N	N
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.2 U	0.91 U	0.046 U	0.045 U	0.047 U	0.044 U	0.19 U	0.93 U	0.043 U	0.047 U	0.046 U	0.22 U	0.22 U	0.9 U	0.037 U	0.16 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
1,3-Dichlorobenzene	2.6	38	2.6	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
1,4-Dichlorobenzene	1.8	24	1.8	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
1,4-Dioxane (P-Dioxane)	0.1	5.7	0.1	MG/KG	0.03 U	0.14 U	0.046 U	0.045 U	0.047 U	0.044 U	0.028 U	0.14 U	0.043 U	0.047 U	0.046 U	0.033 U	0.034 U	0.13 U	0.037 U	0.025 U
2,3,4,6-Tetrachlorophenol	--	--	--	MG/KG	NA	NA	0.46 U	0.45 U	0.47 U	0.44 U	NA	NA	0.43 U	0.47 U	0.46 U	NA	NA	NA	0.37 U	NA
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.12 U	0.54 U	0.19 U	0.18 U	0.19 U	0.18 U	0.11 U	0.56 U	0.17 U	0.19 U	0.19 U	0.13 U	0.13 U	0.54 U	0.15 U	0.099 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.18 U	0.82 U	0.19 U	0.18 U	0.19 U	0.18 U	0.17 U	0.84 U	0.17 U	0.19 U	0.19 U	0.2 U	0.2 U	0.81 U	0.15 U	0.15 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.95 U	4.4 U	0.37 U	0.36 U	0.38 U	0.36 U	0.91 U	4.5 U	0.35 U	0.38 U	0.37 U	1.1 U	1.1 U	4.3 UJ	0.3 U	0.79 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.91 U	0.093 U	0.091 U	0.096 U	0.089 U	0.19 U	0.93 U	0.088 U	0.095 U	0.094 U	0.22 U	0.22 U	0.9 U	0.075 U	0.16 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.91 U	0.093 U	0.091 U	0.096 U	0.089 U	0.19 U	0.93 U	0.088 U	0.095 U	0.094 U	0.22 U	0.22 U	0.9 U	0.075 U	0.16 U
2-Chloronaphthalene	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2-Chlorophenol	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2-Methylnaphthalene	--	--	--	MG/KG	0.24 U	1.1 U	0.46 U	0.45 U	0.47 U	0.44 U	0.23 U	0.12 J	0.43 U	0.47 U	0.42 J	0.26 U	0.27 U	1.1 U	0.37 U	0.2 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2-Nitroaniline	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
2-Nitrophenol	--	--	--	MG/KG	0.43 U	2 U	0.46 U	0.45 U	0.47 U	0.44 U	0.41 U	2 U	0.43 U	0.47 U	0.46 U	0.48 U	0.48 U	1.9 U	0.37 U	0.36 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.2 U	0.91 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 U	0.93 U	0.17 U	0.19 U	0.19 U	0.22 U	0.22 U	0.9 U	0.15 U	0.16 U
3-Nitroaniline	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.51 U	2.4 U	0.37 U	0.36 U	0.38 U	0.36 U	0.5 U	2.4 U	0.35 U	0.38 U	0.37 U	0.57 U	0.58 U	2.3 UJ	0.3 U	0.43 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4-Chloroaniline	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4-Methylphenol (P-Cresol)	0.33	100	0.33	MG/KG	NA	NA	0.46 U	0.45 U	0.47 U	0.44 U	NA	NA	0.43 U	0.47 U	0.04 J	NA	NA	NA	0.37 U	NA
4-Nitroaniline	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
4-Nitrophenol	--	--	--	MG/KG	0.28 U	1.3 U	0.93 U	0.91 U	0.96 U	0.89 U	0.27 U	1.3 U	0.88 U	0.95 U	0.94 U	0.31 U	0.31 U	1.2 U	0.75 U	0.23 U
Acenaphthene	20	100	98	MG/KG	0.16 U	0.73 U	0.46 U	0.45 U	0.47 U	0.44 U	0.15 U	0.43 J	0.43 U	0.47 U	0.46	0.18 U	0.18 U	0.72 U	0.37 U	0.13 U
Acenaphthylene	100	100	365	MG/KG	0.16 U	0.46 J	0.46 U	0.45 U	0.47 U	0.44 U	0.15 U	1.4	0.024 J	0.47 U	0.45 J	0.18 U	0.18 U	0.72 U	0.37 U	0.13 U
Acetophenone	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Anthracene	100	100	1000	MG/KG	0.12 U	0.58	0.46 U	0.45 U	0.47 U	0.44 U	0.11 U	2.2	0.049 J	0.47 U	1.1	0.13 U	0.13 U	0.54 U	0.37 U	0.099 U
Atrazine	--	--	--	MG/KG	NA	NA	0.19 U	0.18 U	0.19 U	0.18 U	NA	NA	0.17 U	0.19 U	0.19 U	NA	NA	NA	0.15 U	NA
Benzaldehyde	--	--	--	MG/KG	NA	NA	0.46 U	0.45 U	0.47 U	0.44 U	NA	NA	0.43 U	0.47 U	0.46 U	NA	NA	NA	0.37 U	NA
Benzo(A)Anthracene	**1**	1.4	1	MG/KG	0.12	2.2	0.046 U	0.045 U	0.047 U	0.044 U	0.029 J	5.5	0.24	0.047 U	2.6	0.13 U	0.13 U	0.34 J	0.037 U	0.099 U
Benzo(A)Pyrene	**1**	1	22	MG/KG	0.09 J	**2.2**	0.046 U	0.045 U	0.047 U	0.044 U	0.15 U	**5.2**	0.23	0.047 U	**3**	0.18 U	0.18 U	0.31 J	0.037 U	0.13 U
Benzo(B)Fluoranthene	**1**	1.4	2.1	MG/KG	0.11 J	2.7	0.046 U	0.045 U	0.047 U	0.044 U	0.033 J	6.6	0.27	0.047 U	4	0.13 U	0.13 U	0.39 J	0.037 U	0.099 U
Benzo(G,H,I)Perylene	**0.64**	4.9	1000	MG/KG	0.051 J	**1.5**	0.46 U	0.45 U	0.47 U	0.44 U	0.15 U	**3.3**	0.14 J	0.47 U	**1.7**	0.18 U	0.18 U	0.22 J	0.37 U	0.13 U
Benzo(K)Fluoranthene	**0.8**	4.9	2	MG/KG	0.12 U	0.74	0.046 U	0.045 U	0.047 U	0.044 U	0.11 U	**2**	0.14	0.047 U	**1.5**	0.13 U	0.13 U	0.14 J	0.037 U	0.099 U
Benzoic Acid	--	--	--	MG/KG	0.64 U	2.9 U	0.46 U	0.45 U	0.47 U	0.44 U	0.62 U	3 U	0.43 U	0.47 U	0.46 U	0.72 U	0.73 U	2.9 UJ	0.37 U	0.54 R
Benzyl Alcohol	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.45 U	2.1 U	0.46 U	0.45 U	0.47 U	0.44 U	0.43 U	2.1 U	0.43 U	0.47 U	0.15 J	0.5 U	0.51 U	2 U	0.37 U	0.38 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.21 U	0.98 U	0.46 U	0.45 U	0.47 U	0.44 U	0.2 U	1 U	0.43 U	0.47 U	0.46 U	0.24 U	0.24 U	0.97 U	0.37 U	0.18 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.18 U	0.82 U	0.046 U	0.045 U	0.047 U	0.044 U	0.17 U	0.84 U	0.043 U	0.047 U	0.046 U	0.2 U	0.2 U	0.81 U	0.037 U	0.15 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.24 U	1.1 U	0.46 U	0.45 U	0.47 U	0.44 U	0.23 U	1.1 U	0.43 U	0.47 U	0.46 U	0.26 UJ	0.27 UJ	1.1 U	0.37 U	0.2 UJ
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Caprolactam	--	--	--	MG/KG	NA	NA	0.46 U	0.45 U	0.47 U	0.44 U	NA	NA	0.43 U	0.47 U	0.46 U	NA	NA	NA	0.37 U	NA
Carbazole	--	--	--	MG/KG	0.2 U	0.2 J	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	1.2	0.022 J	0.47 U	0.83	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Chrysene	**1**	4.9	1	MG/KG	0.12	2	0.46 U	0.45 U	0.47 U	0.44 U	0.028 J	5.5	0.28 J	0.47 U	3.6	0.13 U	0.13 U	0.35 J	0.37 U	0.099 U
Cresols, M & P	0.33	100	0.33	MG/KG	NA	NA	0.46 U	0.45 U	0.47 U	0.44 U	NA	NA	0.43 U	0.47 U	0.04 J	NA	NA	NA	0.37 U	NA
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.12 U	0.28 J	0.046 U	0.045 U	0.047 U	0.044 U	0.11 U	**0.8**	0.038 J	0.047 U	**0.42**	0.13 U	0.13 U	0.54 U	0.037 U	0.099 U
Dibenzofuran	2.1	18	110	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.29 J	0.43 U	0.47 U	1	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Diethyl Phthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Dimethyl Phthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Fluoranthene	85	100	1000	MG/KG	0.24	5.5	0.46 U	0.45 U	0.47 U	0.44 U	0.061 J	10	0.53	0.47 U	9.2	0.13 U	0.13 U	0.81	0.014 J	0.099 U
Fluorene	30	100	386	MG/KG	0.2 U	0.17 J	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.6 J	0.019 J	0.47 U	0.89	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Hexachlorobenzene	0.33	0.33	3.2	MG/KG	0.12 U	0.54 U	0.046 U	0.045 U	0.047 U	0.044 U	0.11 U	0.56 U	0.043 U	0.047 U	0.046 U	0.13 U	0.13 U	0.54 U	0.037 U	0.099 U
Hexachlorobutadiene	--	--	--	MG/KG	0.2 U	0.91 U	0.093 U	0.091 U	0.096 U	0.089 U	0.19 U	0.93 U	0.088 U	0.095 U	0.094 U	0.22 U	0.22 U	0.9 U	0.075 U	0.16 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.56 U	2.6 R	0.46 U	0.45 U	0.47 U	0.44 U	0.54 R	2.7 UJ	0.43 U	0.47 U	0.46 U	0.63 UJ	0.64 UJ	2.6 R	0.37 U	0.47 UJ
Hexachloroethane	--	--	--	MG/KG	0.16 U	0.73 U	0.046 U	0.045 U	0.047 U	0.044 U	0.15 U	0.75 U	0.043 U	0.047 U	0.046 U	0.18 U	0.18 U	0.72 U	0.037 U	0.13 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	1.4	6.6	MG/KG	0.052 J	**1.4**	0.046 U	0.045 U	0.047 U	0.044 U	0.15 U	**3.3**	0.16	0.047 U	**1.8**	0.18 U	0.18 U	0.2 J	0.037 U	0.13 U
Isophorone	--	--	--	MG/KG	0.18 U	0.82 U	0.19 U	0.18 U	0.19 U	0.18 U	0.17 U	0.84 U	0.17 U	0.19 U	0.19 U	0.2 U	0.2 U	0.81 U	0.15 U	0.15 U
M+P MethylPhenol	0.33	100	0.33	MG/KG	0.28 U	1.3 U	NA	NA	NA	NA	0.27 U	1.3 U	NA	NA	NA	0.32 U	0.32 U	1.3 U	NA	0.24 U
Naphthalene	12	100	12	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.012 J	0.44 U	0.19 U	0.23 J	0.43 U	0.47 U	0.85	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Nitrobenzene	0.08	1.8	0.08	MG/KG	0.18 U	0.82 U	0.046 U	0.045 U	0.047 U	0.044 U	0.17 U	0.84 U	0.043 U	0.047 U	0.046 U	0.2 U	0.2 U	0.81 U	0.037 U	0.15 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.2 U	0.91 U	0.046 U	0.045 U	0.047 U	0.044 U	0.19 U	0.93 U	0.043 U	0.047 U	0.046 U	0.22 U	0.22 U	0.9 U	0.037 U	0.16 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.16 U	0.73 U	0.46 U	0.45 U	0.47 U	0.44 U	0.15 U	0.75 U	0.43 U	0.47 U	0.46 U	0.18 U	0.18 U	0.72 U	0.37 U	0.13 U
Pentachlorophenol	0.8	1.3	0.8	MG/KG	0.16 U	0.73 U	0.37 U	0.36 U	0.38 U	0.36 U	0.15 U	0.75 U	0.35 U	0.38 U	0.37 U	0.18 U	0.18 U	0.72 U	0.3 U	0.13 U
Phenanthrene	**1.1**	4.9	1000	MG/KG	0.26	**3**	0.46 U	0.45 U	0.47 U	0.44 U	0.034 J	**7.1**	0.3 J	0.47 U	**10**	0.13 U	0.13 U	0.48 J	0.37 U	0.099 U
Phenol	0.33	100	0.33	MG/KG	0.2 U	0.91 U	0.46 U	0.45 U	0.47 U	0.44 U	0.19 U	0.93 U	0.43 U	0.47 U	0.46 U	0.22 U	0.22 U	0.9 U	0.37 U	0.16 U
Pyrene	64	100	1000	MG/KG	0.27	4.7	0.014 J	0.45 U	0.47 U	0.44 U	0.053 J	8.9	0.48	0.47 U	8.8	0.13 U	0.13 U	0.69	0.012 J	0.099 U

Table 4. Summary of Metals in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-1	RISB-1	RISB-1	RISB-2	RISB-2	RISB-2	RISB-2	RISB-3	RISB-3	RISB-3	RISB-3	RISB-4	RISB-4	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-6	RISB-6
					Sample Date:	09/06/2024	09/18/2024	09/18/2024	09/10/2024	12/02/2025	12/02/2025	09/17/2024	09/10/2024	09/10/2024	12/02/2025	09/17/2024	09/04/2024	09/13/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/17/2024	09/05/2024	12/03/2025
					Sample Depth (ft bls):	0 - 2	5 - 7	7 - 9	0 - 2	2 - 4	4 - 6	7 - 9	0 - 2	0 - 2	3 - 5	5 - 7	0 - 2	20 - 22	0 - 2	2 - 4	2 - 4	4 - 6	6 - 8	8 - 10	17 - 19	0 - 2	2 - 4
					Normal Sample or Field Duplicate:	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N	N	N	N	N
Aluminum	--	--	--	MG/KG	7740	3430	20800	7810	13100	12400	5200	7700	9130	13800	9400	11700	7460	8270	6340	7460	12300	7690	33000	18100	8600	13200
Antimony	--	--	--	MG/KG	0.74 J	0.831 J	9.11 U	4.19 U	0.57 J	0.16 J	4.21 U	4.27 U	4.24 U	0.15 J	4.37 U	4.31 U	4.41 U	0.18 J	2.2	0.16 J	0.94 U	0.92 U	1 U	4.59 U	1.87 J	1 U
Arsenic	**13**	16	16	MG/KG	5.47	10.3	3.08	5.36	4	3.2	0.64 J	4.35	5.31	2.4	2.02	4.94	0.882 U	3.3	2.8	3.6	2.3	1.3	1.1	0.467 J	5.72	3.3
Barium	**410**	410	820	MG/KG	398	**667**	72.3	264	**2340**	68.1	26.5	112 J	200 J	51.7	30.2	75.1	14.7	324	**427**	**627**	96.2	38.2	194	113	134	52.6
Beryllium	**4.4**	43	47	MG/KG	1.68	0.461 J	**8.94**	0.341 J	0.86	0.54	3.52	0.479	0.691	0.81	1.98	0.768	**10**	1	0.69	0.47	3.5	2	**6.8**	**6.14**	1.44	0.97
Cadmium	2.5	2.5	7.5	MG/KG	0.342 J	0.602 J	0.485 J	0.488 J	0.19 J	0.47 U	0.402 J	0.39 J	0.453 J	0.13 J	0.328 J	0.162 J	0.584 J	0.41 J	0.49	0.52	0.53	0.25 J	0.32 J	0.625 J	0.358 J	0.15 J
Calcium	--	--	--	MG/KG	70700	122000	132000	4500	2850	1970	549	6020 J	14700 J	1570	915	1380	6170	35600	53400	47700	5510	1550	5470	4720	22600	2590
Chromium III	**30**	110	--	MG/KG	NA	NA	NA	NA	**44.9**	26.9	NA	NA	NA	28.5	NA	NA	NA	17.3	13 J	26.7 J	26.2	19.7	**56.5**	NA	NA	22.1
Chromium, Hexavalent	**1**	1	19	MG/KG	0.456 J	0.914 UJ	NA	0.88 U	1.2 U	1.3 U	0.458 J	0.875 U	0.874 U	1.2 U	0.494 J	0.916 U	0.939 UJ	1 U	0.48 J	0.98 U	0.44 J	1 U	1.1 U	0.943 U	0.932 U	1.1 U
Chromium, Total	**30**	110	--	MG/KG	18.6	15.1	17.7	18.8	**44.9**	26.9	14.9	12.7	16.4	28.5	**33.2**	21.4	5.98	17.3	13.4 J	26.7 J	26.7	19.7	**56.5**	**33.2**	21.5	22.1
Cobalt	--	--	--	MG/KG	10.8	4.33	8.72	3.39	8.6	8	12	3.39	5.24	8.5	13.4	8.32	7.69	7.5 J	5.9	6	22.6	17.7	21.1	14	7.9	10.2
Copper	**50**	280	1720	MG/KG	43.4	19.8	22.1	29.4	20	14.9	11.8	23.2	33	12.9	16.1	17.8	8.38	22.9	16.6	20.1	25.1	13.4	19.6	19.2	37.8	15.6
Cyanide	2.3	13	40	MG/KG	NA	NA	NA	NA	0.2 J	0.25 U	NA	NA	NA	0.26 U	NA	NA	NA	0.24 U	0.24 U	0.23 U	0.21 U	0.14 J	0.26 U	NA	NA	0.25 U
Iron	--	--	--	MG/KG	21800	6540	25700	12500	21500	20300	36000	13300	15600	20400	40600	19700	8530	20900	13600	14800	34900	28900	40800	24600	24400	22900
Lead	**63**	400	450	MG/KG	**700**	**2350**	**89.1**	**406**	**389**	44.9	2.1 J	**178**	**265**	30	5.42	**71.3**	26.4	**101**	**258**	**190**	40.4	5.8	18.8	7.03	**199**	29.5
Magnesium	--	--	--	MG/KG	36400	42100	88700	2810	4380	3400	1630	2820 J	7320 J	5350	2880	3120	3860	17800	20300	12300	12500	4330	21800	9460	8100	5530
Manganese	**1600**	2000	2000	MG/KG	657	213	1280	235	525	363	709	270	390	479	471	316	125	466	393	325	**2060**	1440	735	160	591	523
Mercury	**0.18**	0.3	0.73	MG/KG	**0.205**	**0.359**	0.117	0.118	0.066	0.022	0.069 U	**0.203**	**0.358**	0.038	0.073 U	0.094	0.075 U	0.12	0.083	0.15	0.071	0.016 U	0.018 U	0.075 U	**1.48**	0.091
Nickel	**30**	320	130	MG/KG	11.5	6.11	16.3	7.19	14.4	14.8	12.9	8.17	10.6	13.7	14	12.5	5.87	10.7	8.8	15.4	25.3	15.9	**31.6**	21	13.5	16.5
Potassium	--	--	--	MG/KG	1150	736	885	341	1260	965	659	363	475	1210	586	580	1090	777	799 J	2450 J	1960	2550	11200	8870	947	1220
Selenium	3.9	110	4	MG/KG	0.331 J	3.56 U	3.64 U	0.55 J	0.3 J	0.25 J	1.68 U	0.722 J	0.576 J	0.18 J	1.75 U	0.291 J	1.76 U	1.3 U	1.1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.84 U	1.75 U	0.23 J
Silver	2	110	8.3	MG/KG	0.435 U	0.891 U	0.911 U	0.24 J	0.093 J	0.37 U	0.421 U	0.308 J	0.44	0.37 U	0.437 U	0.431 U	0.441 U	0.4 U	0.36 U	0.38 U	0.37 U	0.37 U	0.4 U	0.459 U	0.438 U	0.41 U
Sodium	--	--	--	MG/KG	390	218 J	235 J	41.4 J	65.8 J	57.1 J	20 J	36.3 J	66.4 J	89.1 J	36.4 J	33.4 J	118 J	105	184	173	72.7 J	77.4 J	83 J	76.6 J	114 J	74.6 J
Thallium	--	--	--	MG/KG	1.74 U	3.56 U	3.64 U	1.68 U	0.15 J	0.11 J	1.68 U	1.71 U	0.279 J	0.14 J	1.75 U	0.595 J	0.383 J	0.17 J	0.13 J	0.18 J	0.68	0.62	2.6	1.44 J	0.321 J	0.17 J
Vanadium	--	--	--	MG/KG	29.9	12.8	58.3	20.1	32.2	29.9	17.7	25.6	29.2	35.6	41	28.8	6.94	26.6 J	17.7	23.8	34.6	24.4	66.3	45.9	34	30.2
Zinc	**109**	6600	2480	MG/KG	**321**	**975**	**178**	**246**	**181**	59.9	53	**120 J**	**199 J**	75.9	89.3	67.6	31.1	**183**	**306**	**425**	**354**	64.9	**212**	**141**	**177**	64.5

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Table 4. Summary of Metals in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-6 12/03/2025 4 - 6 N	RISB-6 09/13/2024 15 - 17 N	RISB-7 09/05/2024 0 - 2 N	RISB-7 12/03/2025 2 - 4 N	RISB-7 12/03/2025 4 - 6 N	RISB-7 09/13/2024 19 - 21 N	RISB-8 09/06/2024 0 - 2 N	RISB-8 09/06/2024 2 - 4 N	RISB-8 09/06/2024 4 - 6 N	RISB-8 12/02/2025 6 - 8 N	RISB-8 12/02/2025 8 - 10 N	RISB-8 12/02/2025 10 - 12 N	RISB-9 09/05/2024 0 - 2 N	RISB-9 09/05/2024 2 - 4 N	RISB-10 09/05/2024 0 - 2 N	RISB-10 09/05/2024 0 - 2 FD	RISB-10 12/03/2025 3 - 5 N	RISB-10 12/03/2025 5 - 7 N	RISB-10 09/09/2024 7 - 9 N	RISB-10 09/09/2024 17 - 19 N	RISB-11 09/04/2024 0 - 2 N	RISB-11 09/09/2024 13 - 15 N
Aluminum	--	--	--	MG/KG	7900	10700	7060	4280	2940	10400	8990	9430	8360	1630	605	472	11600	9240	8550	7950	11700	9770	15300	16400	9410	6370
Antimony	--	--	--	MG/KG	1.1 U	5.19 U	1.47 J	1.5	1.1 U	5.62 U	0.924 J	1.21 J	1.34 J	1.3 U	0.79 U	0.86 U	4.37 U	4.13 U	0.35 J	0.427 J	1.1 UJ	0.94 U	0.507 J	9.05 U	4.17 U	3.92 U
Arsenic	**13**	16	16	MG/KG	0.42 J	3.1	9.76	1.6	0.15 J	1.12 J+	4.68	5.09	6.23	0.52 J	0.27 J	0.28 J	4.75	2.18	5.12	5.96	2.5	1.9	2.62	0.955 J	2.85	2.05
Barium	**410**	410	820	MG/KG	7.9	14.7	409	120	4	13	157	**453**	**537**	4.9	1.6	1.9	47.7	50.8	30	29.3	44.1	73.1	28.8	61.1	43.6	31.6
Beryllium	**4.4**	43	47	MG/KG	2.4	**4.91**	1.03	0.86	1	**6.13**	1.07	1.27	1.41	0.67	0.12 J	0.1 J	0.692	1.46	0.257 J	0.249 J	0.56	0.55	**10.2**	**10**	0.927	0.579
Cadmium	2.5	2.5	7.5	MG/KG	0.55 U	0.471 J	0.732 J	0.23 J	0.54 U	0.775 J	1.23	0.557 J	0.429 J	0.65 U	0.39 U	0.43 U	0.875 U	0.129 J	0.227 J	0.23 J	0.54 U	0.23 J	0.623 J	0.964 J	0.115 J	0.784 U
Calcium	--	--	--	MG/KG	1050	2170	24600	8220	3020	1730	8860	41300	65400	883	214	207	1010	663	1210	1240	1710	1810	2190	1790	2320	30900
Chromium III	**30**	110	--	MG/KG	9	NA	NA	6.1	2.1	NA	NA	NA	NA	21.2	2	4	NA	NA	NA	NA	20.7	23	NA	NA	NA	NA
Chromium, Hexavalent	**1**	1	19	MG/KG	1.2 U	**1.13 J-**	0.922 U	1.2 U	1.1 U	**1.08 J-**	0.882 U	**6.36**	NA	1.6 U	0.36 J	1.1 U	0.905 U	0.68 J+	0.922 U	0.911 U	1.1 U	0.43 J	0.932 U	0.913 U	0.877 U	0.815 U
Chromium, Total	**30**	110	--	MG/KG	9	**42.7**	18.5	6.1	2.1 J	**42.1**	17.6	20.5	23.7	21.2	2.4	4	20	24.5	14.8	16.8	20.7	23.4	29.2	**40.2**	20.1	17.9
Cobalt	--	--	--	MG/KG	7.5	22.4	7.88	3.3	1.6	42.7	6.65	9.56	10.4	1.4	0.5 J	0.54 J	8.83	12.2	1.94	1.95	7.1	7.1	55.5	52.8	8.51	6.51
Copper	**50**	280	1720	MG/KG	7.3	29.6	**58.4**	12	2.3	19.3	25.1	**76.4**	**53.4**	10.8	1.7	1.3 J	13.2	16.5	11.8	11.4	20.4 J	19.7	38.1	49.8	14.1	16.5
Cyanide	2.3	13	40	MG/KG	0.27 U	NA	NA	0.26 U	0.27 U	NA	NA	NA	NA	0.35 U	0.21 U	0.24 U	NA	NA	NA	NA	0.25 U	0.22 U	NA	NA	NA	NA
Iron	--	--	--	MG/KG	17600	46200	26500	7550	1560	57300	18800	22200	22800	2670	360	216	19900	24900	11800	11000	18600	17800	33800	35500	17600	13500
Lead	**63**	400	450	MG/KG	6.3	50.7	**427**	**217**	6.9	36	**150**	**553**	**416**	3.9	0.56	0.52	15.3	5.24	40.7	43.1	6.6 J	4.4	37.9	33.4	29.9	14.5
Magnesium	--	--	--	MG/KG	1500	1710	9490	2910	761	1520	6100	17400	29000	228	50.9 J	46.9 J	3080	3980	889	870	3550	3480	17600	10100	3630	20600
Manganese	**1600**	2000	2000	MG/KG	154	387	422	143	78	258	445	555	530	17.5	10.5	8.2	532	713	164	161	319	300	1100	**2610**	412	364
Mercury	**0.18**	0.3	0.73	MG/KG	0.0088 J	0.074 J	**0.581**	0.096	0.019 U	0.095 U	0.173	**2.03**	**0.389**	0.028 U	0.015 U	0.017 U	0.072 U	0.069 U	0.086	0.085	0.014 J	0.016 J	0.075 U	0.079 U	0.074 J	0.07 U
Nickel	**30**	320	130	MG/KG	5.7	14.9	14.1	4.6	1.5 J	25.6	11.6	13.2	14.1	0.88 J	0.15 J	0.23 J	14.1	14.5	5.62	5.49	15.6	17.3	**43**	**57.5**	11.8	11.2
Potassium	--	--	--	MG/KG	899	165 J	802	303	246	96.6 J	558	867	1100	93.4 J	25.5 J	31.9 J	668	2210	274	257	1310	968	1350	6150	694	961
Selenium	3.9	110	4	MG/KG	1.4 U	2.08 U	0.481 J	1.4 U	1.4 U	2.25 U	0.455 J	0.451 J	1.75 U	1.6 U	0.99 U	1.1 U	1.75 U	1.65 U	0.561 J	0.589 J	0.14 J	1.2 U	1.81 U	3.62 U	1.67 U	1.57 U
Silver	2	110	8.3	MG/KG	0.44 U	0.519 U	0.443 U	0.44 U	0.44 U	0.562 U	0.418 U	0.418 U	0.438 U	0.52 U	0.32 U	0.34 U	0.437 U	0.413 U	0.435 U	0.441 U	0.43 U	0.38 U	0.453 U	0.905 U	0.417 U	0.392 U
Sodium	--	--	--	MG/KG	110 U	26.8 J	119 J	53.2 J	109 U	58.8 J	40.3 J	110 J	124 J	130 U	78.9 U	85.7 U	42.7 J	35.2 J	18.5 J	18.8 J	79.8 J	103	154 J	54.9 J	35.9 J	96 J
Thallium	--	--	--	MG/KG	0.053 J	0.513 J	1.77 U	0.048 J	0.44 U	0.41 J	1.67 U	0.318 J	1.75 U	0.52 U	0.32 U	0.34 U	1.75 U	0.458 J	1.74 U	1.76 U	0.13 J	0.1 J	2.22	3.44 J	0.467 J	0.452 J
Vanadium	--	--	--	MG/KG	8.2	48.2	30.9	8.3	2.4	31.8	30.2	29.5	29.9	6.8	1.4 J	0.96 J	30.7	35.4	19.9	19.5	27.9	26.5	47.9	38.4	25.8	21.6
Zinc	**109**	6600	2480	MG/KG	52.6	**260**	**365**	97.6	10.1	**516**	**150**	**424**	**512**	7.1 J	4 J	3.2 J	40.7	62.1	48.8	47.9	33.4	33.5	**514**	**390**	56	34.9

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Table 4. Summary of Metals in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-12	RISB-12	RISB-12	RISB-13	RISB-13	RISB-13	RISB-13	RISB-13	RISB-13	RISB-13	RISB-13	RISB-14	RISB-14	RISB-14	RISB-14	RISB-14	RISB-14	RISB-15	RISB-15	RISB-15	RISB-15	RISB-15
					Sample Date:	09/04/2024	09/04/2024	09/09/2024	09/04/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/09/2024	09/09/2024	09/04/2024	12/04/2025	12/04/2025	12/04/2025	09/09/2024	09/09/2024	09/06/2024	09/12/2024	09/12/2024	12/04/2025	12/04/2025
					Sample Depth (ft bls):	0 - 2	2 - 4	4 - 6	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	17 - 19	19 - 21	0 - 2	3 - 5	5 - 7	7 - 9	9 - 11	13 - 15	0 - 2	5 - 7	7 - 9	9 - 11	11 - 13
					Normal Sample or Field Duplicate:	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Aluminum	--	--	--	MG/KG		9160	9630	5920	9680	9080	11200	13900	5680	6690	34100	24200	10200	40200	28800	28500	16800	18100	10800	5960	8860	5540	1940
Antimony	--	--	--	MG/KG		1.24 J	1.1 J	4.01 U	4.36 U	0.62 J	0.35 J	0.25 J	0.97 U	0.98 U	10.2 U	0.389 J	0.501 J	1.1 U	1.1 U	1 U	4.22 U	0.357 J	0.558 J	0.708 J	8.43 U	0.23 J	0.92 U
Arsenic	**13**	16	16	MG/KG		5.06	4.85	1.37	5.26	6.5	5.8	6.3	1.7	2.9	1.95 J	1.74	6.84	1.5	0.77 J	0.55 J	0.313 J	1.11	4.57	9.14	2.76	6.9	0.46 J
Barium	**410**	410	820	MG/KG		89.7	98.3	24.6	74	133	139	140	30.8	49	20.3	103	231	58.1	110	136	72.4	69.8	212	216	44.1	**2150**	6
Beryllium	**4.4**	43	47	MG/KG		1.07	0.861	1.04	0.66	0.72	1.6	2.5	1.4	2.1	**25.5**	**8.44**	1.11	**9.2**	**8.8**	**6.7**	**5.85**	**8.22**	1.2	0.582 J	2.18	0.67	0.75
Cadmium	2.5	2.5	7.5	MG/KG		0.367 J	0.208 J	0.802 U	0.359 J	0.65	0.59	0.68	0.19 J	0.34 J	1.05 J	0.541 J	0.467 J	0.71	0.36 J	0.16 J	0.173 J	0.206 J	0.272 J	1.75 U	1.68 U	0.56	0.46 U
Calcium	--	--	--	MG/KG		10100	24000	42800	8710	20600	26500	22200	10000	36700	6160	2830	18800	13800	3880	3590	2960	27400	27600	112000	128000	142000	176000
Chromium III	**30**	110	--	MG/KG		NA	NA	NA	NA	23.3	27.3	26.6	15.6	17	NA	NA	NA	**40.3**	**45**	**47.1**	NA	NA	NA	NA	NA	11.7	2 U
Chromium, Hexavalent	**1**	1	19	MG/KG		0.89 U	0.877 U	0.83 U	0.891 U	1.1 U	1.1 U	1.2 U	1 U	1.1 U	1.04 U	0.911 U	0.904 U	1.2 U	1.1 U	1.1 U	0.271 J	0.934 U	0.87	0.904 UJ	NA	**11.8**	1 U
Chromium, Total	**30**	110	--	MG/KG		23.1	29.1	14.1	16.1	23.3	27.3	26.6	15.6	17	**38.9**	**46.8**	20.7	**40.3**	**45**	**47.1**	**34.5**	26.5	22.6	17.7	9.66	23.4	1.9
Cobalt	--	--	--	MG/KG		8.69	7.54	6.59	5.03	7.2	11.2	14.4	10.6	15	38.7	7.69	7.55	19.6	19.4	15.1	12.1	17.5	8.52	5.26	4.86	4	2.1
Copper	**50**	280	1720	MG/KG		**52.3**	49.3	14.6	18.6	38.8	38.2	35	17.8	19.9	42.8	17.5	40	22.2	22.2	22.4	18.3	41.1	**138**	22.7	10.1	11.1	1.8
Cyanide	2.3	13	40	MG/KG		NA	NA	NA	NA	0.25 U	0.17 J	0.25 U	0.22 U	0.25 U	NA	NA	NA	0.27 U	0.25 U	0.26 U	NA	NA	NA	NA	NA	0.65	0.22 U
Iron	--	--	--	MG/KG		21300	18900	14300	15700	21400	28600	30600	25500	28500	33000	34900	21100	44300	33600	36800	23600	23500	20200	9790	13100	8610	5620
Lead	**63**	400	450	MG/KG		**169**	**309**	4.84	**95.6 J**	**239**	**267**	**240**	8.6	26.7	27.3	20	**284**	12.8	7.2	10.8	7.46	11.7	**368**	**2840**	38.1	**2910**	6.4
Magnesium	--	--	--	MG/KG		6440	5210	20800	4450	6840	11800	14000	8010	11300	64800	15600	9040	75300	18100	12800	9120	34000	13400	27500	75700	37400	98600
Manganese	**1600**	2000	2000	MG/KG		521	442	390	325	370	694	997	584	762	740	247	516	1230	294	171	126	504	607	264	861	375	645
Mercury	**0.18**	0.3	0.73	MG/KG		0.175	0.154	0.075 U	0.139	0.15	**0.21**	0.15	0.016 U	0.017 J	0.092 U	0.077 U	**0.529**	0.022	0.014 J	0.018 U	0.069 U	0.076 U	0.142	**0.743**	0.068 J	**0.24**	0.018 U
Nickel	**30**	320	130	MG/KG		13.5	16.2	10.2	11.2	16.3	18.1	19.4	12.4	12.3	**39.3**	16.8	12.5	26.8	26.2	22.8	18.1	17.9	15.5	8.15	7.2	5.6	2.1
Potassium	--	--	--	MG/KG		1080	1300	1530	605	778	1640	2080	1690	2620	242 J	10400	823	3040	8630	12200	9110	5010	1600	983	469	786	65.3 J
Selenium	3.9	110	4	MG/KG		0.289 J	0.298 J	1.6 U	0.491 J	1.3 U	1.2 U	1.4 U	1.2 U	1.2 U	4.06 U	1.74 U	0.641 J	1.4 U	1.4 U	1.3 U	1.69 U	1.76 U	0.283 J	0.708 J	3.37 U	1.3 U	1.2 U
Silver	2	110	8.3	MG/KG		0.431 U	0.435 U	0.401 U	0.436 U	0.15 J	0.14 J	0.12 J	0.39 U	0.39 U	1.02 U	0.435 U	0.438 U	0.44 U	0.43 U	0.4 U	0.422 U	0.44 U	0.422 U	0.874 U	0.843 U	0.1 J	0.37 U
Sodium	--	--	--	MG/KG		75.4 J	121 J	67 J	60.8 J	180	194	153	152	151	183 J	155 J	91 J	101 J	86.2 J	107	86 J	95.7 J	163 J	352	322 J	381	69.8 J
Thallium	--	--	--	MG/KG		0.509 J	0.694 J	0.539 J	0.57 J	0.14 J	0.22 J	0.46	0.18 J	0.22 J	1.22 J	5.22 J	0.56 J	0.75	2.6	2.1	2.58 J	1.95 J	0.342 J	3.5 U	3.37 U	0.091 J	0.067 J
Vanadium	--	--	--	MG/KG		30.9	26.8	19	25.3	33.6	34.3	40.2	21	25.7	36.8	50.3	30.9	52.5	55.3	61.8	48	30.4	34.3	17.8	31.6	27.8	12.7
Zinc	**109**	6600	2480	MG/KG		**179**	**152**	46.3	96.1 J	**198**	**189**	**255**	51.3	65.5	**117**	**139**	**252**	**196**	**187**	**113**	85.1	**319**	**186**	**934**	**119**	**918**	50.6

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Table 4. Summary of Metals in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-16	RISB-16	RISB-17	RISB-17	RISB-17	RISB-17	RISB-17	RISB-17	RISB-18	RISB-18	RISB-18	RISB-18	RISB-18	RISB-18	RISB-19	RISB-19	RISB-19
					Sample Date:	09/06/2024	09/06/2024	09/10/2024	12/03/2025	12/03/2025	12/03/2025	12/03/2025	09/10/2024	09/05/2024	12/02/2025	12/02/2025	12/02/2025	09/12/2024	09/12/2024	09/10/2024	12/02/2025	09/12/2024
					Sample Depth (ft bls):	0 - 2	3 - 5	0 - 2	2 - 4	4 - 6	4 - 6	6 - 8	12 - 14	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	8 - 10	0 - 2	3 - 5	5 - 7
					Normal Sample or Field Duplicate:	N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N	N
Aluminum	--	--	--	MG/KG		7230	902	7280	18700	17000	19100	19400	858	7010	6100	2160	2280	5410 J	1480 J	7680	10700	6150
Antimony	--	--	--	MG/KG		0.748 J	4.56 U	4.25 U	1.3 U	1.3 U	1.3 U	1.2 U	4.45 U	4.41 U	2.9	1.1 U	0.32 J	5.26 U	1.51 J	4.22 U	0.31 J	16.1 U
Arsenic	**13**	16	16	MG/KG		5.76	0.436 J	5.78	5.6	19.6	20.7	**13.9**	0.89 U	3.42	10.7	1.1	4.9	1.05 U	0.47 J	4.54	4.9	3.23 U
Barium	**410**	410	820	MG/KG		191	8.5	146	58	54.3	66.4	50.8	5.31	223	347	3.8	29.3	28.2 J	16 J	50.1	105	11
Beryllium	**4.4**	43	47	MG/KG		0.745	0.247 J	1.28	**10.8**	**12.2**	**11.2**	**7.4**	2.68	0.836	0.75	2	1.9	2.68	2.1	0.292 J	3	2.08
Cadmium	2.5	2.5	7.5	MG/KG		0.366 J	0.913 U	0.51 J	0.95	1.2	1.2	0.44 J	0.89 U	0.882 U	1.6	0.54 U	0.16 J	1.05 U	1.03 U	0.281 J	0.28 J	3.23 U
Calcium	--	--	--	MG/KG		23400	1230	19700	17900	4090	3420	2790	461	77700	14300	511	8470	1270	882	2280	17800	173000
Chromium III	**30**	110	--	MG/KG		NA	NA	NA	**61**	**58.3**	**67**	29.7	NA	NA	23	**35.3**	23.9	NA	NA	NA	21.7	NA
Chromium, Hexavalent	**1**	1	19	MG/KG		0.929 U	0.952 U	0.899 U	1.4 U	0.49 J	0.52 J	0.48 J	0.92	0.91 U	1.3 U	1.4 U	1.4 U	0.946 J-	0.406 J-	0.887 U	1.1 U	0.813 UJ
Chromium, Total	**30**	110	--	MG/KG		21.3	2.16	18.4	**61**	**58.8**	**67.5**	**30.2**	**45**	13.6	23	**35.3**	23.9	**36.2 J**	10.7 J	9.43	21.7	7.29
Cobalt	--	--	--	MG/KG		5.34	1.01 J	9.04	43.5	48.5	49.5	39.2	2.09	4.95	7.9	4.6	3.4	9.83 J	33.5 J	2.65	14	3.32 J
Copper	**50**	280	1720	MG/KG		26.8	2.44	24.7	16.5	22.7	27.3	14.7	17.4	**50.5**	**66.1**	20.1	26	47.5 J	**103 J**	16.5	16.6	3.12 J
Cyanide	2.3	13	40	MG/KG		NA	NA	NA	0.32 U	0.28 U	0.32 U	0.29 U	NA	NA	0.5	0.23 J	0.33 U	NA	NA	NA	0.13 J	NA
Iron	--	--	--	MG/KG		15800	1060	27800	177000	233000	229000	147000	13600	13100	22400	11800	13900	42200 J	27200 J	11400	57500	17000
Lead	**63**	400	450	MG/KG		**172**	15.8	**150**	32.2	42.4	50.3	21.8	3.06 J	**100**	589	9.5	**72.2**	12.2	11.7	**70.2**	**110**	2.99 J
Magnesium	--	--	--	MG/KG		8260	822	11200	10600	2920	2180	1670	241	37700	4100	244	2440	636 J	210 J	1140	10600	89700
Manganese	**1600**	2000	2000	MG/KG		316	30.3	483	661	1170	853	242	6.73	368	312	23.8	114	119 J	314 J	211	762	711
Mercury	**0.18**	0.3	0.73	MG/KG		**0.268**	0.076 U	**0.232**	0.024 U	0.023 U	0.024 U	0.023 U	0.073 U	0.147	37.9	0.024 U	0.15	0.098 U	0.085 U	0.126	0.13	0.073 U
Nickel	**30**	320	130	MG/KG		10.1	3.39	11.4	19.3	23.1	26.5	24.4	5.49	11.7	**32**	8.7	9.1	13.1	10.2	6.98 J	15.1	3.75 J
Potassium	--	--	--	MG/KG		694	155 J	746	626	494	501	618	116 J	968	785	194	219	608 J	100 J	203 J	1160	149 J
Selenium	3.9	110	4	MG/KG		0.532 J	0.425 J	0.26 J	1.6 U	1.6 U	0.17 J	1.5 U	1.78 U	1.76 U	1.2 J	1.3 U	0.18 J	0.856 J	0.66 J	0.61 J	0.33 J	1.46 J
Silver	2	110	8.3	MG/KG		0.45 U	0.456 U	0.263 J	0.5 U	0.5 U	0.53 U	0.49 U	0.445 U	0.441 U	0.38 J	0.43 U	0.44 U	0.526 U	0.516 U	0.422 U	0.35 U	1.61 U
Sodium	--	--	--	MG/KG		59.7 J	10.2 J	57.5 J	62.4 J	126 U	131 U	62.4 J	3.07 J	77.3 J	126	107 U	111 U	25.4 J	6.49 J	21.8 J	54.1 J	58.4 J
Thallium	--	--	--	MG/KG		1.8 U	1.82 U	0.52 J	0.088 J	0.16 J	0.12 J	0.27 J	1.78 U	0.293 J	0.21 J	0.43 U	0.44 U	2.1 U	2.06 U	1.69 U	0.14 J	6.46 U
Vanadium	--	--	--	MG/KG		27.1	2.23	25	54.1	110	138	80.3	34.9	33.1	545	44.8	62.4	62.4	59.8	24.2	31.7	7.86
Zinc	**109**	6600	2480	MG/KG		**286**	14.3	**282**	**345**	**582**	**605**	**315**	21.4	**178**	**373**	40.2	58.8	**169 J**	82.4 J	79.3	**142**	21

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Table 5. Summary of Polychlorinated Biphenyls in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-1	RISB-1	RISB-2	RISB-2	RISB-3	RISB-3	RISB-3	RISB-4	RISB-4	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-6	RISB-6	RISB-7	RISB-7	RISB-8	RISB-8
					Sample Date:	09/06/2024	09/18/2024	09/10/2024	09/17/2024	09/10/2024	09/10/2024	09/17/2024	09/04/2024	09/13/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/17/2024	09/05/2024	09/13/2024	09/05/2024	09/13/2024	09/06/2024	09/06/2024
					Sample Depth (ft bls):	0 - 2	5 - 7	0 - 2	7 - 9	0 - 2	0 - 2	5 - 7	0 - 2	20 - 22	0 - 2	2 - 4	2 - 4	4 - 6	6 - 8	8 - 10	17 - 19	0 - 2	15 - 17	0 - 2	19 - 21	0 - 2	2 - 4
					Normal Sample or Field Duplicate:	N	N	N	N	N	FD	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.062	0.0507 U	0.0183 J	0.0201 J	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0113 J	0.0641 U	0.0407 J	0.0684 U	0.164	0.12
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0524 U	0.0542 U	0.0531 U	0.0507 U	0.0543 U	0.0532 U	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0553 U	0.0684 U	0.0507 U	0.0538 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.00614 J	0.0542 U	0.023 J	0.0507 U	0.00642 J	0.00957 J	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0537 U	0.0641 U	0.0331 J	0.0684 U	0.0507 U	0.0553
Polychlorinated Biphenyl (PCBs)	**0.1**	1	3.2	MG/KG	0.00614 J	0.0542 U	0.085 J	0.0507 U	0.0247 J	0.0297 J	0.0542 U	0.0522 U	0.056 U	0.067 U	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U	0.0565 U	0.0113 J	0.0641 U	0.0738 J	0.0684 U	**0.164**	**0.175**

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Table 5. Summary of Polychlorinated Biphenyls in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation:	RISB-9	RISB-9	RISB-10	RISB-10	RISB-10	RISB-10	RISB-11	RISB-11	RISB-12	RISB-12	RISB-12	RISB-13	RISB-13	RISB-13	RISB-14	RISB-14	RISB-14	RISB-15	RISB-15	RISB-16	RISB-16	RISB-17
					Sample Date:	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/09/2024	09/09/2024	09/04/2024	09/09/2024	09/04/2024	09/04/2024	09/09/2024	09/04/2024	09/09/2024	09/09/2024	09/04/2024	09/09/2024	09/09/2024	09/06/2024	09/12/2024	09/06/2024	09/06/2024	09/10/2024
					Sample Depth (ft bls):	0 - 2	2 - 4	0 - 2	0 - 2	7 - 9	17 - 19	0 - 2	13 - 15	0 - 2	2 - 4	4 - 6	0 - 2	17 - 19	19 - 21	0 - 2	9 - 11	13 - 15	0 - 2	5 - 7	0 - 2	3 - 5	0 - 2
					Normal Sample or Field Duplicate:	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.00848 J	0.0531 U	0.0512 U	0.0521 U	0.0152 J	0.0548 U	0.0146 J	0.0515 U	0.0113 J	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0269 J	0.0247 J	0.0313 J	0.0549 U	0.0119 J	0.0501 U	0.0146 J	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0166 J	0.0515 U	0.0566 U	0.053 U	0.0329 J	0.0164 J	0.0588 U	0.0108 J
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.0544 U	0.0568 U	0.0574 U	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.0528 U	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0544 U	0.0588 U	0.0552 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0548 U	0.0504 U	0.01 J	0.0125 J	0.0133 J	0.0549 U	0.0546 U	0.0501 U	0.0516 U	0.0531 U	0.0512 U	0.0521 U	0.0634 U	0.0548 U	0.00841 J	0.0515 U	0.0566 U	0.053 U	0.0553 U	0.0074 J	0.0588 U	0.0552 U
Polychlorinated Biphenyl (PCBs)	**0.1**	1	3.2	MG/KG	0.0548 U	0.0504 U	0.0369 J	0.0372 J	0.0446 J	0.0549 U	0.0119 J	0.0501 U	0.0231 J	0.0531 U	0.0512 U	0.0521 U	0.0152 J	0.0548 U	0.0396 J	0.0515 U	0.0113 J	0.053 U	0.0329 J	0.0238 J	0.0588 U	0.0108 J

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Table 5. Summary of Polychlorinated Biphenyls in Soil, 3728 Park Avenue, Bronx, New York

				Sample Designation:	RISB-17	RISB-18	RISB-18	RISB-18	RISB-19	RISB-19
				Sample Date:	09/10/2024	09/05/2024	09/12/2024	09/12/2024	09/10/2024	09/12/2024
				Sample Depth (ft bls):	12 - 14	0 - 2	8 - 10	8 - 10	0 - 2	5 - 7
				Normal Sample or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units						
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.00948 J	0.0467 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0562 U	0.0136 J	0.0665 U	0.0657 U	0.0175 J	0.0467 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0562 U	0.0519 U	0.0665 U	0.0657 U	0.0554 U	0.0467 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0562 U	0.00551 J	0.0665 U	0.0657 U	0.0554 U	0.0467 U
Polychlorinated Biphenyl (PCBs)	**0.1**	1	3.2	MG/KG	0.0562 U	0.0191 J	0.0665 U	0.0657 U	0.027 J	0.0467 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-1	RISB-1	RISB-2	RISB-2	RISB-3
			Sample Date:		09/06/2024	09/18/2024	09/10/2024	09/17/2024	09/10/2024
			Sample Depth (ft bls):		0 - 2	5 - 7	0 - 2	7 - 9	0 - 2
			Normal Sample or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units					
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.181 U	0.19 U	0.183 U	0.182 U	0.179 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.181 U	0.19 U	0.183 U	0.182 U	0.179 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000718 U	0.000749 U	0.000718 U	0.000702 U	0.000707 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Chlordane	--	--	--	MG/KG	0.0313 J	0.307 J	0.0144 U	0.014 U	0.0141 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00965	**0.0892**	0.007 J	0.0021 U	0.00278 J
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00108 U	**0.00557 J**	0.00108 U	0.00105 U	0.00106 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000718 U	0.000749 U	0.000718 U	0.000702 U	0.000707 U
Endrin	0.014	5.3	0.06	MG/KG	0.000718 U	0.000749 U	0.000718 U	0.000702 U	0.000707 U
Endrin Aldehyde	--	--	--	MG/KG	0.00216 U	0.00225 U	0.00215 U	0.0021 U	0.00212 U
Endrin Ketone	--	--	--	MG/KG	0.00172 U	0.0018 U	0.00172 U	0.00168 U	0.0017 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000718 U	0.000749 U	0.000718 U	0.000702 U	0.000707 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000862 U	0.000913 J	0.000861 U	0.000842 U	0.000849 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00323 U	0.00444 U	0.00323 U	0.00316 U	0.00318 U
Methoxychlor	--	--	--	MG/KG	0.00323 U	0.00337 U	0.00323 U	0.00316 U	0.00318 U
P,P'-DDD	**0.0033**	5	14	MG/KG	**0.00758**	0.00574 U	0.00172 U	0.00168 U	0.00139 J
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.044**	**0.7**	**0.0288**	0.00168 U	**0.00912 J**
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.0547**	**0.841**	**0.0295**	0.00168 U	**0.0124**
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.181 U	0.19 U	0.183 U	0.182 U	0.179 U
Toxaphene	--	--	--	MG/KG	0.0323 U	0.0337 U	0.0323 U	0.0316 U	0.0318 U
trans-Chlordane	--	--	--	MG/KG	0.0108	0.0765 J	0.00375	0.0021 U	0.00276

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-3 09/10/2024 0 - 2 FD	RISB-3 09/17/2024 5 - 7 N	RISB-4 09/04/2024 0 - 2 N	RISB-4 09/13/2024 20 - 22 N	RISB-5 12/04/2025 0 - 2 N
Sample Designation:					RISB-3	RISB-3	RISB-4	RISB-4	RISB-5
Sample Date:					09/10/2024	09/17/2024	09/04/2024	09/13/2024	12/04/2025
Sample Depth (ft bls):					0 - 2	5 - 7	0 - 2	20 - 22	0 - 2
Normal Sample or Field Duplicate:					FD	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.177 U	0.185 U	0.188 U	0.191 U	0.034 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.177 U	0.185 U	0.188 U	0.191 U	0.034 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.0067 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000699 U	0.000759 U	0.000756 U	0.000753 U	0.002 UT
Alpha Endosulfan	4.3	35	65	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.0067 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.002 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.0067 U
Chlordane	--	--	--	MG/KG	0.014 U	0.0152 U	0.0151 U	0.015 U	NA
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	0.067 U
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00288 J	0.00228 U	0.00227 U	0.00226 U	0.0067 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.002 UT
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00105 U	0.00114 U	0.00113 U	0.00113 U	0.002 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000699 U	0.000759 U	0.000756 U	0.000753 U	0.0067 U
Endrin	0.014	5.3	0.06	MG/KG	0.000699 U	0.000759 U	0.000756 U	0.000753 U	0.0067 U
Endrin Aldehyde	--	--	--	MG/KG	0.0021 U	0.00228 U	0.00227 U	0.00226 U	0.0067 U
Endrin Ketone	--	--	--	MG/KG	0.00168 U	0.00182 U	0.00181 U	0.00181 U	0.0067 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000699 U	0.000759 U	0.000756 U	0.000753 U	0.002 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000839 U	0.000911 U	0.000907 U	0.000903 U	0.0067 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00315 U	0.00342 U	0.0034 U	0.00339 U	0.0067 U
Methoxychlor	--	--	--	MG/KG	0.00315 U	0.00342 U	0.0034 U	0.00339 U	0.0067 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00144 J	0.00182 U	0.00181 U	0.00181 U	0.0067 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.00864 J**	0.00182 U	0.00223	0.00181 U	0.0024 J
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.0125**	0.00182 U	**0.00351**	0.00181 U	0.002 J
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.177 U	0.185 U	0.188 U	0.191 U	0.034 U
Toxaphene	--	--	--	MG/KG	0.0315 U	0.0342 U	0.034 U	0.0339 U	0.067 U
trans-Chlordane	--	--	--	MG/KG	0.0028 J	0.00228 U	0.00227 U	0.00226 U	NA

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-5	RISB-5	RISB-5	RISB-5	RISB-5
					Sample Date: 12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025
					Sample Depth (ft bls): 2 - 4	2 - 4	4 - 6	6 - 8	8 - 10
					Normal Sample or Field Duplicate: N	FD	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.034 U	0.034 U	0.034 U	0.034 U	0.036 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.034 U	0.034 U	0.034 U	0.034 U	0.036 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.002 UT	0.002 UT	0.002 UT	0.002 UT	0.0022 UT
Alpha Endosulfan	4.3	35	65	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.002 U	0.002 U	0.002 U	0.002 U	0.0022 U
Beta Endosulfan	4.3	35	44	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Chlordane	--	--	--	MG/KG	NA	NA	NA	NA	NA
Chlordane (Technical)	--	--	--	MG/KG	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.0025 J	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.002 UT	0.002 UT	0.002 UT	0.002 UT	0.0022 UT
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.002 U	0.002 U	0.002 U	0.002 U	0.0022 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Endrin	0.014	5.3	0.06	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Endrin Aldehyde	--	--	--	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Endrin Ketone	--	--	--	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.002 U	0.002 U	0.002 U	0.002 U	0.0022 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Heptachlor Epoxide	--	--	--	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
Methoxychlor	--	--	--	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.0067 U	0.0067 U	0.0068 U	0.0067 U	0.0073 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.0053 J**	**0.0038 J**	0.0068 U	0.0067 U	0.0073 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.011**	**0.01**	0.0068 U	0.0067 U	0.0073 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.034 U	0.034 U	0.034 U	0.034 U	0.036 U
Toxaphene	--	--	--	MG/KG	0.067 U	0.067 U	0.068 U	0.067 U	0.073 U
trans-Chlordane	--	--	--	MG/KG	NA	NA	NA	NA	NA

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-5	RISB-6	RISB-6	RISB-7	RISB-7
					Sample Date: 09/17/2024	09/05/2024	09/13/2024	09/05/2024	09/13/2024
					Sample Depth (ft bls): 17 - 19	0 - 2	15 - 17	0 - 2	19 - 21
					Normal Sample or Field Duplicate: N	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.194 U	0.193 U	0.226 U	0.192 U	0.238 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.194 U	0.193 U	0.226 U	0.192 U	0.238 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000776 U	0.000738 U	0.000881 U	0.000745 U	0.000947 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Chlordane	--	--	--	MG/KG	0.0155 U	0.0148 U	0.0176 U	0.0914	0.0189 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00233 U	0.00238 J	0.00264 U	**0.0178**	0.00284 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00116 U	0.00111 U	0.00132 U	0.0051 U	0.00142 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000776 U	0.000738 U	0.000881 U	0.000745 U	0.000947 U
Endrin	0.014	5.3	0.06	MG/KG	0.000776 U	0.000738 U	0.000881 U	0.000745 U	0.000947 U
Endrin Aldehyde	--	--	--	MG/KG	0.00233 U	0.00221 U	0.00264 U	0.00224 U	0.00284 U
Endrin Ketone	--	--	--	MG/KG	0.00186 U	0.00177 U	0.00211 U	0.00179 U	0.00227 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000776 U	0.000738 U	0.000881 U	0.000745 U	0.000947 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000931 U	0.000886 U	0.00106 U	0.000894 U	0.00114 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00349 U	0.00332 U	0.00396 U	0.00335 U	0.00426 U
Methoxychlor	--	--	--	MG/KG	0.00349 U	0.00332 U	0.00396 U	0.00335 U	0.00426 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00186 U	0.00177 U	0.00211 U	**0.00445**	0.00227 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	0.00186 U	**0.00374 J**	0.00109 J	**0.0208**	0.00227 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	0.00186 U	**0.0111**	0.00211 U	**0.0677**	0.00227 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.194 U	0.193 U	0.226 U	0.192 U	0.238 U
Toxaphene	--	--	--	MG/KG	0.0349 U	0.0332 U	0.0396 U	0.0335 U	0.0426 U
trans-Chlordane	--	--	--	MG/KG	0.00233 U	0.00221 U	0.00264 U	0.0174	0.00284 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-8	RISB-8	RISB-9	RISB-9	RISB-10
Sample Designation:					RISB-8	RISB-8	RISB-9	RISB-9	RISB-10
Sample Date:					09/06/2024	09/06/2024	09/05/2024	09/05/2024	09/05/2024
Sample Depth (ft bls):					0 - 2	2 - 4	0 - 2	2 - 4	0 - 2
Normal Sample or Field Duplicate:					N	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.179 U	0.184 U	0.186 U	0.174 U	0.188 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.179 U	0.184 U	0.186 U	0.174 U	0.188 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000716 U	0.000716 U	0.000725 U	0.000718 U	0.000766 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Chlordane	--	--	--	MG/KG	0.0143 U	0.0143 U	0.0145 U	0.0144 U	0.0153 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00215 U	0.0106	0.00217 U	0.00215 U	0.0023 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00107 U	0.00107 U	0.00109 U	0.00108 U	0.00115 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000716 U	0.000716 U	0.000725 U	0.000718 U	0.000766 U
Endrin	0.014	5.3	0.06	MG/KG	0.000716 U	0.000716 U	0.000725 U	0.000718 U	0.000766 U
Endrin Aldehyde	--	--	--	MG/KG	0.00215 U	0.00215 U	0.00217 U	0.00215 U	0.0023 U
Endrin Ketone	--	--	--	MG/KG	0.00172 U	0.00172 U	0.00174 U	0.00172 U	0.00184 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000716 U	0.000716 U	0.000725 U	0.000718 U	0.000766 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.00086 U	0.00086 U	0.00087 U	0.000862 U	0.000919 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00322 U	0.00164 J	0.00326 U	0.00323 U	0.00345 U
Methoxychlor	--	--	--	MG/KG	0.00322 U	0.00322 U	0.00326 U	0.00323 U	0.00345 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00172 U	**0.00596**	0.0016 J	0.00172 U	0.00184 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.00894**	**0.0266**	0.00174 U	0.00172 U	**0.0119**
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.0153**	**0.0965**	0.00182	0.00172 U	**0.00893**
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.179 U	0.184 U	0.186 U	0.174 U	0.188 U
Toxaphene	--	--	--	MG/KG	0.0322 U	0.0322 U	0.0326 U	0.0323 U	0.0345 U
trans-Chlordane	--	--	--	MG/KG	0.00215 U	0.0101	0.00217 U	0.00215 U	0.0023 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-10	RISB-10	RISB-10	RISB-11	RISB-11
					Sample Date: 09/05/2024	09/09/2024	09/09/2024	09/04/2024	09/09/2024
					Sample Depth (ft bls): 0 - 2	7 - 9	17 - 19	0 - 2	13 - 15
					Normal Sample or Field Duplicate: FD	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.187 U	0.193 U	0.186 U	0.179 U	0.169 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.187 U	0.193 U	0.186 U	0.179 U	0.169 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000744 U	0.00076 U	0.000739 U	0.000727 U	0.000673 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Chlordane	--	--	--	MG/KG	0.0149 U	0.0152 U	0.0148 U	0.0145 U	0.0135 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00223 U	0.00228 U	0.00222 U	0.00218 U	0.00202 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00112 U	0.00114 U	0.00111 U	0.00109 U	0.00101 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000744 U	0.00076 U	0.000739 U	0.000727 U	0.000673 U
Endrin	0.014	5.3	0.06	MG/KG	0.000744 U	0.00076 U	0.000739 U	0.000727 U	0.000673 U
Endrin Aldehyde	--	--	--	MG/KG	0.00223 U	0.00228 U	0.00222 U	0.00218 U	0.00202 U
Endrin Ketone	--	--	--	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000744 U	0.00076 U	0.000739 U	0.000727 U	0.000673 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000893 U	0.000912 U	0.000887 U	0.000872 U	0.000808 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00335 U	0.00342 U	0.00333 U	0.00327 U	0.00303 U
Methoxychlor	--	--	--	MG/KG	0.00335 U	0.00342 U	0.00333 U	0.00327 U	0.00303 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00178 U	0.00182 U	0.00177 U	0.00174 U	0.00162 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.0105**	**0.0253**	0.00177 U	**0.00341**	0.00162 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.00893**	**0.0247**	0.00177 U	**0.0145**	0.00162 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.187 U	0.193 U	0.186 U	0.179 U	0.169 U
Toxaphene	--	--	--	MG/KG	0.0335 U	0.0342 U	0.0333 U	0.0327 U	0.0303 U
trans-Chlordane	--	--	--	MG/KG	0.00223 U	0.00246	0.00222 U	0.00218 U	0.00202 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-12 09/04/2024 0 - 2 N	RISB-12 09/04/2024 2 - 4 N	RISB-12 09/09/2024 4 - 6 N	RISB-13 09/04/2024 0 - 2 N	RISB-13 09/09/2024 17 - 19 N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.183 U	0.18 U	0.171 U	0.182 U	0.214 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.183 U	0.18 U	0.171 U	0.182 U	0.214 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000714 U	0.000689 U	0.00067 U	0.000726 U	0.00084 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Chlordane	--	--	--	MG/KG	0.0143 U	0.0138 U	0.0134 U	0.0145 U	0.0168 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00214 U	0.000856 J	0.00201 U	0.00218 U	0.00252 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00107 U	0.00103 U	0.001 U	0.00109 U	0.00126 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000714 U	0.000689 U	0.00067 U	0.000726 U	0.00084 U
Endrin	0.014	5.3	0.06	MG/KG	0.000714 U	0.000689 U	0.00067 U	0.000726 U	0.00084 U
Endrin Aldehyde	--	--	--	MG/KG	0.00214 U	0.00207 U	0.00201 U	0.00218 U	0.00252 U
Endrin Ketone	--	--	--	MG/KG	0.00171 U	0.00165 U	0.00161 U	0.00174 U	0.00202 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000714 U	0.000689 U	0.00067 U	0.000726 U	0.00084 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000856 U	0.000826 U	0.000804 U	0.000871 U	0.00101 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00321 U	0.0031 U	0.00302 U	0.00327 U	0.00378 U
Methoxychlor	--	--	--	MG/KG	0.00321 U	0.0031 U	0.00302 U	0.00327 U	0.00378 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00098 J	0.00165 U	0.00161 U	0.00174 U	0.00202 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.023**	**0.00854**	0.00161 U	**0.00763**	0.00202 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.0608 J**	**0.00869**	0.00161 U	**0.0105**	0.00202 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.183 U	0.18 U	0.171 U	0.182 U	0.214 U
Toxaphene	--	--	--	MG/KG	0.0321 U	0.031 U	0.0302 U	0.0327 U	0.0378 U
trans-Chlordane	--	--	--	MG/KG	0.00138 J	0.00207 U	0.00201 U	0.00218 U	0.00252 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-13	RISB-14	RISB-14	RISB-14	RISB-15
					Sample Date: 09/09/2024	09/04/2024	09/09/2024	09/09/2024	09/06/2024
					Sample Depth (ft bls): 19 - 21	0 - 2	9 - 11	13 - 15	0 - 2
					Normal Sample or Field Duplicate: N	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.187 U	0.188 U	0.175 U	0.192 U	0.174 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.187 U	0.188 U	0.175 U	0.192 U	0.174 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000728 U	0.000725 U	0.00069 U	0.000762 U	0.000702 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Chlordane	--	--	--	MG/KG	0.0146 U	0.04	0.0138 U	0.0152 U	0.014 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00218 U	0.00392 J	0.00207 U	0.00228 U	0.00211 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00109 U	0.00109 U	0.00104 U	0.00114 U	0.00105 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000728 U	0.000725 U	0.00069 U	0.000762 U	0.000702 U
Endrin	0.014	5.3	0.06	MG/KG	0.000728 U	0.000725 U	0.00069 U	0.000762 U	0.000702 U
Endrin Aldehyde	--	--	--	MG/KG	0.00218 U	0.00218 U	0.00207 U	0.00228 U	0.00211 U
Endrin Ketone	--	--	--	MG/KG	0.00175 U	0.00174 U	0.00166 U	0.00183 U	0.00168 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000728 U	0.000725 U	0.00069 U	0.000762 U	0.000702 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000873 U	0.00087 U	0.000828 U	0.000914 U	0.000842 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00327 U	0.00326 U	0.00311 U	0.00343 U	0.00316 U
Methoxychlor	--	--	--	MG/KG	0.00327 U	0.00326 U	0.00311 U	0.00343 U	0.00316 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00175 U	0.00225	0.00166 U	0.00183 U	0.00217 J
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	0.00175 U	**0.0222**	0.00166 U	0.00183 U	**0.0246**
P,P'-DDT	**0.0033**	3.8	135	MG/KG	0.00175 U	**0.0368**	0.00166 U	0.00183 U	**0.0802**
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.187 U	0.188 U	0.175 U	0.192 U	0.174 U
Toxaphene	--	--	--	MG/KG	0.0327 U	0.0326 U	0.0311 U	0.0343 U	0.0316 U
trans-Chlordane	--	--	--	MG/KG	0.00218 U	0.00367 J	0.00207 U	0.00228 U	0.00211 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	RISB-15	RISB-16	RISB-16	RISB-17	RISB-17
Sample Designation:					RISB-15	RISB-16	RISB-16	RISB-17	RISB-17
Sample Date:					09/12/2024	09/06/2024	09/06/2024	09/10/2024	09/10/2024
Sample Depth (ft bls):					5 - 7	0 - 2	3 - 5	0 - 2	12 - 14
Normal Sample or Field Duplicate:					N	N	N	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.185 U	0.19 U	0.193 U	0.184 U	0.19 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.185 U	0.19 U	0.193 U	0.184 U	0.19 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000721 U	0.000768 U	0.000774 U	0.000716 U	0.00074 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Chlordane	--	--	--	MG/KG	0.251	0.0154 U	0.0155 U	0.0143 U	0.0148 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	**0.0371 NJ**	0.0023 U	0.00232 U	0.00215 U	0.00222 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	**0.00864**	0.00115 U	0.00116 U	0.00107 U	0.00111 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000721 U	0.000768 U	0.000774 U	0.000716 U	0.00074 U
Endrin	0.014	5.3	0.06	MG/KG	0.000721 U	0.000768 U	0.000774 U	0.000716 U	0.00074 U
Endrin Aldehyde	--	--	--	MG/KG	0.00216 U	0.0023 U	0.00232 U	0.00215 U	0.00222 U
Endrin Ketone	--	--	--	MG/KG	0.00173 U	0.00184 U	0.00186 U	0.00172 U	0.00178 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000721 U	0.000768 U	0.000774 U	0.000716 U	0.00074 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000865 U	0.000921 U	0.000929 U	0.00086 U	0.000888 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00324 U	0.00345 U	0.00348 U	0.00322 U	0.00333 U
Methoxychlor	--	--	--	MG/KG	0.00324 U	0.00345 U	0.00348 U	0.00322 U	0.00333 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00311 U	0.00179 J	0.00186 U	0.00114 J	0.00178 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.305**	**0.017**	0.00063 J	**0.0195**	0.00178 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.241**	**0.0247**	0.00186 U	**0.0178**	0.00178 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.185 U	0.19 U	0.193 U	0.184 U	0.19 U
Toxaphene	--	--	--	MG/KG	0.0324 U	0.0345 U	0.0348 U	0.0322 U	0.0333 U
trans-Chlordane	--	--	--	MG/KG	0.0531	0.0023 U	0.00232 U	0.00199 J	0.00222 U

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Table 6. Summary of Pesticides and Herbicides in Soil, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units	Sample Designation: RISB-18	RISB-18	RISB-18	RISB-19	RISB-19
					Sample Date: 09/05/2024	09/12/2024	09/12/2024	09/10/2024	09/12/2024
					Sample Depth (ft bls): 0 - 2	8 - 10	8 - 10	0 - 2	5 - 7
					Normal Sample or Field Duplicate: N	N	FD	N	N
2,4-D (Dichlorophenoxyacetic Acid)	--	--	--	MG/KG	0.185 U	0.223 U	0.223 U	0.184 U	0.167 U
Acetic acid, (2,4,5-trichlorophenoxy)-	--	--	--	MG/KG	0.185 U	0.223 U	0.223 U	0.184 U	0.167 U
Aldrin	0.0048	0.044	0.19	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.18	0.02	MG/KG	0.000737 U	0.000882 U	0.000876 U	0.000733 U	0.00065 U
Alpha Endosulfan	4.3	35	65	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.021	0.18	0.09	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Beta Endosulfan	4.3	35	44	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Chlordane	--	--	--	MG/KG	0.0147 U	0.0176 U	0.0175 U	0.0147 U	0.013 U
Chlordane (Technical)	--	--	--	MG/KG	NA	NA	NA	NA	NA
cis-Chlordane	**0.014**	0.65	4.5	MG/KG	0.00879 J	0.00265 U	0.00263 U	0.0022 U	0.00195 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.1	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Dieldrin	**0.005**	0.075	0.1	MG/KG	0.00396	0.00132 U	0.00131 U	0.0011 U	0.000975 U
Endosulfan Sulfate	4.3	35	47	MG/KG	0.000737 U	0.000882 U	0.000876 U	0.000733 U	0.00065 U
Endrin	0.014	5.3	0.06	MG/KG	0.000737 U	0.000882 U	0.000876 U	0.000733 U	0.00065 U
Endrin Aldehyde	--	--	--	MG/KG	0.00221 U	0.00265 U	0.00263 U	0.0022 U	0.00195 U
Endrin Ketone	--	--	--	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
Gamma Bhc (Lindane)	0.025	0.21	0.05	MG/KG	0.000737 U	0.000882 U	0.000876 U	0.000733 U	0.00065 U
Heptachlor	0.013	0.53	0.38	MG/KG	0.000884 U	0.00106 U	0.00105 U	0.00088 U	0.00078 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00332 U	0.00397 U	0.00394 U	0.0033 U	0.00292 U
Methoxychlor	--	--	--	MG/KG	0.00332 U	0.00397 U	0.00394 U	0.0033 U	0.00292 U
P,P'-DDD	**0.0033**	5	14	MG/KG	0.00177 U	0.00212 U	0.0021 U	0.00176 U	0.00156 U
P,P'-DDE	**0.0033**	3.4	9.3	MG/KG	**0.0117**	0.00212 U	0.0021 U	**0.0125**	0.00156 U
P,P'-DDT	**0.0033**	3.8	135	MG/KG	**0.039**	0.00212 U	0.0021 U	**0.00923**	0.00156 U
Silvex (2,4,5-TP)	--	--	--	MG/KG	0.185 U	0.223 U	0.223 U	0.184 U	0.167 U
Toxaphene	--	--	--	MG/KG	0.0332 U	0.0397 U	0.0394 U	0.033 U	0.0292 U
trans-Chlordane	--	--	--	MG/KG	0.00647	0.00265 U	0.00263 U	0.000956 NJ	0.00195 U

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-1	RISB-1	RISB-1	RISB-2	RISB-2	RISB-2	RISB-3
			Sample Date:		09/06/2024	09/18/2024	09/18/2024	09/10/2024	09/10/2024	09/17/2024	09/10/2024
			Sample Depth (ft bls):		0 - 2	5 - 7	7 - 9	0 - 2	0 - 2	7 - 9	0 - 2
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	89.8	87.5	86.4	89.9	90.9	91.7	92.4

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-3	RISB-3	RISB-3	RISB-4	RISB-4	RISB-4	RISB-4
			Sample Date:		09/10/2024	09/10/2024	09/17/2024	09/04/2024	09/04/2024	09/13/2024	09/13/2024
			Sample Depth (ft bls):		0 - 2	0 - 2	5 - 7	0 - 2	0 - 2	20 - 22	20 - 22
			Normal Sample or Field Duplicate:		N	FD	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	91.4	91.5	87.1	86.4	87.3	85.2	87.6

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-5	RISB-6	RISB-6	RISB-6	RISB-7	RISB-7	RISB-7
			Sample Date:		09/17/2024	09/05/2024	09/13/2024	09/13/2024	09/05/2024	09/13/2024	09/13/2024
			Sample Depth (ft bls):		17 - 19	0 - 2	15 - 17	15 - 17	0 - 2	19 - 21	19 - 21
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	84.8	85.8	73.7	81.8	86.8	67.8	69.6

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-8	RISB-8	RISB-8	RISB-9	RISB-9	RISB-10	RISB-10
			Sample Date:		09/06/2024	09/06/2024	09/06/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024
			Sample Depth (ft bls):		0 - 2	2 - 4	4 - 6	0 - 2	2 - 4	0 - 2	0 - 2
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	FD
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	90.7	89.8	89.7	88.4	92.6	86.8	87.8

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-10	RISB-10	RISB-11	RISB-11	RISB-12	RISB-12	RISB-12
			Sample Date:		09/09/2024	09/09/2024	09/04/2024	09/09/2024	09/04/2024	09/04/2024	09/09/2024
			Sample Depth (ft bls):		7 - 9	17 - 19	0 - 2	13 - 15	0 - 2	2 - 4	4 - 6
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	85.8	87.6	91.2	98.2	89.9	91.2	96.4

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-13	RISB-13	RISB-13	RISB-13	RISB-14	RISB-14	RISB-14
			Sample Date:		09/04/2024	09/09/2024	09/09/2024	09/09/2024	09/04/2024	09/04/2024	09/09/2024
			Sample Depth (ft bls):		0 - 2	17 - 19	17 - 19	19 - 21	0 - 2	0 - 2	9 - 11
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	89.8	75	77.2	87.8	95.2	88.5	89.7

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-14	RISB-14	RISB-14	RISB-15	RISB-15	RISB-15	RISB-15
			Sample Date:		09/09/2024	09/09/2024	09/09/2024	09/06/2024	09/12/2024	09/12/2024	09/12/2024
			Sample Depth (ft bls):		9 - 11	13 - 15	13 - 15	0 - 2	5 - 7	5 - 7	7 - 9
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	92.1	93.6	85.6	93.1	88.5	86.7	92.1

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:		RISB-16	RISB-16	RISB-17	RISB-17	RISB-17	RISB-17	RISB-18
			Sample Date:		09/06/2024	09/06/2024	09/10/2024	09/10/2024	09/10/2024	09/10/2024	09/05/2024
			Sample Depth (ft bls):		0 - 2	3 - 5	0 - 2	0 - 2	12 - 14	12 - 14	0 - 2
			Normal Sample or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units							
Total Solids	--	--	--	PERCENT	86.1	84	83.6	89	84.2	86.9	87.9

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Table 7. Summary of General Chemistry in Soil, 3728 Park Avenue, Bronx, New York

				Sample Designation:	RISB-18	RISB-18	RISB-19	RISB-19
				Sample Date:	09/12/2024	09/12/2024	09/10/2024	09/12/2024
				Sample Depth (ft bls):	8 - 10	8 - 10	0 - 2	5 - 7
				Normal Sample or Field Duplicate:	N	FD	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Units				
Total Solids	--	--	--	PERCENT	74	73.8	90.2	98.4

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Table 8. Summary of Per- and Polyfluoroalkyl Substances in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:	RISB-2	RISB-3	RISB-4	RISB-4	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-5	RISB-6
			Sample Date:	09/10/2024	09/10/2024	09/04/2024	09/13/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/13/2024
			Sample Depth (ft bls):	0 - 2	0 - 2	0 - 2	20 - 22	0 - 2	2 - 4	2 - 4	4 - 6	6 - 8	8 - 10	15 - 17
			Normal Sample or Field Duplicate:	N	N	N	N	N	N	FD	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use GV	NYSDEC Part 375 Restricted Residential GV	NYSDEC Part 375 Protection of Groundwater GV	Units											
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.79 U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2Fts)	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	NA	NA	NA	NA	NA	NA	0.79 U
2-(N-ethyl perfluoro-1-octanesulfonamido)-ethanol	--	--	--	UG/KG	1.99 U	2 U	2 U	1.99 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.97 U	1.97 U
2-(N-methyl perfluoro-1-octanesulfonamido)-ethanol	--	--	--	UG/KG	1.99 U	2 U	2 U	1.99 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.97 U	1.97 U
2-(N-methyl perfluorooctanesulfonamido) acetic acid	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	--	--	--	UG/KG	4.97 U	4.99 U	4.99 U	4.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.97 U	4.94 U
3-Perfluoroheptyl propanoic acid (7:3FTCA)	--	--	--	UG/KG	4.97 U	4.99 U	4.99 U	4.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.97 U	4.94 U
3-Perfluoropropyl propanoic acid (3:3 FTCA)	--	--	--	UG/KG	0.995 U	0.998 U	0.998 U	0.996 U	0.39 U	0.39 U	0.39 U	0.39 U	0.4 U	0.39 U	0.987 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.79 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.79 U
N-ethyl perfluoro-1-octanesulfonamide	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
N-methyl perfluoro-1-octanesulfonamide	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	--	UG/KG	0.398 U	0.399 U	0.399 U	0.398 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.395 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	--	UG/KG	0.398 U	0.399 U	0.399 U	0.398 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.395 U
Perfluoro(2-Propoxypropanoic) Acid	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.79 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	--	UG/KG	0.398 U	0.399 U	0.399 U	0.398 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.395 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	--	UG/KG	0.398 U	0.399 U	0.399 U	0.398 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.395 U
Perfluorobutanesulfonic acid (PFBS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorobutanoic Acid	--	--	--	UG/KG	0.24 J	0.214 J	0.162 J	0.797 U	0.39 U	0.39 U	0.39 U	0.39 U	0.4 U	0.39 U	0.79 U
Perfluorodecane Sulfonic Acid	--	--	--	UG/KG	0.036 J	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorodecanoic acid (PFDA)	--	--	--	UG/KG	0.135 J	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorododecane sulfonate (PFDoDS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorododecanoic acid (PFDoA)	--	--	--	UG/KG	0.041 J	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluoroheptane Sulfonate (PFHPS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluoroheptanoic acid (PFHpA)	--	--	--	UG/KG	0.137 J	0.159 J	0.144 J	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorohexanesulfonic acid (PFHxS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorohexanoic acid (PFHxA)	--	--	--	UG/KG	0.219	0.24	0.172 J	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorononanesulfonic Acid (PFNS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorononanoic acid (PFNA)	--	--	--	UG/KG	0.289	0.137 J	0.107 J	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorooctane Sulfonamide (FOSA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorooctanesulfonic acid (PFOS)	**0.88**	44	1	UG/KG	**2.29**	**0.926**	0.455	0.199 U	0.53	0.39	0.2 U	0.12 J	0.31	0.12 J	0.179 J
Perfluorooctanoic acid (PFOA)	**0.66**	33	0.8	UG/KG	0.634	**1.31**	**0.981**	0.199 U	0.37	0.32	0.069 J	0.14 J	0.26	0.078 J	0.074 J
Perfluoropentanesulfonic Acid (PFPeS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluoropentanoic Acid (PFPeA)	--	--	--	UG/KG	0.259 J	0.272 J	0.176 J	0.398 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.395 U
Perfluorotetradecanoic acid (PFTA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluorotridecanoic Acid (PFTriA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Perfluoroundecanoic Acid (PFUnA)	--	--	--	UG/KG	0.098 J	0.053 J	0.2 U	0.199 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 U	0.197 U
Sodium 1H,1H,2H,2H-Perfluorodecane Sulfonate (8:2)	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.39 U	0.39 U	0.39 U	0.39 U	0.4 U	0.39 U	0.79 U
Sodium 1H,1H,2H,2H-Perfluorohexane Sulfonate (4:2)	--	--	--	UG/KG	NA	NA	NA	NA	0.39 U	0.39 U	0.39 U	0.39 U	0.4 U	0.39 U	NA
Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2)	--	--	--	UG/KG	0.796 U	0.799 U	0.798 U	0.797 U	0.39 U	0.39 U	0.39 U	0.39 U	0.4 U	0.39 U	0.79 U

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Table 8. Summary of Per- and Polyfluoroalkyl Substances in Soil, 3728 Park Avenue, Bronx, New York

			Sample Designation:	RISB-7	RISB-13	RISB-14	RISB-14	RISB-14	RISB-15	RISB-17	RISB-17
			Sample Date:	09/13/2024	09/09/2024	09/04/2024	09/09/2024	09/09/2024	09/12/2024	09/10/2024	09/10/2024
			Sample Depth (ft bls):	19 - 21	17 - 19	0 - 2	9 - 11	13 - 15	5 - 7	0 - 2	12 - 14
			Normal Sample or Field Duplicate:	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use GV	NYSDEC Part 375 Restricted Residential GV	NYSDEC Part 375 Protection of Groundwater GV	Units								
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2Fts)	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
2-(N-ethyl perfluoro-1-octanesulfonamido)-ethanol	--	--	--	UG/KG	1.99 U	8.95 U	2 U	1.97 U	1.97 U	1.99 U	2 U	1.99 U
2-(N-methyl perfluoro-1-octanesulfonamido)-ethanol	--	--	--	UG/KG	1.99 U	8.95 U	2 U	1.97 U	1.97 U	1.99 U	2 U	1.99 U
2-(N-methyl perfluorooctanesulfonamido) acetic acid	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	--	--	--	UG/KG	4.98 U	4.99 U	5 U	4.92 U	4.94 U	4.98 U	4.99 U	4.98 U
3-Perfluoroheptyl propanoic acid (7:3FTCA)	--	--	--	UG/KG	4.98 U	4.99 U	5 U	4.92 U	4.94 U	4.98 U	4.99 U	4.98 U
3-Perfluoropropyl propanoic acid (3:3 FTCA)	--	--	--	UG/KG	0.995 U	0.998 U	1 U	0.985 U	0.987 U	0.996 U	0.998 U	0.996 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
N-ethyl perfluoro-1-octanesulfonamide	--	--	--	UG/KG	0.199 U	0.895 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
N-methyl perfluoro-1-octanesulfonamide	--	--	--	UG/KG	0.199 U	0.895 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	--	UG/KG	0.398 U	0.399 U	0.4 U	0.394 U	0.395 U	0.398 U	0.399 U	0.398 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	--	UG/KG	0.398 U	0.399 U	0.4 U	0.394 U	0.395 U	0.398 U	0.399 U	0.398 U
Perfluoro(2-Propoxypropanoic) Acid	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	--	UG/KG	0.398 U	0.399 U	0.4 U	0.394 U	0.395 U	0.398 U	0.399 U	0.398 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	--	UG/KG	0.398 U	0.399 U	0.4 U	0.394 U	0.395 U	0.398 U	0.399 U	0.398 U
Perfluorobutanesulfonic acid (PFBS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorobutanoic Acid	--	--	--	UG/KG	0.796 U	0.798 U	0.053 J	0.788 U	0.79 U	0.797 U	0.168 J	0.797 U
Perfluorodecane Sulfonic Acid	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.04 J	0.199 U
Perfluorodecanoic acid (PFDA)	--	--	--	UG/KG	0.199 U	0.2 U	0.084 J	0.197 U	0.197 U	0.199 U	0.54	0.199 U
Perfluorododecane sulfonate (PFDoDS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorododecanoic acid (PFDoA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.108 J	0.199 U
Perfluoroheptane Sulfonate (PFHPS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluoroheptanoic acid (PFHpA)	--	--	--	UG/KG	0.199 U	0.2 U	0.064 J	0.197 U	0.197 U	0.199 U	0.303	0.199 U
Perfluorohexanesulfonic acid (PFHxS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorohexanoic acid (PFHxA)	--	--	--	UG/KG	0.199 U	0.2 U	0.089 J	0.197 U	0.197 U	0.199 U	0.259	0.199 U
Perfluorononanesulfonic Acid (PFNS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorononanoic acid (PFNA)	--	--	--	UG/KG	0.199 U	0.2 U	0.108 J	0.197 U	0.197 U	0.199 U	0.634	0.199 U
Perfluorooctane Sulfonamide (FOSA)	--	--	--	UG/KG	0.199 U	0.895 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorooctanesulfonic acid (PFOS)	**0.88**	44	1	UG/KG	0.199 U	0.081 J	0.671	0.197 U	0.197 U	0.312	**1.31**	0.199 U
Perfluorooctanoic acid (PFOA)	**0.66**	33	0.8	UG/KG	0.199 U	0.2 U	0.298	0.197 U	0.197 U	0.178 J	**1.04**	0.199 U
Perfluoropentanesulfonic Acid (PFPeS)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluoropentanoic Acid (PFPeA)	--	--	--	UG/KG	0.398 U	0.399 U	0.11 J	0.394 U	0.395 U	0.398 U	0.291 J	0.398 U
Perfluorotetradecanoic acid (PFTA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.2 U	0.199 U
Perfluorotridecanoic Acid (PFTriA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.064 J	0.199 U
Perfluoroundecanoic Acid (PFUnA)	--	--	--	UG/KG	0.199 U	0.2 U	0.2 U	0.197 U	0.197 U	0.199 U	0.423	0.199 U
Sodium 1H,1H,2H,2H-Perfluorodecane Sulfonate (8:2)	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.797 U	0.799 U	0.797 U
Sodium 1H,1H,2H,2H-Perfluorohexane Sulfonate (4:2)	--	--	--	UG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2)	--	--	--	UG/KG	0.796 U	0.798 U	0.8 U	0.788 U	0.79 U	0.734 J	0.799 U	0.797 U

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Table 9. Summary of Volatile Organic Compounds in Groundwater, 3728 Park Avenue, Bronx, New York

Sample Designation:			RIMW-1	RIMW-1	RIMW-4	RIMW-5	RIMW-6	RIMW-7	RIMW-8
Sample Date:			10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Normal Sample or Field Duplicate:			N	FD	N	N	N	N	N
Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units							
1,1,1,2-Tetrachloroethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,1-Trichloroethane (TCA)	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	1	UG/L	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
1,1-Dichloroethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1-Dichloroethene	5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichloropropane	0.04	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4,5-Tetramethylbenzene	5	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-Trichlorobenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4-Trimethylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromo-3-Chloropropane	0.04	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	3	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethane	0.6	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1	UG/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene (Mesitylene)	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene	3	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichloropropane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene	3	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Diethyl Benzene	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-Dioxane (P-Dioxane)	0.35	UG/L	250 R	250 R	250 R	250 R	250 R	250 R	250 R
2,2-Dichloropropane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Hexanone	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Ethyltoluene	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Acetone	50	UG/L	2.5 J	2.7 J	2.1 J	3 J	1.5 J+	2.9 J	1.6 J
Acrylonitrile	5	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromochloromethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromodichloromethane	50	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	50	UG/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Bromomethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Carbon Disulfide	60	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroform	7	UG/L	2.5 U	2.5 U	1.3 J	2.5 U	1.5 J	2.5 U	1.9 J
Chloromethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cis-1,2-Dichloroethylene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cis-1,3-Dichloropropene	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cymene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane	50	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	5	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichloroethylenes	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Diethyl Ether (Ethyl Ether)	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Hexachlorobutadiene	0.5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Isopropylbenzene (Cumene)	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m,p-Xylene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl Ethyl Ketone (2-Butanone)	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Naphthalene	10	UG/L	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
N-Butylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
N-Propylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
O-Xylene (1,2-Dimethylbenzene)	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Sec-Butylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Styrene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
T-Butylbenzene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tert-Butyl Methyl Ether	10	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethylene (PCE)	5	UG/L	2.2	2.6	0.5 U	0.5 U	0.24 J	0.5 U	0.5 U
Toluene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Total, 1,3-Dichloropropene (Cis And Trans)	0.4	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Trans-1,3-Dichloropropene	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-Butene	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Trichloroethylene (TCE)	5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vinyl Acetate	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	UG/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	5	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

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Table 10. Summary of Semivolatile Organic Compounds in Groundwater, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units	RIMW-1 10/01/2024 N	RIMW-1 10/01/2024 FD	RIMW-1 12/02/2025 N	RIMW-1 12/02/2025 FD	RIMW-4 10/01/2024 N	RIMW-4 12/02/2025 N	RIMW-5 10/01/2024 N	RIMW-5 11/25/2025 N	RIMW-6 10/01/2024 N	RIMW-6 11/25/2025 N	RIMW-7 10/01/2024 N	RIMW-7 11/26/2025 N	RIMW-8 10/01/2024 N	RIMW-8 11/26/2025 N
1,2,4,5-Tetrachlorobenzene	5	UG/L	10 U	10 U	NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
1,2,4-Trichlorobenzene	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
1,2-Dichlorobenzene	3	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
1,3-Dichlorobenzene	3	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
1,4-Dichlorobenzene	3	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
1,4-Dioxane (P-Dioxane)	0.35	UG/L	0.15 U	0.15 U	0.2 U	0.2 U	NA	0.2 U	NA	0.2 U	0.148 J	0.2 U	NA	0.2 U	NA	0.2 U
2,4,5-Trichlorophenol	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2,4,6-Trichlorophenol	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2,4-Dichlorophenol	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2,4-Dimethylphenol	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2,4-Dinitrophenol	10	UG/L	20 U	20 U	NA	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA
2,4-Dinitrotoluene	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2,6-Dinitrotoluene	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2-Chloronaphthalene	10	UG/L	0.2 U	0.2 U	NA	NA	0.2 U	NA	0.2 U	NA	0.2 U	NA	0.2 U	NA	0.2 U	NA
2-Chlorophenol	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
2-Methylnaphthalene	--	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
2-Methylphenol (O-Cresol)	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2-Nitroaniline	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
2-Nitrophenol	--	UG/L	10 U	10 U	NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
3,3'-Dichlorobenzidine	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
3-Nitroaniline	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
4,6-Dinitro-2-Methylphenol	--	UG/L	10 U	10 U	NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
4-Bromophenyl Phenyl Ether	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
4-Chloro-3-Methylphenol	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
4-Chloroaniline	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
4-Chlorophenyl Phenyl Ether	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
4-Nitroaniline	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
4-Nitrophenol	--	UG/L	10 U	10 U	NA	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA	10 U	NA
Acenaphthene	20	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Acenaphthylene	20	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Acetophenone	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Anthracene	50	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzo(A)Anthracene	0.002	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzo(A)Pyrene	0	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzo(B)Fluoranthene	0.002	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzo(G,H,I)Perylene	--	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzo(K)Fluoranthene	0.002	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Benzoic Acid	--	UG/L	50 U	50 U	NA	NA	50 U	NA	50 U	NA	50 U	NA	50 U	NA	50 U	NA
Benzyl Alcohol	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Benzyl Butyl Phthalate	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Biphenyl (Diphenyl)	5	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Bis(2-Chloroethoxy) Methane	5	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	1	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Bis(2-Chloroisopropyl) Ether	5	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Bis(2-Ethylhexyl) Phthalate	5	UG/L	3 U	3 U	NA	NA	3 U	NA	3 U	NA	3 U	NA	3 U	NA	3 U	NA
Carbazole	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Chrysene	0.002	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Dibenz(A,H)Anthracene	--	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Dibenzofuran	--	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Diethyl Phthalate	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Dimethyl Phthalate	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Di-N-Butyl Phthalate	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Di-N-Octylphthalate	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Fluoranthene	50	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Fluorene	50	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Hexachlorobenzene	0.04	UG/L	0.8 U	0.8 U	NA	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA
Hexachlorobutadiene	0.5	UG/L	0.5 U	0.5 U	NA	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA
Hexachlorocyclopentadiene	5	UG/L	20 U	20 U	NA	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA	20 U	NA
Hexachloroethane	5	UG/L	0.8 U	0.8 U	NA	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA
Indeno(1,2,3-C,D)Pyrene	0.002	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Isophorone	50	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
M+P MethylPhenol	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
Naphthalene	10	UG/L	0.1 UJ	0.1 UJ	NA	NA	0.1 UJ	NA	0.1 UJ	NA	0.1 UJ	NA	0.1 UJ	NA	0.1 UJ	NA
Nitrobenzene	0.4	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
N-Nitrosodi-N-Propylamine	--	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA
N-Nitrosodiphenylamine	50	UG/L	2 U	2 U	NA	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA	2 U	NA
Pentachlorophenol	1	UG/L	0.8 U	0.8 U	NA	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA	0.8 U	NA
Phenanthrene	50	UG/L	0.1 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA
Phenol	**1**	UG/L	5 U	5 U	NA	NA	5 U	NA	5 U	NA	5 U	NA	5 U	NA	**1.3 J**	NA
Pyrene	50	UG/L	0.18 J	0.06 J	NA	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA

Table 11. Summary of Metals in Groundwater, 3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units	Sample Designation:	RIMW-1	RIMW-1	RIMW-1	RIMW-1	RIMW-4	RIMW-4	RIMW-5	RIMW-5	RIMW-6
			Sample Date:	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
			Normal Sample or Field Duplicate:	N	N	FD	FD	N	N	N	N	N
			Total or Dissolved:	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Aluminum	--	UG/L		26.6	5.73 J	20	4.62 J	22.8	5.87 J	20.5	3.89 J	23.8
Antimony	3	UG/L		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Arsenic	25	UG/L		0.53 J+	0.55 J+	0.72 J+	0.74 J+	0.44 J	0.5	0.5	0.51	0.5 U
Barium	1000	UG/L		75.3	69.15	87.7	87.87	82.4	78.97	108.1	108.6	8.94 J+
Beryllium	3	UG/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	5	UG/L		0.2 U	0.2 U	0.2 U	0.2 U	0.48	0.49	0.09 J	0.08 J	0.2 U
Calcium	--	UG/L		173000	177000	193000	186000	78100	74900	104000	99500	92900
Chromium, Hexavalent	50	UG/L		10 U	NA	4 J	NA	10 U	NA	10 U	NA	10 U
Chromium, Total	50	UG/L		0.32 J	0.32 J	0.24 J	1 U	1 U	1 U	1.05	0.86 J	1.73
Cobalt	--	UG/L		0.53	0.42 J	0.59	0.58	1.13	1.08	1.62	1.44	0.5 U
Copper	200	UG/L		1.08 J	1.06	1.17 J	0.96 J	0.76 J	0.77 J	1 J	2.39 J	0.49 J
Cyanide	200	UG/L		5 U	NA	3 J	NA	5 U	NA	5 U	NA	5 U
Iron	**300**	UG/L		55.2	50 U	31 J	50 U	26.3 J	50 U	42 J	50 U	69.4
Lead	25	UG/L		0.54 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	**35000**	UG/L		**72800**	**72100**	**77700**	**74800**	**35300**	32900	**46800**	**45000**	**42800**
Manganese	300	UG/L		186.1	194.5	161	147.1	247.3	226.9	228.9	225.6	33.17
Mercury	0.7	UG/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	UG/L		0.88 J	0.78 J	0.9 J	0.68 J	2.34	2.19	1.33 J	1.48 J	2 U
Potassium	--	UG/L		9510	10800	8980	8460	4060	3940	8770	8920	8960
Selenium	10	UG/L		6.98	7.31	7.37	6.9	3.74 J	3.4 J	3.7 J	3.46 J	2.74 J
Silver	50	UG/L		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	**20000**	UG/L		**43900**	**44000**	**43100**	**43100**	**40400**	**38600**	11600	11000	**41800**
Thallium	0.5	UG/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.16 J	1 U
Vanadium	--	UG/L		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	2000	UG/L		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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Table 11. Summary of Metals in Groundwater, 3728 Park Avenue, Bronx, New York

Sample Designation:			RIMW-6	RIMW-7	RIMW-7	RIMW-8	RIMW-8
Sample Date:			10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Normal Sample or Field Duplicate:			N	N	N	N	N
Total or Dissolved:			Dissolved	Total	Dissolved	Total	Dissolved
Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units					
Aluminum	--	UG/L	6.14 J	331	7.26 J	5.67 J	7.77 J
Antimony	3	UG/L	4 U	4 U	4 U	4 U	4 U
Arsenic	25	UG/L	0.5 U	0.34 J	0.22 J	0.5 U	0.5 U
Barium	1000	UG/L	8.65	36.47	32.18	63.79	59.66
Beryllium	3	UG/L	0.5 U	0.24 J	0.5 U	0.5 U	0.5 U
Cadmium	5	UG/L	0.2 U	0.24	0.18 J	0.09 J	0.09 J
Calcium	--	UG/L	94900	179000	181000	126000	119000
Chromium, Hexavalent	50	UG/L	NA	10 U	NA	10 U	NA
Chromium, Total	50	UG/L	1.72	2.37	1.59	0.78 J	0.74 J
Cobalt	--	UG/L	0.5 U	2.34	0.5 U	0.18 J	0.5 U
Copper	200	UG/L	1 U	0.84 J	0.51 J	0.82 J	0.87 J
Cyanide	200	UG/L	NA	1 J	NA	5 U	NA
Iron	**300**	UG/L	50 U	**751**	50 U	50 U	50 U
Lead	25	UG/L	1 U	1.37	1 U	1 U	1 U
Magnesium	**35000**	UG/L	**41900**	**85700**	**82300**	**47700**	**45600**
Manganese	300	UG/L	11.39	88.57	3.77	34.63	28.56
Mercury	0.7	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	5 U
Nickel	100	UG/L	2 U	1.01 J	2 U	2 U	2 U
Potassium	--	UG/L	9290	7540	7440	8140	7520
Selenium	10	UG/L	2.65 J	7.61	6.68	8.01	7.41
Silver	50	UG/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	**20000**	UG/L	**41600**	**25700**	**25600**	**116000**	**109000**
Thallium	0.5	UG/L	1 U	0.2 J	0.17 J	1 U	1 U
Vanadium	--	UG/L	5 U	5 U	5 U	5 U	5 U
Zinc	2000	UG/L	10 U	13	10 U	10 U	10 U

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Table 12. Summary of Polychlorinated Biphenyls in Groundwater, 3728 Park Avenue, Bronx, New York

		Sample Designation:	RIMW-1	RIMW-1	RIMW-4	RIMW-5	RIMW-6	RIMW-7	RIMW-8
		Sample Date:	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
		Normal Sample or Field Duplicate:	N	FD	N	N	N	N	N
Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units							
PCB-1016 (Aroclor 1016)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1221 (Aroclor 1221)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1232 (Aroclor 1232)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1242 (Aroclor 1242)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1248 (Aroclor 1248)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1254 (Aroclor 1254)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1260 (Aroclor 1260)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1262 (Aroclor 1262)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
PCB-1268 (Aroclor 1268)	--	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
Polychlorinated Biphenyl (PCBs)	0.09	UG/L	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U

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Table 13. Summary of Pesticides and Herbicides in Groundwater, 3728 Park Avenue, Bronx, New York

		Sample Designation:	RIMW-1	RIMW-1	RIMW-4	RIMW-5	RIMW-6	RIMW-7	RIMW-8
		Sample Date:	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
		Normal Sample or Field Duplicate:	N	FD	N	N	N	N	N
Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units							
2,4-D (Dichlorophenoxyacetic Acid)	50	UG/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetic acid, (2,4,5-trichlorophenoxy)-	35	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aldrin	0	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.01	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Alpha Endosulfan	--	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.04	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Beta Endosulfan	--	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Chlordane	0.05	UG/L	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U
cis-Chlordane	--	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Dieldrin	0.004	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Endosulfan Sulfate	--	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Endrin	0	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Endrin Aldehyde	5	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Endrin Ketone	5	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Gamma Bhc (Lindane)	0.05	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Heptachlor	0.04	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Heptachlor Epoxide	0.03	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Methoxychlor	35	UG/L	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U
P,P'-DDD	0.3	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
P,P'-DDE	0.2	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
P,P'-DDT	0.2	UG/L	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Silvex (2,4,5-TP)	0.26	UG/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toxaphene	0.06	UG/L	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U	0.143 U
trans-Chlordane	--	UG/L	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U

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Table 14. Summary of Per- and Polyfluoroalkyl Substances in Groundwater,3728 Park Avenue, Bronx, New York

Parameter	NYSDEC Ambient Water Quality Standards and Guidance Values	Units	RIMW-1 10/01/2024 N	RIMW-1 10/01/2024 FD	RIMW-1 12/02/2025 N	RIMW-4 12/02/2025 N	RIMW-4 12/02/2025 FD	RIMW-5 11/25/2025 N	RIMW-6 10/01/2024 N	RIMW-6 11/25/2025 N	RIMW-7 11/26/2025 N	RIMW-8 11/26/2025 N
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	--	UG/L	0.00616 U	0.00589 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00595 U	0.00167 U	0.00168 U	0.00171 U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2Fts)	--	UG/L	0.00616 U	0.00589 U	NA	NA	NA	NA	0.00595 U	NA	NA	NA
2-(N-ethyl perfluoro-1-octanesulfonamido)-ethanol	--	UG/L	0.0154 U	0.0147 U	0.00843 U	0.00839 U	0.00851 U	0.00862 U	0.0149 U	0.00837 U	0.00842 U	0.00853 U
2-(N-methyl perfluoro-1-octanesulfonamido)-ethanol	--	UG/L	0.0154 U	0.0147 U	0.00843 U	0.00839 U	0.00851 U	0.00862 U	0.0149 U	0.00837 U	0.00842 U	0.00853 U
2-(N-methyl perfluorooctanesulfonamido) acetic acid	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	--	UG/L	0.0385 U	0.0368 U	0.00843 U	0.00839 U	0.00851 U	0.00862 U	0.0372 U	0.00837 U	0.00842 U	0.00853 U
3-Perfluoroheptyl propanoic acid (7:3FTCA)	--	UG/L	0.0385 U	0.0368 U	0.00843 U	0.00839 U	0.00851 U	0.00862 U	0.0372 U	0.00837 U	0.00842 U	0.00853 U
3-Perfluoropropyl propanoic acid (3:3 FTCA)	--	UG/L	0.0077 U	0.00736 U	0.00337 U	0.00336 U	0.0034 U	0.00345 U	0.00744 U	0.00335 U	0.00337 U	0.00341 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	UG/L	0.00616 U	0.00589 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00595 U	0.00167 U	0.00168 U	0.00171 U
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid	--	UG/L	0.00616 U	0.00589 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00595 U	0.00167 U	0.00168 U	0.00171 U
N-ethyl perfluoro-1-octanesulfonamide	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
N-methyl perfluoro-1-octanesulfonamide	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	UG/L	0.00308 U	0.00294 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00297 U	0.00167 U	0.00168 U	0.00171 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	UG/L	0.00308 U	0.00294 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00297 U	0.00167 U	0.00168 U	0.00171 U
Perfluoro(2-Propoxypropanoic) Acid	--	UG/L	0.00616 U	0.00589 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00595 U	0.00167 U	0.00168 U	0.00171 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	--	UG/L	0.00308 U	0.00294 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00297 U	0.00167 U	0.00168 U	0.00171 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	--	UG/L	0.00308 U	0.00294 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00297 U	0.00167 U	0.00168 U	0.00171 U
Perfluorobutanesulfonic acid (PFBS)	--	UG/L	0.00744	0.00788	0.00554	0.0044	0.0046	0.00289	0.00319	0.00306	0.00369	0.00568
Perfluorobutanoic Acid	--	UG/L	0.0172	0.0167	0.00983	0.00587	0.00617	0.00409	0.0058 J	0.00488	0.0111	0.0064
Perfluorodecane Sulfonic Acid	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluorodecanoic acid (PFDA)	--	UG/L	0.0002 EMPC	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.000349 J	0.00167 U	0.00168 U	0.00171 U
Perfluorododecane sulfonate (PFDoDS)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluorododecanoic acid (PFDoA)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluoroheptane Sulfonate (PFHPS)	--	UG/L	0.000346 J	0.000272 EMPC	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.000327 J	0.00167 U	0.00168 U	0.00171 U
Perfluoroheptanoic acid (PFHpA)	--	UG/L	0.00707	0.00719	0.00327	0.00294	0.00311	0.00359	0.00413	0.00342	0.00577	0.00488
Perfluorohexanesulfonic acid (PFHxS)	--	UG/L	0.00394	0.00399	0.00287	0.00196	0.00193	0.00132 J	0.00199	0.00201	0.00214	0.00216
Perfluorohexanoic acid (PFHxA)	--	UG/L	0.00863	0.00942	0.0024	0.00438	0.0047	0.00383	0.00535	0.00525	0.00749	0.00749
Perfluorononanesulfonic Acid (PFNS)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluorononanoic acid (PFNA)	--	UG/L	0.00153 J	0.00134 J	0.00128 J	0.00059 J	0.00077 J	0.00075 J	0.00122 J	0.00135 J	0.00168 U	0.00171 U
Perfluorooctane Sulfonamide (FOSA)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluorooctanesulfonic acid (PFOS)	**0.0027**	UG/L	**0.0103**	**0.009**	**0.00916 EMPC**	**0.00786**	**0.00913 EMPC**	**0.0138**	**0.0255**	**0.0189**	**0.0053 EMPC**	**0.0187**
Perfluorooctanoic acid (PFOA)	**0.0067**	UG/L	**0.05**	**0.048**	**0.0315**	**0.0142**	**0.0156**	**0.0243**	**0.021**	**0.0161**	**0.0281**	**0.0202**
Perfluoropentanesulfonic Acid (PFPeS)	--	UG/L	0.000985 J	0.000817 J	0.00064 J	0.00168 U	0.00051 J	0.00172 U	0.000387 J	0.00048 J	0.0005 J	0.00055 J
Perfluoropentanoic Acid (PFPeA)	--	UG/L	0.00856	0.00905	0.0032	0.00379	0.00427	0.00286	0.00596	0.00527	0.00941	0.0072
Perfluorotetradecanoic acid (PFTA)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluorotridecanoic Acid (PFTriA)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Perfluoroundecanoic Acid (PFUnA)	--	UG/L	0.00154 U	0.00147 U	0.00169 U	0.00168 U	0.0017 U	0.00172 U	0.00149 U	0.00167 U	0.00168 U	0.00171 U
Sodium 1H,1H,2H,2H-Perfluorodecane Sulfonate (8:2)	--	UG/L	0.00616 U	0.00589 U	0.00337 U	0.00336 U	0.0034 U	0.00345 U	0.00595 U	0.00335 U	0.00337 U	0.00341 U
Sodium 1H,1H,2H,2H-Perfluorohexane Sulfonate (4:2)	--	UG/L	NA	NA	0.00337 U	0.00336 U	0.0034 U	0.00345 U	NA	0.00335 U	0.00337 U	0.00341 U
Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2)	--	UG/L	0.00616 U	0.00589 U	0.00337 U	0.0197	0.0173	0.00532	0.00595 U	0.00202 J	0.00337 U	0.00341 U

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Table 15. Summary of Volatile Organic Compounds in Soil Vapor, 3728 Park Avenue, Bronx, New York

Sample Designation:		RISV-1	RISV-2	RISV-3	RISV-4	RISV-7	RISV-7	RISV-8	RISV-9
Sample Date:		10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Normal Sample or Field Duplicate:		N	N	N	N	N	FD	N	N
Parameter	Units								
1,1,1-Trichloroethane (TCA)	UG/M3	1.09 U	1.09 U	1.09 U	1.09 U	1.82 U	1.09 U	56.2 U	1.09 U
1,1,2,2-Tetrachloroethane	UG/M3	1.37 U	1.37 U	1.37 U	1.37 U	2.29 U	1.37 U	70.7 U	1.37 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/M3	1.53 U	1.53 U	1.53 U	1.53 U	2.55 U	1.53 U	78.9 U	1.53 U
1,1,2-Trichloroethane	UG/M3	1.09 U	1.09 U	1.09 U	1.09 U	1.82 U	1.09 U	56.2 U	1.09 U
1,1-Dichloroethane	UG/M3	0.809 U	0.809 U	0.809 U	0.809 U	1.35 U	0.809 U	41.7 U	0.809 U
1,1-Dichloroethene	UG/M3	0.793 U	0.793 U	0.793 U	0.793 U	1.32 U	0.793 U	40.8 U	0.793 U
1,2,4-Trichlorobenzene	UG/M3	1.48 U	1.48 U	1.48 U	1.48 U	2.47 U	1.48 U	76.5 U	1.48 U
1,2,4-Trimethylbenzene	UG/M3	**265**	**252**	**276**	**287**	**125**	**160**	**214**	**170**
1,2-Dibromoethane (Ethylene Dibromide)	UG/M3	1.54 U	1.54 U	1.54 U	1.54 U	2.56 U	1.54 U	79.2 U	1.54 U
1,2-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U	1.2 U	2 U	1.2 U	61.9 U	1.2 U
1,2-Dichloroethane	UG/M3	0.809 U	0.809 U	0.809 U	0.809 U	1.35 U	0.809 U	41.7 U	0.809 U
1,2-Dichloropropane	UG/M3	0.924 U	0.924 U	0.924 U	0.924 U	1.54 U	0.924 U	47.6 U	0.924 U
1,2-Dichlorotetrafluoroethane	UG/M3	1.4 U	1.4 U	1.4 U	1.4 U	2.33 U	1.4 U	72 U	1.4 U
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3	**90**	**85.5**	**88**	**97.3**	**58**	**67.8**	**150**	**66.4**
1,3-Butadiene	UG/M3	0.442 U	0.442 U	0.442 U	**4.69**	0.737 U	0.442 U	22.8 U	0.442 U
1,3-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U	1.2 U	2 U	1.2 U	61.9 U	1.2 U
1,4-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U	1.2 U	2 U	1.2 U	61.9 U	1.2 U
1,4-Dioxane (P-Dioxane)	UG/M3	0.721 U	0.721 U	0.721 U	0.721 U	1.2 U	0.721 U	37.1 U	0.721 U
2,2,4-Trimethylpentane	UG/M3	**107**	**123**	**139**	**316**	**340**	**298**	**38200**	**145**
2-Hexanone	UG/M3	0.82 U	0.82 U	0.82 U	0.82 U	1.36 U	0.82 U	42.2 U	0.82 U
4-Ethyltoluene	UG/M3	**41.4**	**46.1**	**44.3**	**51.1**	**23.8**	**27.1**	**83.1**	**34**
Acetone	UG/M3	**31.6**	**23.8**	**62.2**	**165**	**58.4**	**71**	**123**	**33.5**
Allyl Chloride (3-Chloropropene)	UG/M3	0.626 U	0.626 U	0.626 U	0.626 U	1.04 U	0.626 U	32.2 U	0.626 U
Benzene	UG/M3	**1.64**	**1.55**	**1.71**	**21.4**	**6.07**	**5.85**	**111**	**6.36**
Benzyl Chloride	UG/M3	1.04 U	1.04 U	1.04 U	1.04 U	1.72 U	1.04 U	53.3 U	1.04 U
Bromodichloromethane	UG/M3	1.34 U	1.34 U	1.34 U	1.34 U	2.23 U	1.34 U	69 U	1.34 U
Bromoform	UG/M3	2.07 U	2.07 U	2.07 U	2.07 U	3.44 U	2.07 U	106 U	2.07 U
Bromomethane	UG/M3	0.777 U	0.777 U	0.777 U	0.777 U	1.29 U	0.777 U	40 U	0.777 U
Carbon Disulfide	UG/M3	**1.05**	**0.968**	**27.2**	**170**	**4.45**	**3.49**	32.1 U	**1.32**
Carbon Tetrachloride	UG/M3	1.26 U	1.26 U	1.26 U	1.26 U	2.09 U	1.26 U	64.8 U	1.26 U
Chlorobenzene	UG/M3	0.921 U	0.921 U	0.921 U	0.921 U	8.66 U	0.921 U	47.4 U	0.921 U
Chloroethane	UG/M3	0.528 U	0.528 U	0.528 U	0.528 U	0.879 U	0.528 U	27.2 U	0.528 U
Chloroform	UG/M3	**3.96**	**4.17**	**3.92**	**8.94**	**30.1**	**29.8**	50.3 U	**3.69**
Chloromethane	UG/M3	0.413 U	0.413 U	0.413 U	0.413 U	0.688 U	0.413 U	21.3 U	0.413 U
Cis-1,2-Dichloroethylene	UG/M3	0.793 U	0.793 U	0.793 U	0.793 U	1.32 U	0.793 U	40.8 U	0.793 U
Cis-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U	0.908 U	1.51 U	0.908 U	46.8 U	0.908 U
Cyclohexane	UG/M3	**36.1**	**39.9**	**43.7**	**118**	**57.5**	**50.6**	**1750**	**58.9**
Dibromochloromethane	UG/M3	1.7 U	1.7 U	1.7 U	1.7 U	2.84 U	1.7 U	87.8 U	1.7 U
Dichlorodifluoromethane	UG/M3	**2.28**	**2.11**	**3.03**	**3.11**	**3.2**	**3.56**	50.9 U	**2.25**
Ethanol	UG/M3	9.42 U	9.42 U	9.42 U	9.42 U	15.7 U	9.42 U	486 U	9.42 U
Ethyl Acetate	UG/M3	1.8 U	1.8 U	1.8 U	1.8 U	3.01 U	1.8 U	93 U	1.8 U
Ethylbenzene	UG/M3	**48.2**	**48.2**	**52.1**	**76.9**	**71.2**	**74.7**	**3270**	**112**
Hexachlorobutadiene	UG/M3	2.13 U	2.13 U	2.13 U	2.13 U	3.55 U	2.13 U	110 U	2.13 U
Isopropanol	UG/M3	1.23 U	1.23 U	**1.37**	**2.63**	**3.69**	**2.83**	63.4 U	1.23 U
m,p-Xylene	UG/M3	**179**	**178**	**189**	**258**	**258**	**270**	**8170**	**371**
Methyl Ethyl Ketone (2-Butanone)	UG/M3	**2.48**	**3.89**	**2.92**	1.47 U	**4.19**	**4.1**	76.1 U	**2.5**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UG/M3	2.05 U	2.05 U	2.05 U	2.05 U	3.42 U	2.05 U	106 U	2.05 U
Methylene Chloride	UG/M3	1.74 U	1.74 U	1.74 U	1.74 U	2.9 U	1.74 U	89.6 U	1.74 U
Naphthalene	UG/M3	**16.8**	**15.6**	**17**	**18.1**	1.75 U	**1.21**	54 U	**4.9**
N-Heptane	UG/M3	**43.4**	**49.6**	**47.5**	**150**	**211**	**166**	**4340**	**150**
N-Hexane	UG/M3	**16.5**	**15**	**17.6**	**106**	**80**	**70.1**	**599**	**91.6**
O-Xylene (1,2-Dimethylbenzene)	UG/M3	**159**	**140**	**152**	**179**	**128**	**136**	**7690**	**222**
Styrene	UG/M3	0.852 U	0.852 U	0.852 U	0.852 U	1.42 U	0.852 U	43.9 U	0.852 U
Tert-Butyl Alcohol	UG/M3	**5.43**	**17.8**	**14.3**	**36.4**	**10.4**	**8.88**	78.2 U	**15**
Tert-Butyl Methyl Ether	UG/M3	0.721 U	0.721 U	0.721 U	0.721 U	1.2 U	0.721 U	37.1 U	0.721 U
Tetrachloroethylene (PCE)	UG/M3	**21.7**	**10.7**	**13**	**21.8**	**15.5**	**16**	69.8 U	**17.5**
Tetrahydrofuran	UG/M3	1.47 U	1.47 U	1.47 U	1.47 U	2.46 UJ	**6.31 J**	76.1 U	1.47 U
Toluene	UG/M3	**48.2**	**46.4**	**50.9**	**138**	**162**	**145**	**4450**	**201**
Trans-1,2-Dichloroethene	UG/M3	0.793 U	0.793 U	0.793 U	**1.13**	**7.73 J**	**2.51 J**	40.8 U	0.793 U
Trans-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U	0.908 U	1.51 U	0.908 U	46.8 U	0.908 U
Trichloroethylene (TCE)	UG/M3	1.07 U	1.07 U	1.07 U	1.07 U	1.79 U	1.07 U	55.4 U	1.07 U
Trichlorofluoromethane	UG/M3	1.12 U	1.12 U	**1.59**	**1.96**	**1.93**	**2.12**	57.9 U	**1.21**
Vinyl Bromide	UG/M3	0.874 U	0.874 U	0.874 U	0.874 U	1.46 U	0.874 U	45 U	0.874 U
Vinyl Chloride	UG/M3	0.511 U	0.511 U	0.511 U	0.511 U	0.851 U	0.511 U	26.3 U	0.511 U

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Table 16. Remedial Cost Estimate for Remedial Alternative 1
Track 1 Unrestricted Use Cleanup

Item	Description	Estimated Quantity	Unit		Unit Price		Cost
Capital Costs							
SITE PREPARATION							
	Mobilization/Demobilization	1	LS	$	150,000	$	150,000
	Perimeter Fencing, Site Security, Temporary Facilities, Soil Staging Area, Decon Pad	1	LS	$	100,000	$	100,000
	Clearing and Grubbing/Erosion and Sediment Controls	1	LS	$	50,000	$	50,000
	Permitting/Insurance/Project Management	1	LS	$	450,000	$	450,000
EXCAVATION/BACKFILL							
	Support of Excavation	29,160	SF	$	80	$	2,332,800
	Dewatering and Water Treatment	1	LS	$	500,000	$	500,000
	Soil Excavation and Handling	26,330	CY	$	50	$	1,316,500
	Import Certified-Clean Fill	26,330	CY	$	30	$	789,900
	Backfill and Compaction of Certified Clean Fill	26,330	CY	$	15	$	394,950
	Surveying	1	LS	$	20,000	$	20,000
TRANSPORTATION/DISPOSAL							
	Non-Hazardous Solid Waste Transportation and Disposal	39,495	tons	$	75	$	2,962,125
	SUBTOTAL REMEDIATION CONSTRUCTION COST					$	**9,066,275**
Supplemental Remedial Costs							
	In-Situ Waste Characterization	1	LS	$	300,000	$	300,000
	Clean Backfill Sampling for VOCs	60	each	$	100	$	6,000
	Clean Backfill Sampling for all other parameters	28	each	$	1,500	$	42,000
	Confirmation Sampling (including QA/QC)	45	each	$	2,500	$	112,500
	Data Usability Summary Report	1	LS	$	63,000	$	63,000
	Air Monitoring, Field Oversight, Engineering Support/Disposal Coordination	6	Month	$	50,000	$	300,000
	Vapor, Dust and Odor Suppression	6	Month	$	30,000	$	180,000
	Vapor Intrusion Investigation	1	LS	$	30,000	$	30,000
	SUBTOTAL SUPPLEMENTAL REMEDIATION COST					$	**1,033,500**
BCP Reporting/Record Keeping							
	Remedial Action Work Plan	1	LS	$	50,000	$	50,000
	Monthly Reporting, Fact Sheets, Citizen Participation Activities	6	Month	$	7,000	$	42,000
	Final Engineering Report	1	LS	$	50,000	$	50,000
	Subtotal BCP Reporting/Record Keeping Cost					$	**142,000**
	TOTAL REMEDIAL CONSTRUCTION, SUPPLEMENTAL AND BCP RECORD KEEPING/REPORTING					$	**10,241,775**
	CONTINGENCY, TAX				**30%**	$	**3,072,533**
					TOTAL	$	**13,300,000**
Note: Total Cost is rounded.							

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Table 17. Remedial Cost Estimate for Remedial Alternative 2
Track 2 Restricted Residential Use Cleanup

Item	Description	Estimated Quantity	Unit	Unit Price	Cost
Capital Costs					
SITE PREPARATION					
	Mobilization/Demobilization	1	LS	$ 100,000	$ 100,000
	Perimeter Fencing, Site Security, Temporary Facilities, Soil Staging Area, Decon Pad	1	LS	$ 100,000	$ 100,000
	Clearing and Grubbing/Erosion and Sediment Controls	1	LS	$ 50,000	$ 50,000
	Permitting/Insurance/Project Management	1	LS	$ 150,000	$ 150,000
EXCAVATION/BACKFILL					
	Support of Excavation	8,130	SF	$ 80	$ 650,400
	Soil Excavation and Handling	4,300	CY	$ 50	$ 215,000
	Import Certified-Clean Fill	4,300	CY	$ 30	$ 129,000
	Backfill and Compaction of Certified Clean Fill	4,300	CY	$ 15	$ 64,500
	Surveying	1	LS	$ 20,000	$ 20,000
TRANSPORTATION/DISPOSAL					
	Non-Hazardous Solid Waste Transportation and Disposal	6,450	tons	$ 75	$ 483,750
PASSIVE SSDS					
	Passive SSDS beneath Site building	1	LS	$ 200,000	$ 200,000
	SUBTOTAL REMEDIATION CONSTRUCTION COST				**$ 2,162,650**
Supplemental Remedial Costs					
	In-Situ Waste Characterization	1	LS	$ 250,000	$ 250,000
	Clean Backfill Sampling for VOCs	16	each	$ 100	$ 1,600
	Clean Backfill Sampling for all other parameters	6	each	$ 1,500	$ 9,000
	Documentation Sampling	69	each	$ 2,500	$ 172,500
	Data Usability Summary Report	1	LS	$ 51,000	$ 51,000
	Air Monitoring, Field Oversight, Engineering Support/Disposal Coordination	3	Month	$ 50,000	$ 150,000
	Vapor, Dust and Odor Suppression	3	Month	$ 30,000	$ 90,000
	Vapor Intrusion Investigation	1	LS	$ 30,000	$ 30,000
	SUBTOTAL SUPPLEMENTAL REMEDIATION COST				**$ 754,100**
BCP Reporting/Record Keeping					
	Remedial Action Work Plan	1	LS	$ 50,000	$ 50,000
	Monthly Reporting, Fact Sheets, Citizen Participation Activities	3	Month	$ 7,000	$ 21,000
	Site Management Plan	1	LS	$ 40,000	$ 40,000
	Final Engineering Report	1	LS	$ 50,000	$ 50,000
	Subtotal BCP Reporting/Record Keeping Cost				**$ 161,000**
	TOTAL REMEDIAL CONSTRUCTION, SUPPLEMENTAL AND BCP RECORD KEEPING/REPORTING				**$ 3,077,750**
	CONTINGENCY, TAX			**30%**	**$ 923,325**
				TOTAL	**$ 4,000,000**
Annual Operation, Maintenance and Monitoring (OM&M) Cost for Years 1 and 2					
	Annual Inspection of Engineering Controls and Periodic Review Report	1	LS	$ 10,000	$ 10,000
	TOTAL ANNUAL MONITORING COST/YEAR FOR YEARS 1 AND 2				**$ 10,000**
Note: Total Cost is rounded.					

DRAFT

Table 18. Track 1 and Track 2 Soil Cleanup Objectives and Backfill/On-Site Soil Reuse Soil Cleanup Objectives
3728 Park Avenue, Bronx, New York

Parameter	Track 1 SCOs[1]	Track 2 SCOs[2]	Track 2 Backfill/On-Site Reuse SCOs[3]
Volatile Organic Compounds (Concentrations in mg/kg)			
1,1,1-Trichloroethane	0.68	100	0.68
1,1-Dichloroethane	0.27	47	0.27
1,1-Dichloroethene	0.24	0.98	0.33
1,2,4-Trimethylbenzene	5.9	100	5.9
1,3,5-Trimethylbenzene	3.1	100	3.1
1,2-Dichlorobenzene	1.1	100	1.1
1,2-Dichloroethane	0.02	5.8	0.02
1,3-Dichlorobenzene	2.6	38	2.6
1,4-Dichlorobenzene	1.8	24	1.8
1,4-Dioxane	0.1	5.7	0.1
2-Butanone (MEK)	0.1	100	0.1
Acetone	0.03	100	0.03
Aniline	0.04	8.1	0.04
Benzene	0.06	3.7	0.06
n-Butylbenzene	18	100	18
Carbon tetrachloride	0.76	7.1	0.76
Chlorobenzene	4.5	100	4.5
Chloroform	0.37	24	0.37
cis-1,2-Dichloroethene	0.19	41	0.19
Ethylbenzene	1	76	1
Methylene chloride	0.05	81	0.05
MTBE	0.1	100	0.1
Nitrobenzene	0.08	1.8	0.08
n-Propylbenzene	5	100	5
sec-Butylbenzene	25	100	25
tert-Butylbenzene	11	100	11
Tetrachloroethene	1.3	18	1.3
Toluene	0.7	100	0.7
trans-1,2-Dichloroethene	0.19	100	0.19
Trichloroethene	0.47	6.4	0.47
Vinyl chloride	0.03	0.48	0.03
Xylenes (total)	0.26	100	1.2
Semivolatile Organic Compounds (Concentrations in mg/kg)			
1,4-Dioxane	0.1	5.7	0.1
2-Methylphenol	0.33	100	0.33
3&4-Methylphenol	0.33	100	0.33
Acenaphthene	20	100	98
Acenaphthylene	100	100	100
Anthracene	100	100	100
Benzo[a]anthracene	1	1.4	1.4
Benzo[a]pyrene	1	1	1
Benzo[b]fluoranthene	1	1.4	1.4
Benzo[g,h,i]perylene	0.64	4.9	4.9
Benzo[k]fluoranthene	0.8	4.9	4.9
Chrysene	1	4.9	4.9
Dibenzo[a,h]anthracene	0.33	0.33	0.33
Dibenzofuran	2.1	18	18
Fluoranthene	85	100	100
Fluorene	30	100	100
Hexachlorobenzene	0.33	0.33	0.33
Indeno[1,2,3-cd]pyrene	0.5	1.4	1.4
Naphthalene	12	100	12
Pentachlorophenol	0.8	1.3	0.8
Phenanthrene	1.1	4.9	4.9
Phenol	0.33	100	100
Pyrene	64	100	100
Metals (Concentrations in mg/kg)			
Arsenic	13	16	16
Barium	410	410	410
Beryllium	4.4	43	43
Cadmium	2.5	2.5	2.5
Chromium, Hexavalent	1	1	1
Chromium	30	110	110
Copper	50	280	280

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Table 18. Track 1 and Track 2 Soil Cleanup Objectives and Backfill/On-Site Soil Reuse Soil Cleanup Objectives
3728 Park Avenue, Bronx, New York

Parameter	Track 1 SCOs[1]	Track 2 SCOs[2]	Track 2 Backfill/On-Site Reuse SCOs[3]
Cyanide, Total	2.3	13	13
Lead	63	400	400
Manganese	1600	2000	2000
Mercury	0.18	0.3	0.3
Nickel	30	320	130
Selenium	3.9	110	4
Silver	2	110	8.3
Zinc	109	6600	2480
Pesticides (Concentrations in mg/kg)			
4,4'-DDD	0.0033	5	5
4,4'-DDE	0.0033	3.4	3.4
4,4'-DDT	0.0033	3.8	3.8
Aldrin	0.0048	0.044	0.044
alpha-BHC	0.02	0.18	0.02
alpha-Chlordane	0.014	0.65	0.65
beta-BHC	0.021	0.18	0.09
delta-BHC	0.04	100	0.1
Dieldrin	0.005	0.075	0.075
Endosulfan I	4.3	35	35
Endosulfan II	4.3	35	35
Endosulfan sulfate	4.3	35	35
Endrin	0.014	5.3	0.06
gamma-BHC (Lindane)	0.025	0.21	0.05
Heptachlor	0.013	0.53	0.38
Total Polychlorinated Biphenyls (Concentrations in mg/kg)			
Total Polychlorinated Biphenyls	0.1	1	0.1
Perfluorinated Alkyl Acids (Concentrations in µg/kg)			
Perfluorobutanesulfonic acid	--	--	--
Perfluoropentansulfonic acid	--	--	--
Perfluorohexanesulfonic acid	--	--	--
Perfluoroheptanesulfonic acid	--	--	--
Perfluorononanesulfonic acid	--	--	--
Perfluorodecanesulfonic acid	--	--	--
Perfluorododecanesulfonic acid	--	--	--
Perfluorobutanoics acid	--	--	--
Perfluoropentanoic acid	--	--	--
Perfluorohexanoic acid	--	--	--
Perfluoroheptanoic acid	--	--	--
Perfluorooctanoic acid	--	--	--
Perfluorononanoic acid	--	--	--
Perfluorodecanoic acid	--	--	--
Perfluoroundecanoic acid	--	--	--
Perfluorododecanoic acid	--	--	--
Perfluorotridecanoic acid	--	--	--
Perfluorotetradecanoic acid	--	--	--
Perfluorooctanesulfonic acid	0.88 [4]	44 [4]	1.0 [4]
Perfluorooctanoic acid	0.66 [4]	33 [4]	0.8 [4]
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	--	--	--
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	--	--	--
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	--	--	--
Perfluroroctanesulfonamide	--	--	--
N-methyl perfluorooctanesulfonamide	--	--	--
N-ethyl perfluorooctanesulfonamide	--	--	--
N-methyl perfluorooctanesulfonamidoacetic acid	--	--	--
N-ethyl perfluorooctanesulfonamidoacetic acid	--	--	--
N-methyl perfluorooctanesulfonamidoethanol	--	--	--
N-ethyl perfluorooctanesulfonamidoethanol	--	--	--
Hexafluoropropylene oxide dimer acid	--	--	--
4,8-Dioxa-3H-perfluorononanoic acid	--	--	--
Perfluoro-3-methoxypropanoic acid	--	--	--
Perfluoro-4-methoxybutanoic acid	--	--	--

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Table 18. Track 1 and Track 2 Soil Cleanup Objectives and Backfill/On-Site Soil Reuse Soil Cleanup Objectives
3728 Park Avenue, Bronx, New York

Parameter	Track 1 SCOs[1]	Track 2 SCOs[2]	Track 2 Backfill/On-Site Reuse SCOs[3]
Nonafluoro-3,6-dioxaheptanoic acid	--	--	--
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	--	--	--
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	--	--	--
Perfluoro(2-ethoxyethane)sulfonic acid	--	--	--
3-Perfluoropropyl propanoic acid	--	--	--
2H,2H,3H,3H-Perfluorooctanoic acid	--	--	--

1- SCOs and Backfill/On-Site Reuse SCOs for the Track 1 remedy are the NYSDEC Part 375 Unrestricted Use SCOs.

2- SCOs for the Track 2 remedy are the NYSDEC Part 375 Restricted Residential Use SCOs.

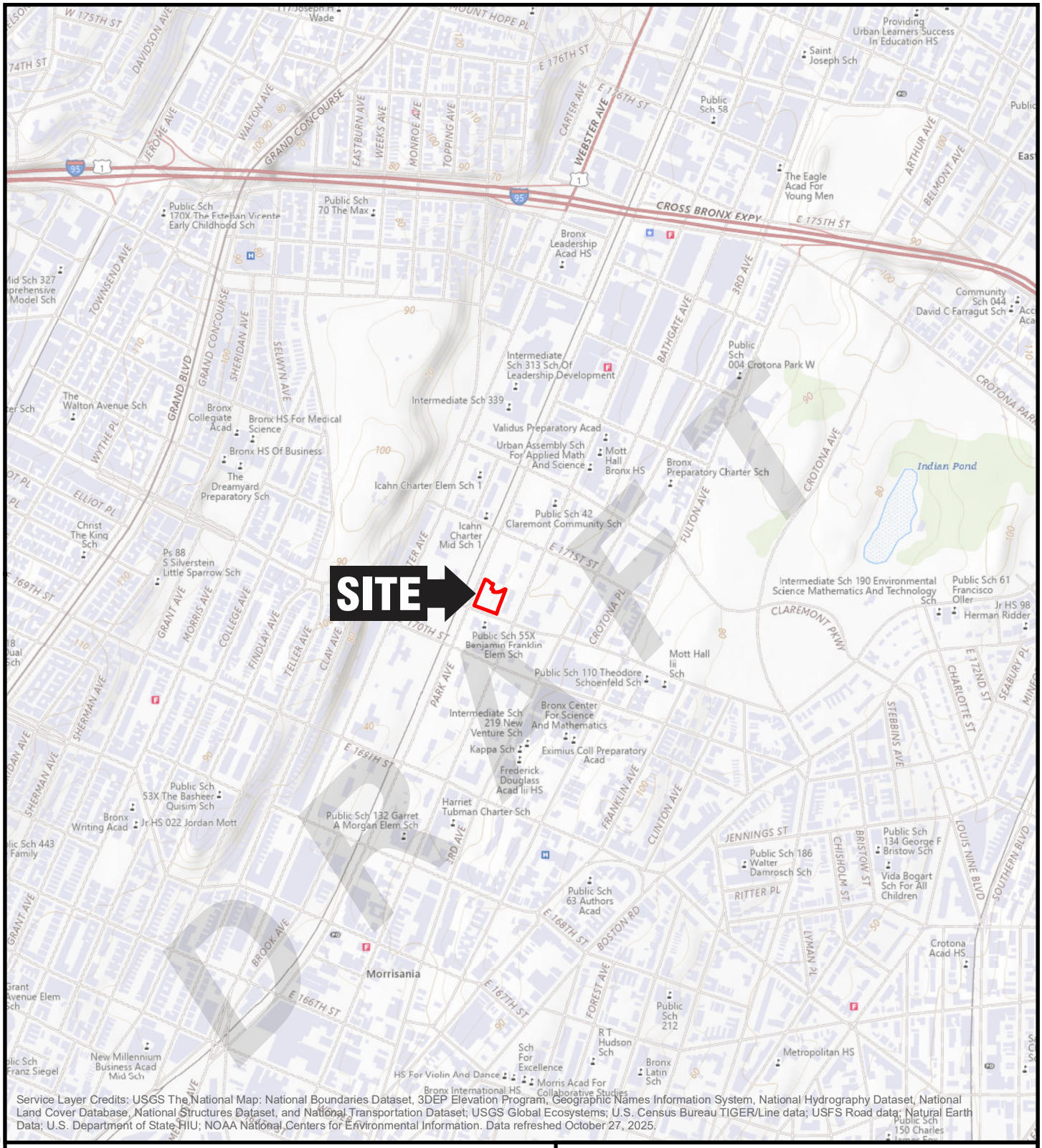
3- Backfill/On-Site Reuse SCOs for the Track 2 remedy are the lower of the NYSDEC Part 375 Protection of Groundwater or Restricted Residential Use SCOs
4 - SCOs for PFOS and PFOA not yet final. The guidance values shown are to be used until SCOs are in effect. Soil collected for onsite reuse will not be analyzed for Perfluorinated Alkyl Acids.
µg/kg - Micrograms per kilogram
mg/kg - Milligrams per kilogram
NYSDEC - New York State Department of Environmental Conservation
SCOs - Soil Cleanup Objectives

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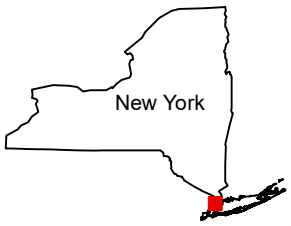
FIGURES

DRAFT

1. Site Location Map
2. Site Plan
3. Surrounding Land Use Map
4. Surrounding Wetlands and Surface Water Bodies
5. A. RI/SRI Soil Sample Locations
   B. RI/SRI Monitoring Well Locations
   C. RI Soil Vapor Point Locations
6. Groundwater Flow Map
7. Summary of Soil Exceedances
8. Summary of Groundwater Exceedances
9. Summary of Detections in Soil Vapor
10. A-A' Hydrogeologic Cross Section
11. B-B' Hydrogeologic Cross Section
12. Remedial Alternative 1 – Track 1 Unrestricted Use Cleanup
13. Remedial Alternative 2 – Track 2 Restricted Residential Use Cleanup
14. Organizational Chart
15. Truck Routes



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: D.M.H.	Project: 2908.0011Y000
File: 2908.0011Y142.1.mxd	

FIGURE 1

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LEGEND

- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. AERIAL SOURCE: NYS OFFICE OF INFORMATION TECHNOLOGY SERVICES GIS PROGRAM OFFICE (GPO)

30 0 30'

Title:

SITE PLAN

3728 PARK AVENUE
BRONX, NEW YORK

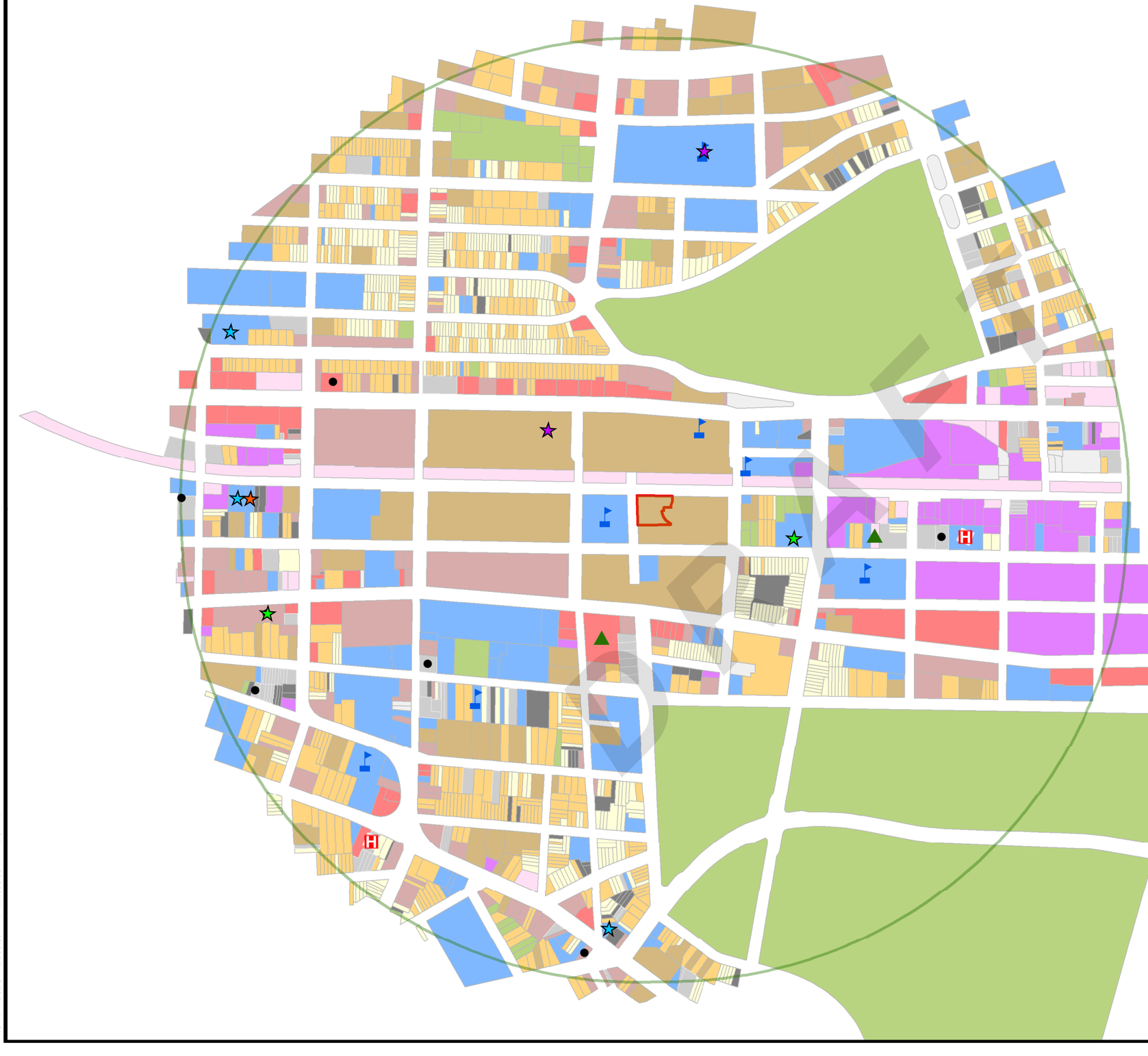
Prepared for:

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Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	2
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.02.mxd		

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N

LEGEND

- BCP SITE BOUNDARY
- 1/2 MILE RADIUS AROUND SITE

SENSITIVE RECEPTORS

- CITY AGENCY, TRANSPORTATION, OFFICES
- CHILD SERVICES AND WELFARE
- DAY CARE AND PRE-KINDERGARTEN
- EMERGENCY SERVICES
- HEALTH CARE
- HUMAN SERVICES
- SCHOOLS (K-12)
- SOLID WASTE

LAND USE CATEGORIES NEW YORK CITY DEPARTMENT OF CITY PLANNING

- ALL OTHERS OR NO DATA
- ONE & TWO FAMILY BUILDINGS
- MULTI-FAMILY WALK-UP BUILDINGS
- MULTI-FAMILY ELEVATOR BUILDINGS
- MIXED COMMERCIAL & RESIDENTIAL BUILDINGS
- COMMERCIAL & OFFICE BUILDINGS
- INDUSTRIAL & MANUFACTURING
- TRANSPORATION & UTILITY
- PUBLIC FACILITIES & INSTITUTIONS
- OPEN SPACE & OUTDOOR RECREATION
- PARKING FACILITIES
- VACANT LAND

NOTES

1. FACILITY AND PARCEL SOURCE: NYC OPEN DATA

600 0 600'

Title:

SURROUNDING LAND USE AND POTENTIAL SENSITIVE RECEPTORS

3728 PARK AVENUE
BRONX, NEW YORK

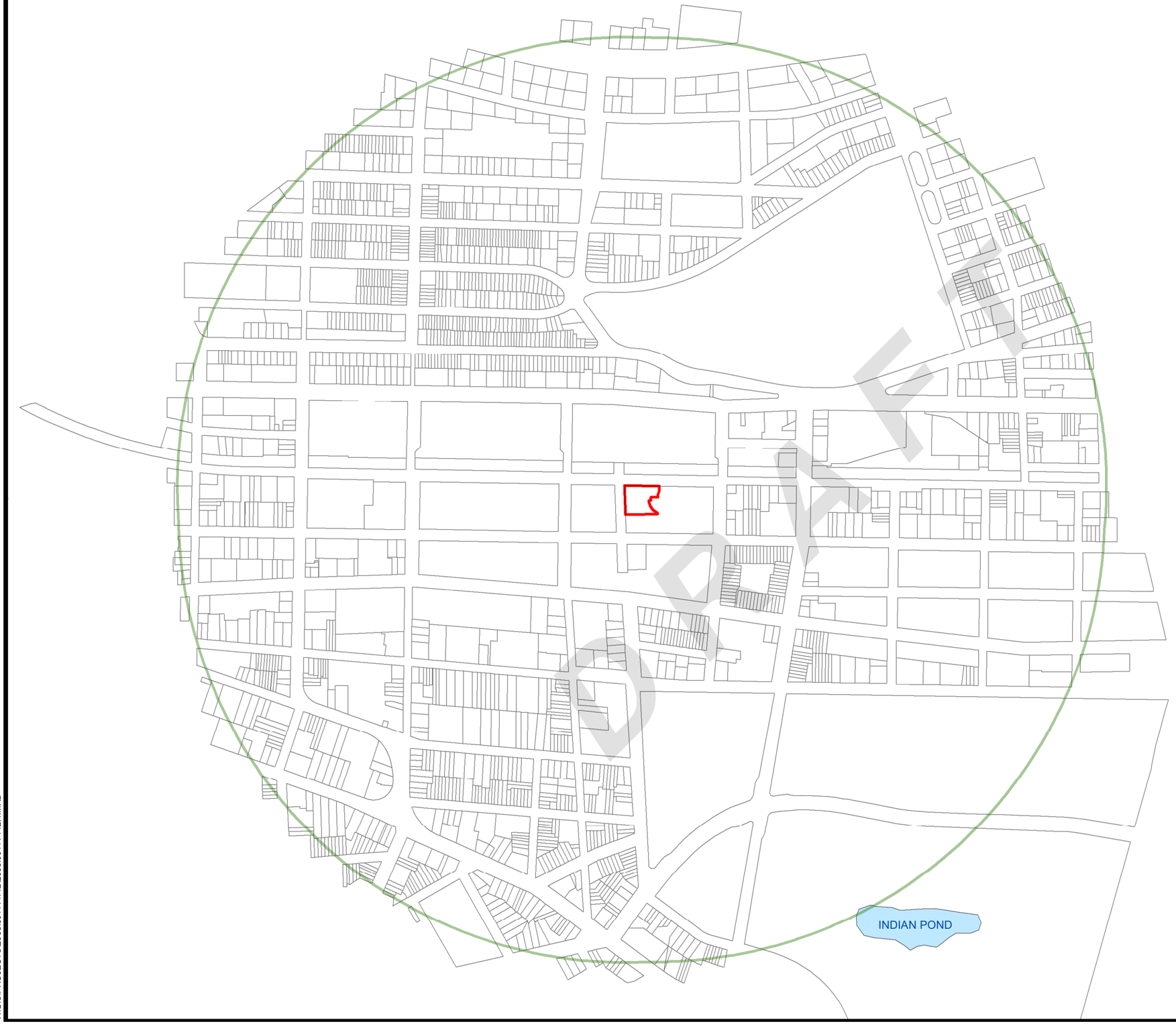
Prepared for:

SOL ON PARK LLC

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Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	3
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.3.mxd		

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LEGEND

- BCP SITE BOUNDARY
- 1/2 MILE RADIUS AROUND SITE
- PARCEL BOUNDARY
- LAKE/POND

NOTES

1. NO FRESHWATER OR TIDAL WETLANDS ARE PRESENT IN THE MAPPED AREA BASED ON THE UNITED STATES FISH AND WILDLIFE SERVICE'S NATIONAL WETLAND INVENTORY AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S INDEX OF NEW YORK STATE REGULATORY FRESHWATER WETLANDS AND REGULATORY TIDAL WETLANDS DATASET.
2. NO STREAMS OR SURFACE WATERS (OTHER THAN INDIAN POND) REMAIN IN THE MAPPED AREA BASED ON THE UNITED STATES GEOLOGICAL SURVEY'S NATIONAL HYDROGRAPHY DATASET AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S WATERBODY INVENTORY.
3. FACILITY AND PARCEL SOURCE: NYC OPEN DATA

600 0 600'

Title:

SURROUNDING WETLANDS AND SURFACE WATER BODIES

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	4
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.4.mxd		

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LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF SOIL BORING
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. AERIAL SOURCE: NYS OFFICE OF INFORMATION TECHNOLOGY SERVICES GIS PROGRAM OFFICE (GPO)
2. FORMER SAMPLING LOCATIONS ARE FROM ROUX'S 2023 PHASE II ENVIRONMENTAL SITE ASSESSMENT.

30 0 30'

Title:

RI/SRI SOIL SAMPLING LOCATIONS

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	5A
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.5A.mxd		

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LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF MONITORING WELL
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. AERIAL SOURCE: NYS OFFICE OF INFORMATION TECHNOLOGY SERVICES GIS PROGRAM OFFICE (GPO)
2. FORMER SAMPLING LOCATIONS ARE FROM ROUX'S 2023 PHASE II ENVIRONMENTAL SITE ASSESSMENT.

30 0 30'

Title:

RI/SRI MONITORING WELL LOCATIONS

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	5B
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.5B.mxd		

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LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF SOIL VAPOR POINT
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. AERIAL SOURCE: NYS OFFICE OF INFORMATION TECHNOLOGY SERVICES GIS PROGRAM OFFICE (GPO)
2. FORMER SAMPLING LOCATIONS ARE FROM ROUX'S 2023 PHASE II ENVIRONMENTAL SITE ASSESSMENT.

30 0 30'

Title:

RI
SOIL VAPOR POINT LOCATIONS

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	5C
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.5C.mxd		

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LEGEND

- MONITORING WELL
- INFERRED LINE OF EQUAL GROUNDWATER ELEVATION IN FEET (NAVD 1988)
- INFERRED GROUNDWATER FLOW DIRECTION
- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- 20.82 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (NAVD 1988)

NOTES

1. AERIAL SOURCE: NYS OFFICE OF INFORMATION TECHNOLOGY SERVICES GIS PROGRAM OFFICE (GPO)

30 0 30'

Title:

GROUNDWATER CONTOUR MAP OCTOBER 4, 2024

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	6
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.6.mxd		

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RISB-13

Depth (ft bls)	09/04/2024	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/09/2024	09/09/2024
	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	17 - 19	19 - 21
VOCs								
Acetone	ND	NA	NA	NA	NA	NA	NE	0.056
SVOCs								
Benzo(A)Anthracene	2.7 J	NE	1.2	NE	ND	NE	ND	ND
Benzo(A)Pyrene	2.4 J	NE	1.1	NE	ND	NE	ND	ND
Benzo(B)Fluoranthene	3.1 J	NE	1.4	NE	NE	NE	ND	ND
Benzo(G,H,I)Perylene	1.6	NE	0.74	NE	ND	ND	ND	ND
Benzo(K)Fluoranthene	0.94	NE	NE	NE	NE	NE	ND	ND
Chrysene	2.5 J	NE	1.3	NE	NE	NE	ND	ND
Dibenz(A,H)Anthracene	0.4	NE	NE	NE	ND	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	1.6	NE	0.76	NE	ND	ND	ND	ND
Phenanthrene	4.2 J	NE	2.3	NE	ND	NE	ND	ND
Metals								
Beryllium	NE	NE	NE	NE	NE	NE	25.5	8.44
Chromium, Total	NE	NE	NE	NE	NE	NE	38.9	46.8
Lead	95.6 J	239	267	240	NE	NE	NE	NE
Mercury	NE	NE	0.21	NE	NE	NE	ND	ND
Nickel	NE	NE	NE	NE	NE	NE	39.3	NE
Zinc	NE	198	189	255	NE	NE	117	139
Pesticides/Herbicides								
P,P'-DDE	0.00763	NA	NA	NA	NA	NA	ND	ND
P,P'-DDT	0.0105	NA	NA	NA	NA	NA	ND	ND

RISB-12

Depth (ft bls)	09/04/2024	09/04/2024	09/09/2024
	0 - 2	2 - 4	4 - 6
SVOCs			
Benzo(A)Anthracene	1.2	1.6	NE
Benzo(A)Pyrene	1.2	1.5	ND
Benzo(B)Fluoranthene	1.6	2	ND
Benzo(G,H,I)Perylene	0.82	1.1	ND
Chrysene	1.3	1.6	NE
Indeno(1,2,3-C,D)Pyrene	0.81	1	ND
Phenanthrene	1.9	2.2	NE
Metals			
Copper	52.3	NE	NE
Lead	169	309	NE
Zinc	179	152	NE
Pesticides/Herbicides			
P,P'-DDE	0.023	0.00854	ND
P,P'-DDT	0.0608 J	0.00869	ND

RISB-14

Depth (ft bls)	09/04/2024	12/04/2025	12/04/2025	12/04/2025	09/09/2024	09/09/2024
	0 - 2	3 - 5	5 - 7	7 - 9	9 - 11	13 - 15
SVOCs						
Benzo(A)Anthracene	4.3	ND	ND	ND	ND	ND
Benzo(A)Pyrene	4.2	ND	ND	ND	ND	ND
Benzo(B)Fluoranthene	6.1	ND	ND	ND	ND	ND
Benzo(G,H,I)Perylene	2.9	ND	ND	ND	ND	ND
Benzo(K)Fluoranthene	1.3	ND	ND	ND	ND	ND
Chrysene	4.7	ND	ND	ND	ND	ND
Dibenz(A,H)Anthracene	0.69	ND	ND	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	2.9	ND	ND	ND	ND	ND
Phenanthrene	6.2	ND	ND	ND	ND	ND
Metals						
Beryllium	NE	9.2	8.8	6.7	5.85	8.22
Chromium III	NA	40.3	45	47.1	NA	NA
Chromium, Total	NE	40.3	45	47.1	34.5	NE
Lead	284	NE	NE	NE	NE	NE
Mercury	0.529	NE	NE	ND	ND	ND
Zinc	252	196	187	113	NE	319
Pesticides/Herbicides						
P,P'-DDE	0.0222	NA	NA	NA	ND	ND
P,P'-DDT	0.0368	NA	NA	NA	ND	ND

RISB-15

Depth (ft bls)	09/06/2024	09/12/2024	09/12/2024	12/04/2025	12/04/2025
	0 - 2	5 - 7	7 - 9	9 - 11	11 - 13
SVOCs					
Benzo(A)Anthracene	NE	1.7	NE	NE	NE
Benzo(A)Pyrene	NE	1.6	NE	NE	NE
Benzo(B)Fluoranthene	NE	2.1	NE	NE	NE
Benzo(G,H,I)Perylene	NE	1.1	NE	NE	NE
Chrysene	NE	1.6	NE	NE	NE
Indeno(1,2,3-C,D)Pyrene	NE	1.2	NE	NE	ND
Phenanthrene	NE	2.5	NE	NE	1.2 J
Metals					
Barium	NE	NE	NE	2150	NE
Chromium, Hexavalent	NE	ND	NA	11.8	ND
Copper	138	NE	NE	NE	NE
Lead	368	2840	NE	2910	NE
Mercury	NE	0.743	NE	0.24	ND
Zinc	186	934	119	918	NE
Pesticides/Herbicides					
cis-Chlordane	ND	0.0371 NJ	NA	NA	NA
Dieldrin	ND	0.00864	NA	NA	NA
P,P'-DDE	0.0246	0.305	NA	NA	NA
P,P'-DDT	0.0802	0.241	NA	NA	NA

RISB-11

Depth (ft bls)	09/04/2024	09/09/2024
	0 - 2	13 - 15
Pesticides/Herbicides		
P,P'-DDE	0.00341	ND
P,P'-DDT	0.0145	ND

RISB-10

Depth (ft bls)	09/05/2024	09/05/2024	12/03/2025	12/03/2025	09/09/2024	09/09/2024
	0 - 2	0 - 2	3 - 5	5 - 7	7 - 9	17 - 19
Metals						
Beryllium	NE	NE	NE	NE	10.2	10
Chromium, Total	NE	NE	NE	NE	NE	40.2
Manganese	NE	NE	NE	NE	NE	2910
Nickel	NE	NE	NE	NE	43	57.6
Zinc	NE	NE	NE	NE	514	390
Pesticides/Herbicides						
P,P'-DDE	0.0119	0.0105	NA	NA	0.0253	ND
P,P'-DDT	0.00893	0.00893	NA	NA	0.0247	ND

RISB-1

Depth (ft bls)	09/06/2024	09/18/2024	09/18/2024
	0 - 2	5 - 7	7 - 9
SVOCs			
Benzo(A)Anthracene	5	NE	NA
Benzo(A)Pyrene	5.4	NE	NA
Benzo(B)Fluoranthene	6.7	NE	NA
Benzo(G,H,I)Perylene	3.4	NE	NA
Benzo(K)Fluoranthene	2	NE	NA
Chrysene	4.4	NE	NA
Dibenz(A,H)Anthracene	0.83	NE	NA
Indeno(1,2,3-C,D)Pyrene	3.5	NE	NA
Phenanthrene	4.4	1.4	NA
Metals			
Barium	NE	667	NE
Beryllium	NE	NE	8.94
Lead	700	2350	89.1
Mercury	0.205	0.359	NE
Zinc	321	975	178
Pesticides/Herbicides			
cis-Chlordane	NE	0.0892	NA
Dieldrin	ND	0.00557 J	NA
P,P'-DDD	0.00758	ND	NA
P,P'-DDE	0.044	0.7	NA
P,P'-DDT	0.0547	0.841	NA

RISB-4

Depth (ft bls)	09/04/2024	09/13/2024
	0 - 2	20 - 22
Metals		
Beryllium	NE	10
Lead	71.3	NE
Pesticides/Herbicides		
P,P'-DDT	0.00351	ND
PFAS		
Perfluorooctanoic acid (PFOA)	0.981	ND

RISB-5

Depth (ft bls)	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	12/04/2025	09/17/2024
	0 - 2	2 - 4	2 - 4 DUP	4 - 6	6 - 8	8 - 10	17 - 19
SVOCs							
Phenanthrene	NE	1.4	NE	NE	ND	ND	ND
Metals							
Barium	NE	427	627	NE	NE	NE	NE
Beryllium	NE	NE	NE	NE	NE	6.8	6.14
Chromium III	NE	NE	NE	NE	NE	56.5	NA
Chromium, Total	NE	NE	NE	NE	NE	56.5	33.2
Lead	101	258	190	NE	NE	NE	NE
Manganese	NE	NE	NE	2060	NE	NE	NE
Nickel	NE	NE	NE	NE	NE	31.6	NE
Zinc	183	306	425	354	NE	212	141
Pesticides/Herbicides							
P,P'-DDE	NE	0.0053 J	0.0038 J	ND	ND	ND	ND
P,P'-DDT	NE	0.011	0.01	ND	ND	ND	ND

RISB-16

Depth (ft bls)	09/06/2024	09/06/2024
	0 - 2	3 - 5
SVOCs		
Benzo(A)Anthracene	1.5	NE
Benzo(A)Pyrene	1.5	NE
Benzo(B)Fluoranthene	2	NE
Benzo(G,H,I)Perylene	1	NE
Chrysene	1.4	NE
Indeno(1,2,3-C,D)Pyrene	1	NE
Phenanthrene	2	NE
Metals		
Lead	172	NE
Mercury	0.268	ND
Zinc	286	NE
Pesticides/Herbicides		
P,P'-DDE	0.017	NE
P,P'-DDT	0.0247	ND

RISB-9

Depth (ft bls)	09/05/2024	09/05/2024
	0 - 2	2 - 4
VOCs	ND	ND
SVOCs	NE	ND
Metals	NE	NE
PCBs	ND	ND
Pesticides/Herbicides	NE	ND

RISB-6

Depth (ft bls)	09/05/2024	12/03/2025	12/03/2025	09/13/2024
	0 - 2	2 - 4	4 - 6	15 - 17
SVOCs				
Benzo(A)Anthracene	9.7	ND	ND	NE
Benzo(A)Pyrene	12	NE	ND	NE
Benzo(B)Fluoranthene	13	NE	ND	NE
Benzo(G,H,I)Perylene	9.2	ND	ND	NE
Benzo(K)Fluoranthene	2.6	ND	ND	NE
Chrysene	10	ND	ND	NE
Dibenz(A,H)Anthracene	1.3	ND	ND	NE
Indeno(1,2,3-C,D)Pyrene	6.8	ND	ND	NE
Phenanthrene	8.3	ND	ND	NE
Metals				
Beryllium	NE	NE	NE	4.91
Chromium, Hexavalent	ND	ND	ND	1.13 J-
Chromium, Total	NE	NE	NE	42.7
Lead	199	NE	NE	NE
Mercury	1.48	NE	NE	NE
Zinc	177	NE	NE	260
Pesticides/Herbicides				
P,P'-DDE	0.00374 J	NA	NA	NE
P,P'-DDT	0.0111	NA	NA	ND

RISB-7

Depth (ft bls)	09/05/2024	12/03/2025	12/03/2025	09/13/2024
	0 - 2	2 - 4	4 - 6	19 - 21
SVOCs				
Benzo(A)Anthracene	11	NE	ND	ND
Benzo(A)Pyrene	10	NE	ND	ND
Benzo(B)Fluoranthene	12	NE	ND	ND
Benzo(G,H,I)Perylene	6.8	NE	ND	ND
Benzo(K)Fluoranthene	4.1	NE	ND	ND
Chrysene	11	NE	ND	ND
Dibenz(A,H)Anthracene	1.4	NE	ND	ND
Indeno(1,2,3-C,D)Pyrene	6.4	NE	ND	ND
Phenanthrene	16	NE	NE	ND
Metals				
Beryllium	NE	NE	NE	6.13
Chromium, Hexavalent	ND	ND	ND	1.08 J-
Chromium, Total	NE	NE	NE	42.1
Copper	58.4	NE	NE	NE
Lead	427	217	NE	NE
Mercury	0.581	NE	ND	ND
Zinc	365	NE	NE	516
Pesticides/Herbicides				
cis-Chlordane	0.0178	NA	NA	ND
P,P'-DDD	0.00445	NA	NA	ND
P,P'-DDE	0.0208	NA	NA	ND
P,P'-DDT	0.0677	NA	NA	ND

RISB-3

Depth (ft bls)	09/10/2024	09/10/2024	12/02/2025	09/17/2024
	0 - 2	0 - 2	3 - 5	5 - 7
SVOCs				
Benzo(A)Anthracene	NE	1.6	ND	ND
Benzo(A)Pyrene	NE	1.5	ND	ND
Benzo(B)Fluoranthene	NE	2 J	ND	ND
Benzo(G,H,I)Perylene	NE	1.1	ND	ND
Chrysene	NE	1.4	ND	ND
Indeno(1,2,3-C,D)Pyrene	NE	1	ND	ND
Phenanthrene	NE	2.3 J	ND	ND
Metals				
Chromium, Total	NE	NE	NE	33.2
Lead	178	265	NE	NE
Mercury	0.203	0.358	NE	ND
Zinc	120 J	199 J	NE	NE
Pesticides/Herbicides				
P,P'-DDE	0.00912 J	0.00864 J	NA	ND
P,P'-DDT	0.0124	0.0125	NA	ND
PFAS				
Perfluorooctanesulfonic acid (PFOS)	0.926	NA	NA	NA
Perfluorooctanoic acid (PFOA)	1.31	NA	NA	NA

RISB-8

Depth (ft bls)	09/06/2024	09/06/2024	09/06/2024	12/02/2025	12/02/2025	12/02/2025
	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12
SVOCs						
Benzo(A)Anthracene	NE	1.6	1.7 J-	ND	ND	ND
Benzo(A)Pyrene	NE	1.8	1.4 J-	ND	ND	ND
Benzo(B)Fluoranthene	NE	2.4	1.9 J-	ND	ND	ND
Benzo(G,H,I)Perylene	NE	1.4	1.2 J-	ND	ND	ND
Chrysene	NE	1.6	1.6 J-	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	NE	1.4	1.1 J-	ND	ND	ND
Phenanthrene	NE	2	1.9 J-	ND	ND	ND
Metals						
Barium	NE	453	537	NE	NE	NE
Chromium, Hexavalent	ND	6.36	NA	ND	NE	ND
Copper	NE	76.4	53.4	NE	NE	NE
Lead	150	553	416	NE	NE	NE
Mercury	NE	2.03	0.389	ND	ND	ND
Zinc	150	424	512	NE	NE	NE
PCBs						
Polychlorinated Biphenyl (PCBs)	0.164	0.175	NA	NA	NA	NA
Pesticides/Herbicides						
P,P'-DDD	ND	0.00596	NA	NA	NA	NA
P,P'-DDE	0.00894	0.0286	NA	NA	NA	NA
P,P'-DDT	0.0153	0.0965	NA	NA	NA	NA

RISB-2

Depth (ft bls)	09/10/2024	12/02/2025	12/02/2025	09/17/2024
	0 - 2	2 - 4	4 - 6	7 - 9
SVOCs				
Benzo(B)Fluoranthene	1.3	NE	ND	ND
Benzo(G,H,I)Perylene	0.68 J	NE	ND	ND
Indeno(1,2,3-C,D)Pyrene	0.63 J	NE	ND	ND
Phenanthrene	1.4	ND	ND	ND
Metals				
Barium	NE	2340	NE	NE
Chromium III	NA	44.9	NE	NA
Chromium, Total	NE	44.9	NE	NE
Lead	406	389	NE	NE
Zinc	246	181	NE	NE
Pesticides/Herbicides				
P,P'-DDE	0.0288	NA	NA	ND
P,P'-DDT	0.0295	NA	NA	ND
PFAS				
Perfluorooctanesulfonic acid (PFOS)	2.29	NA	NA	NA

RISB-18

Depth (ft bls)	09/05/2024	12/02/2025	12/02/2025	12/02/2025	09/12/2024	09/12/2024
	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	8 - 10 DUP
SVOCs						
Benzo(A)Anthracene	5.5	NE	ND	2.6	ND	ND
Benzo(A)Pyrene	5.2	NE	ND	3	ND	ND
Benzo(B)Fluoranthene	6.6	NE	ND	4	ND	ND
Benzo(G,H,I)Perylene	3.3	NE	ND	1.7	ND	ND
Benzo(K)Fluoranthene	2	NE	ND	1.5	ND	ND
Chrysene	5.5	NE	ND	3.6	ND	ND
Dibenz(A,H)Anthracene	0.8	NE	ND	0.42	ND	ND
Indeno(1,2,3-C,D)Pyrene	3.3	NE	ND	1.8	ND	ND
Phenanthrene	7.1	NE	ND	10	ND	ND
Metals						
Chromium III	NA	NE	35.3	NE	NA	NA
Chromium, Total	NE	NE	35.3	NE	36.2 J	NE
Copper	50.5	66.1	NE	NE	NE	103 J
Lead	100	589	NE	72.2	NE	NE
Mercury	NE	37.9	NE	NE	ND	ND
Nickel	NE	32	NE	NE	NE	NE
Zinc	178	373	NE	NE	169 J	NE
Pesticides/Herbicides						
P,P'-DDE	0.0117	NA	NA	NA	ND	ND
P,P'-DDT	0.039	NA	NA	NA	ND	ND

RISB-19

Depth (ft bls)	09/10/2024	12/02/2025	09/12/2024
	0 - 2	3 - 5	5 - 7
Metals			
Lead	70.2	110	NE
Zinc	NE	142	NE
Pesticides/Herbicides			
P,P'-DDE	0.0125	NA	ND
P,P'-DDT	0.00923	NA	ND

RISB-17

Depth (ft bls)	09/10/2024	12/03/2025	12/03/2025	12/03/2025	12/03/2025	09/10/2024
	0 - 2	2 - 4	4 - 6	4 - 6 DUP	6 - 8	12 - 14
SVOCs						
Benzo(A)Anthracene	2.2	ND	ND	ND	ND	NE
Benzo(A)Pyrene	2.2	ND	ND	ND	ND	ND
Benzo(B)Fluoranthene	2.7	ND	ND	ND	ND	NE
Benzo(G,H,I)Perylene	1.5	ND	ND	ND	ND	ND
Chrysene	2	ND	ND	ND	ND	NE
Indeno(1,2,3-C,D)Pyrene	1.4	ND	ND	ND	ND	NE
Phenanthrene	3	ND	ND	ND	ND	NE
Metals						
Arsenic	NE	NE	19.6	20.7	13.9	ND
Beryllium	NE	10.8	12.2	11.2	7.4	NE
Chromium III	NA	61	58.3	67	NE	NA
Chromium, Total	NE	61	58.8	67.5	30.2	45
Lead	150	NE	NE	NE	NE	NE
Mercury	0.232	ND	ND	ND	ND	ND
Zinc	282	345	582	605	315	NE
Pesticides/Herbicides						
P,P'-DDE	0.0195	NA	NA	NA	NA	ND
P,P'-DDT	0.0178	NA	NA	NA	NA	ND
PFAS						
Perfluorooctanesulfonic acid (PFOS)	1.31	NA	NA	NA	NA	ND
Perfluorooctanoic acid (PFOA)	1.04	NA	NA	NA	NA	ND

Parameter	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives	NYSDEC Part 375 Protection of Groundwater Soil Cleanup Objectives	Units
VOCs				
Acetone	0.03	100	0.03	mg/kg
SVOCs				
Benzo(A)Anthracene	1	1.4	1	mg/kg
Benzo(A)Pyrene	1	1	22	mg/kg
Benzo(B)Fluoranthene	1	1.4	2.1	mg/kg
Benzo(G,H,I)Perylene	0.64	4.9	1000	mg/kg
Benzo(K)Fluoranthene	0.8	4.9	2	mg/kg
Chrysene	1	4.9	1	mg/kg
Dibenz(A,H)Anthracene	0.33	0.33	1000	mg/kg
Indeno(1,2,3-C,D)Pyrene	0.5	1.4	6.6	mg/kg
Phenanthrene	1.1	4.9	1000	mg/kg
Metals				
Arsenic	13	16	16	mg/kg
Barium	410	410	820	mg/kg
Beryllium	4.4	43	47	mg/kg
Chromium III	30	110	--	mg/kg
Chromium, Hexavalent	1	1	19	mg/kg
Chromium, Total	30	110	--	mg/kg
Copper	50	280	1720	mg/kg
Lead	63	400	450	mg/kg
Manganese	1600	2000	2000	mg/kg
Mercury	0.18	0.3	0.73	mg/kg
Nickel	30	320	130	mg/kg
Zinc	109	6600	2480	mg/kg
PCBs				
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	mg/kg
Pesticides/Herbicides				
cis-Chlordane	0.014	0.65	4.5	mg/kg
Dieldrin	0.005	0.075	0.1	mg/kg
P,P'-DDD	0.0033	5	14	mg/kg
P,P'-DDE	0.0033	3.4	9.3	mg/kg
P,P'-DDT	0.0033	3.8	135	mg/kg
PFAS				
Perfluorooctanesulfonic acid (PFOS)	0.88	44	1	µg/kg
Perfluorooctanoic acid (PFOA)	0.66	33	0.8	µg/kg

LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF SOIL BORING
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

- mg/kg - MILLIGRAMS PER KILOGRAM
- ug/kg - MICROGRAMS PER KILOGRAM
- NYSDEC - NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- -- NO NYSDEC PART 375 SOIL CLEANUP OBJECTIVES AVAILABLE
- J - ESTIMATED VALUE
- DUP - DUPLICATE SAMPLE
- VOCs - VOLATILE ORGANIC COMPOUNDS
- SVOCs - SEMIVOLATILE ORGANIC COMPOUNDS
- PCBs - POLYCHLORINATED BIPHENYLS
- PFAS - PER- AND POLYFLUOROALKYL SUBSTANCES
- NE - NO EXCEEDANCE
- ND - NO DETECTION
- ft bls - FEET BELOW LAND SURFACE

30 0 30'

Title:

RI/SRI
SOIL SAMPLE EXCEEDANCES

3728 PARK AVENUE
BRONX, NEW YORK

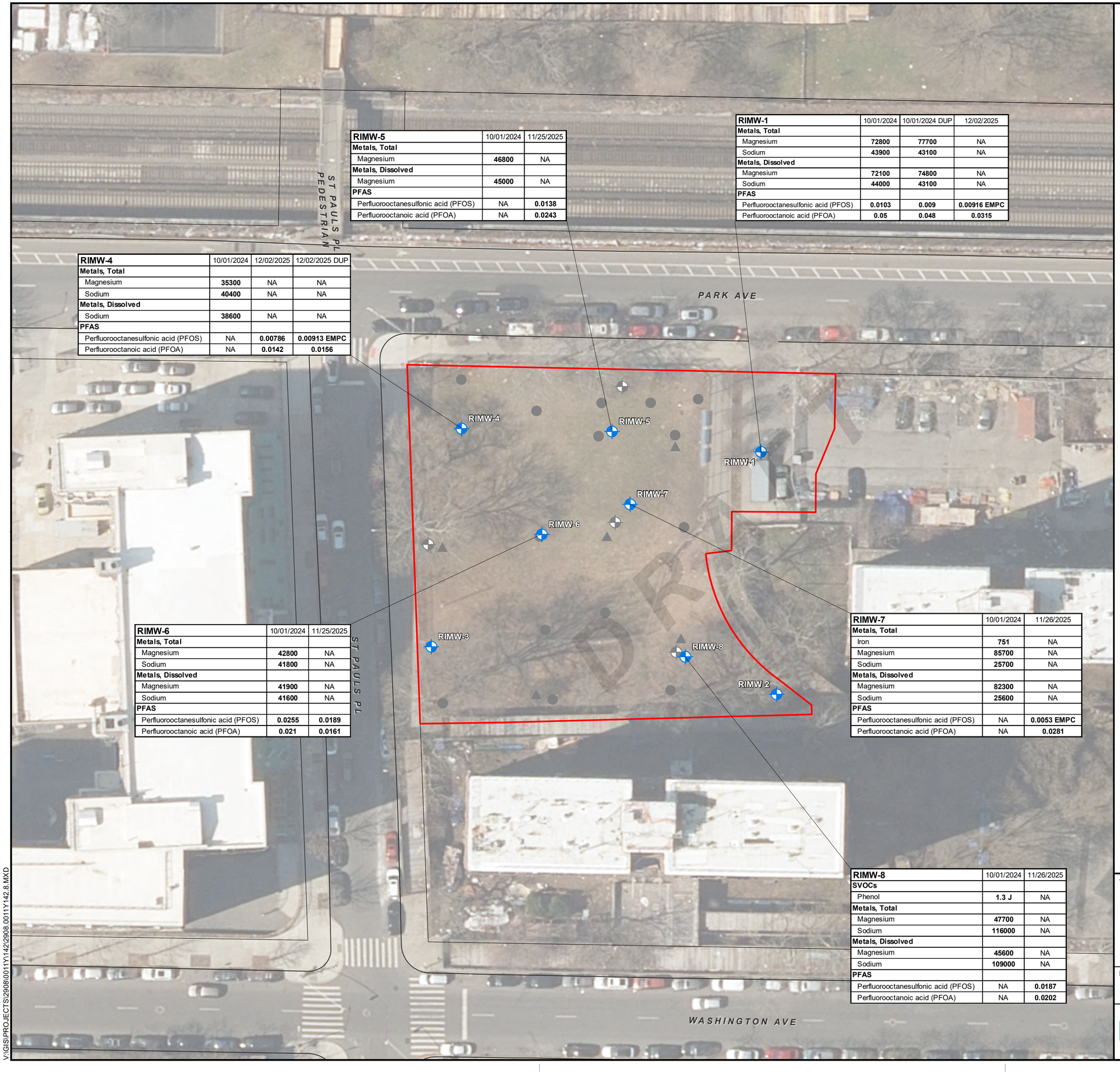
Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE 7
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.7.mxd		

V:\GIS\PROJECTS\2908\0011Y\142\2908.0011Y142.7.MXD



RIMW-5	10/01/2024	11/25/2025
Metals, Total		
Magnesium	**46800**	NA
Metals, Dissolved		
Magnesium	**45000**	NA
PFAS		
Perfluorooctanesulfonic acid (PFOS)	NA	**0.0138**
Perfluorooctanoic acid (PFOA)	NA	**0.0243**

RIMW-1	10/01/2024	10/01/2024 DUP	12/02/2025
Metals, Total			
Magnesium	**72800**	**77700**	NA
Sodium	**43900**	**43100**	NA
Metals, Dissolved			
Magnesium	**72100**	**74800**	NA
Sodium	**44000**	**43100**	NA
PFAS			
Perfluorooctanesulfonic acid (PFOS)	**0.0103**	**0.009**	**0.00916 EMPC**
Perfluorooctanoic acid (PFOA)	**0.05**	**0.048**	**0.0315**

RIMW-4	10/01/2024	12/02/2025	12/02/2025 DUP
Metals, Total			
Magnesium	**35300**	NA	NA
Sodium	**40400**	NA	NA
Metals, Dissolved			
Sodium	**38600**	NA	NA
PFAS			
Perfluorooctanesulfonic acid (PFOS)	NA	**0.00786**	**0.00913 EMPC**
Perfluorooctanoic acid (PFOA)	NA	**0.0142**	**0.0156**

RIMW-6	10/01/2024	11/25/2025
Metals, Total		
Magnesium	**42800**	NA
Sodium	**41800**	NA
Metals, Dissolved		
Magnesium	**41900**	NA
Sodium	**41600**	NA
PFAS		
Perfluorooctanesulfonic acid (PFOS)	**0.0255**	**0.0189**
Perfluorooctanoic acid (PFOA)	**0.021**	**0.0161**

RIMW-7	10/01/2024	11/26/2025
Metals, Total		
Iron	**751**	NA
Magnesium	**85700**	NA
Sodium	**25700**	NA
Metals, Dissolved		
Magnesium	**82300**	NA
Sodium	**25600**	NA
PFAS		
Perfluorooctanesulfonic acid (PFOS)	NA	**0.0053 EMPC**
Perfluorooctanoic acid (PFOA)	NA	**0.0281**

RIMW-8	10/01/2024	11/26/2025
SVOCs		
Phenol	**1.3 J**	NA
Metals, Total		
Magnesium	**47700**	NA
Sodium	**116000**	NA
Metals, Dissolved		
Magnesium	**45600**	NA
Sodium	**109000**	NA
PFAS		
Perfluorooctanesulfonic acid (PFOS)	NA	**0.0187**
Perfluorooctanoic acid (PFOA)	NA	**0.0202**

Parameter	NYSDEC AWQSGV	Units
VOCs	NE	µg/L
SVOCs		
Phenol	**1**	µg/L
Metals, Total		
Iron	**300**	µg/L
Magnesium	**35000**	µg/L
Sodium	**20000**	µg/L
Metals, Dissolved		
Iron	**300**	µg/L
Magnesium	**35000**	µg/L
Sodium	**20000**	µg/L
PCBs	ND	µg/L
Pesticides	ND	µg/L
PFAS		
Perfluorooctanesulfonic acid (PFOS)	**0.0027**	µg/L
Perfluorooctanoic acid (PFOA)	**0.0067**	µg/L

LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF MONITORING WELL
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

A GROUNDWATER SAMPLE WAS NOT ABLE TO BE COLLECTED FROM RIMW-2 AND RIMW-3 DUE TO THE LACK OF GROUNDWATER PRESENT IN EACH MONITORING WELL FROM FLUCTUATING PERCHED GROUNDWATER CONDITIONS.
CONCENTRATIONS IN µG/L

- µG/L - MICROGRAMS PER LITER
- NG/L - NANOGRAMS PER LITER
- NYSDEC - NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- AWQSGV - AMBIENT WATER-QUALITY STANDARDS AND GUIDANCE VALUES
- -- NO NYSDEC AWQSGV AVAILABLE
- J - ESTIMATED VALUE
- DUP - DUPLICATE SAMPLE
- VOCS - VOLATILE ORGANIC COMPOUNDS
- SVOCS - SEMIVOLATILE ORGANIC COMPOUNDS
- PCBS - POLYCHLORINATED BIPHENYLS
- PFAS - PER- AND POLYFLUOROALKYL SUBSTANCES
- NE - NO EXCEEDANCE
- ND - NO DETECTION
- EMPC – ESTIMATED MAXIMUM POSSIBLE CONCENTRATION

30 0 30'

Title:

RI/SRI
GROUNDWATER SAMPLE EXCEEDANCES

3728 PARK AVENUE
BRONX, NEW YORK

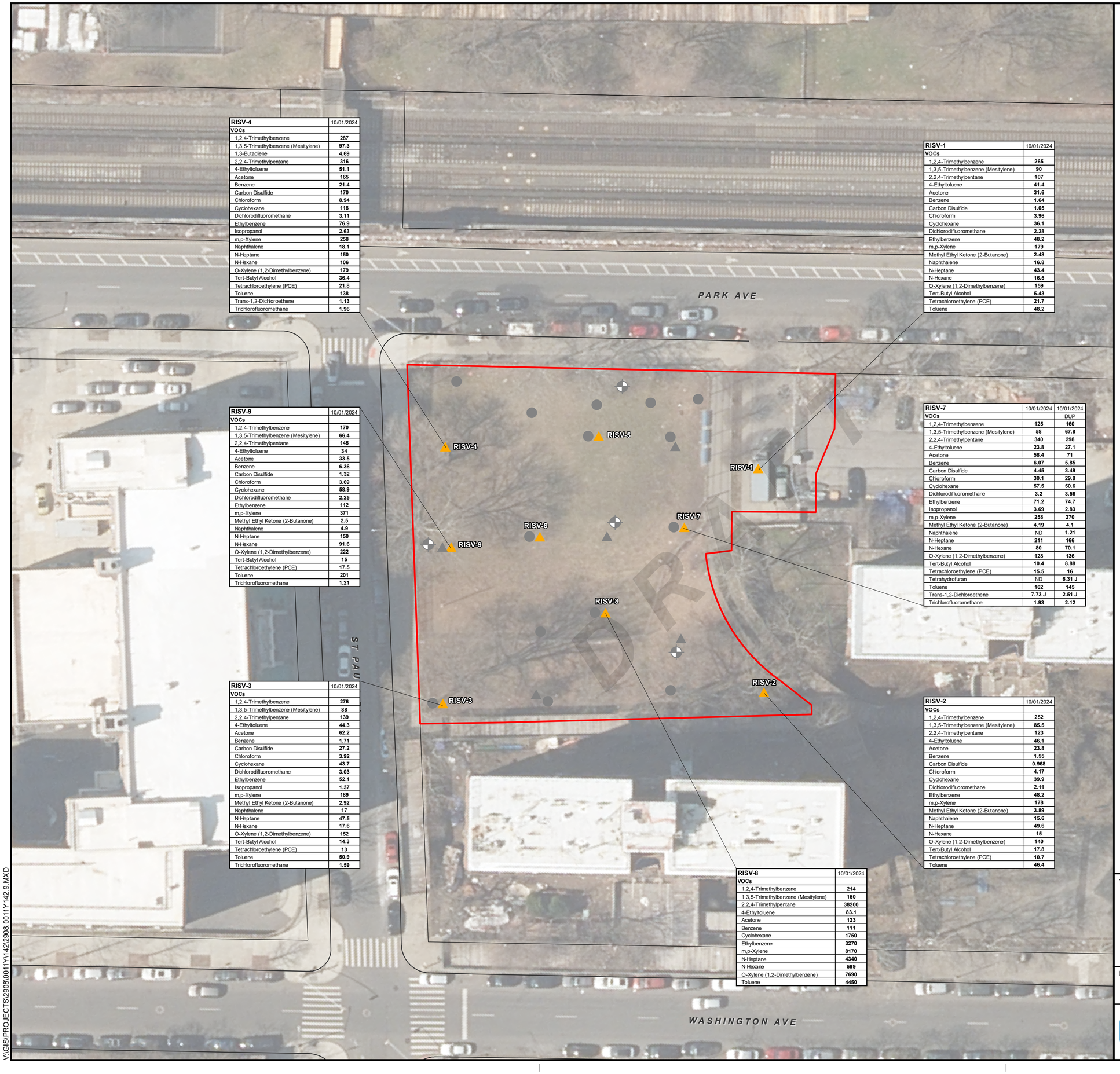
Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/26	FIGURE 8
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.8.mxd		

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RISV-4	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	287
1,3,5-Trimethylbenzene (Mesitylene)	97.3
1,3-Butadiene	4.69
2,2,4-Trimethylpentane	316
4-Ethyltoluene	51.1
Acetone	165
Benzene	21.4
Carbon Disulfide	170
Chloroform	8.94
Cyclohexane	118
Dichlorodifluoromethane	3.11
Ethylbenzene	76.9
Isopropanol	2.63
m,p-Xylene	258
Naphthalene	18.1
N-Heptane	150
N-Hexane	106
O-Xylene (1,2-Dimethylbenzene)	179
Tert-Butyl Alcohol	36.4
Tetrachloroethylene (PCE)	21.8
Toluene	138
Trans-1,2-Dichloroethene	1.13
Trichlorofluoromethane	1.96

RISV-1	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	265
1,3,5-Trimethylbenzene (Mesitylene)	90
2,2,4-Trimethylpentane	107
4-Ethyltoluene	41.4
Acetone	31.6
Benzene	1.64
Carbon Disulfide	1.05
Chloroform	3.96
Cyclohexane	36.1
Dichlorodifluoromethane	2.28
Ethylbenzene	48.2
m,p-Xylene	179
Methyl Ethyl Ketone (2-Butanone)	2.48
Naphthalene	16.8
N-Heptane	43.4
N-Hexane	16.5
O-Xylene (1,2-Dimethylbenzene)	159
Tert-Butyl Alcohol	5.43
Tetrachloroethylene (PCE)	21.7
Toluene	48.2

RISV-9	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	170
1,3,5-Trimethylbenzene (Mesitylene)	66.4
2,2,4-Trimethylpentane	145
4-Ethyltoluene	34
Acetone	33.5
Benzene	6.36
Carbon Disulfide	1.32
Chloroform	3.69
Cyclohexane	58.9
Dichlorodifluoromethane	2.25
Ethylbenzene	112
m,p-Xylene	371
Methyl Ethyl Ketone (2-Butanone)	2.5
Naphthalene	4.9
N-Heptane	150
N-Hexane	91.6
O-Xylene (1,2-Dimethylbenzene)	222
Tert-Butyl Alcohol	15
Tetrachloroethylene (PCE)	17.5
Toluene	201
Trichlorofluoromethane	1.21

RISV-7	10/01/2024	10/01/2024
VOCs		DUP
1,2,4-Trimethylbenzene	125	160
1,3,5-Trimethylbenzene (Mesitylene)	58	67.8
2,2,4-Trimethylpentane	340	298
4-Ethyltoluene	23.8	27.1
Acetone	58.4	71
Benzene	6.07	5.85
Carbon Disulfide	4.45	3.49
Chloroform	30.1	29.8
Cyclohexane	57.5	50.6
Dichlorodifluoromethane	3.2	3.56
Ethylbenzene	71.2	74.7
Isopropanol	3.69	2.83
m,p-Xylene	258	270
Methyl Ethyl Ketone (2-Butanone)	4.19	4.1
Naphthalene	ND	1.21
N-Heptane	211	166
N-Hexane	80	70.1
O-Xylene (1,2-Dimethylbenzene)	128	136
Tert-Butyl Alcohol	10.4	8.88
Tetrachloroethylene (PCE)	15.5	16
Tetrahydrofuran	ND	6.31 J
Toluene	162	145
Trans-1,2-Dichloroethene	7.73 J	2.51 J
Trichlorofluoromethane	1.93	2.12

RISV-3	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	276
1,3,5-Trimethylbenzene (Mesitylene)	88
2,2,4-Trimethylpentane	139
4-Ethyltoluene	44.3
Acetone	62.2
Benzene	1.71
Carbon Disulfide	27.2
Chloroform	3.92
Cyclohexane	43.7
Dichlorodifluoromethane	3.03
Ethylbenzene	52.1
Isopropanol	1.37
m,p-Xylene	189
Methyl Ethyl Ketone (2-Butanone)	2.92
Naphthalene	17
N-Heptane	47.5
N-Hexane	17.6
O-Xylene (1,2-Dimethylbenzene)	152
Tert-Butyl Alcohol	14.3
Tetrachloroethylene (PCE)	13
Toluene	50.9
Trichlorofluoromethane	1.59

RISV-2	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	252
1,3,5-Trimethylbenzene (Mesitylene)	85.5
2,2,4-Trimethylpentane	123
4-Ethyltoluene	46.1
Acetone	23.8
Benzene	1.55
Carbon Disulfide	0.968
Chloroform	4.17
Cyclohexane	39.9
Dichlorodifluoromethane	2.11
Ethylbenzene	48.2
m,p-Xylene	178
Methyl Ethyl Ketone (2-Butanone)	3.89
Naphthalene	15.6
N-Heptane	49.6
N-Hexane	15
O-Xylene (1,2-Dimethylbenzene)	140
Tert-Butyl Alcohol	17.8
Tetrachloroethylene (PCE)	10.7
Toluene	46.4

RISV-8	10/01/2024
VOCs	
1,2,4-Trimethylbenzene	214
1,3,5-Trimethylbenzene (Mesitylene)	150
2,2,4-Trimethylpentane	38200
4-Ethyltoluene	83.1
Acetone	123
Benzene	111
Cyclohexane	1750
Ethylbenzene	3270
m,p-Xylene	8170
N-Heptane	4340
N-Hexane	599
O-Xylene (1,2-Dimethylbenzene)	7690
Toluene	4450

N

LEGEND

- LOCATION OF FORMER SOIL BORING AND GROUNDWATER SAMPLE
- LOCATION OF FORMER SOIL VAPOR SAMPLE
- LOCATION OF FORMER SOIL BORING SAMPLE
- LOCATION OF SOIL VAPOR POINT
- BCP SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

A SOIL VAPOR SAMPLE WAS NOT ABLE TO BE COLLECTED FROM RISV-5 AND RISV-6 DUE TO UNEXPECTED INFILTRATION OF FLUCTUATING PERCHED GROUNDWATER INTO THE SOIL VAPOR POINT.
CONCENTRATIONS IN µG/M3

µG/M3 - MICROGRAMS PER CUBIC METER
VOCS - VOLATILE ORGANIC COMPOUNDS
ND - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED

30 0 30'

Title:

REMEDIAL INVESTIGATION
SOIL VAPOR SAMPLE DETECTIONS

3728 PARK AVENUE
BRONX, NEW YORK

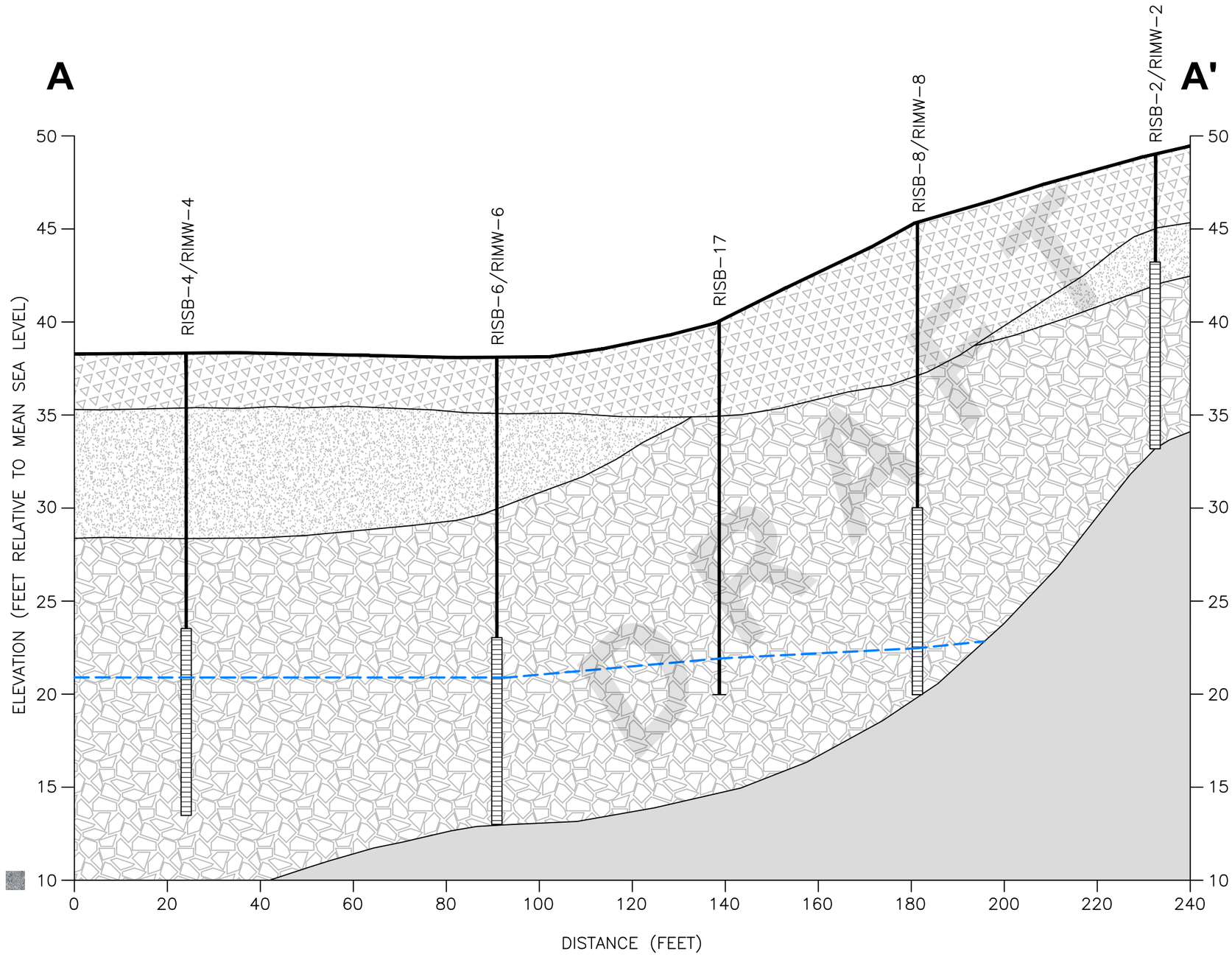
Prepared for:

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ROUX

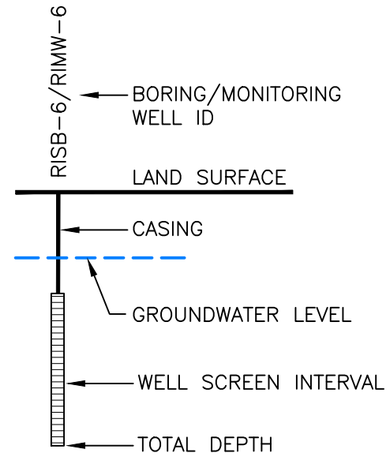
Compiled by: D.M.H.	Date: 02/12/26	FIGURE 9
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.9.mxd		

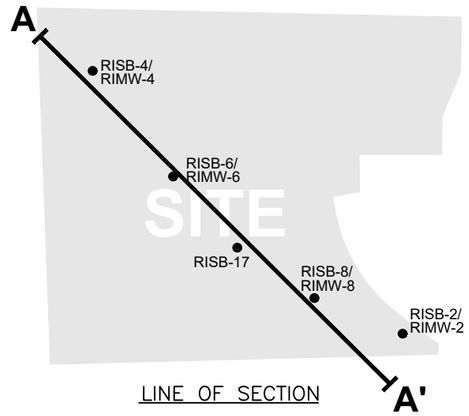
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LEGEND

- FILL
- DECOMPOSED ROCK
- FINE–COARSE SAND
- BEDROCK





LINE OF SECTION

Title:

CROSS SECTION A-A'

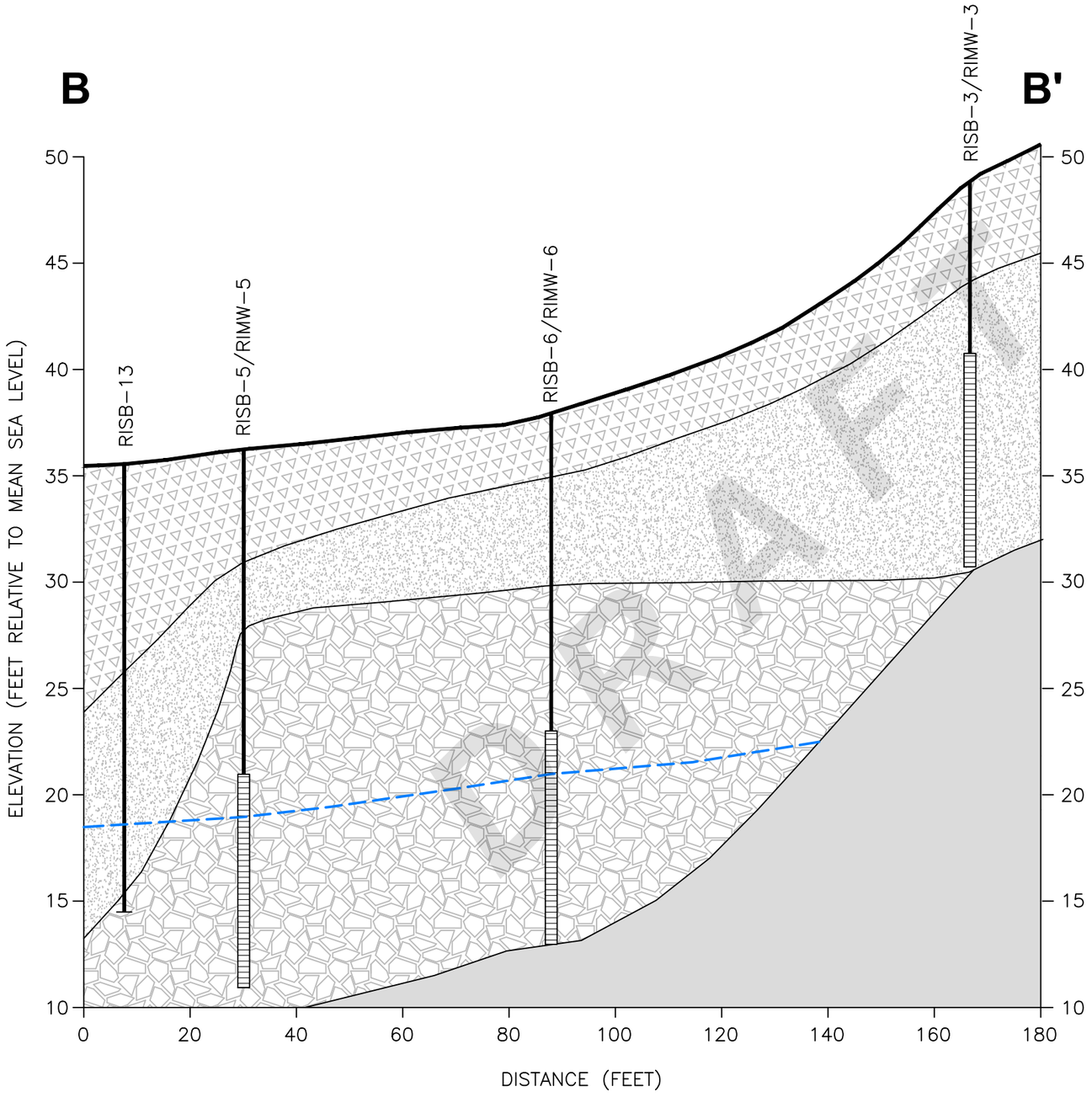
Prepared for:

SOL ON PARK LLC

ROUX

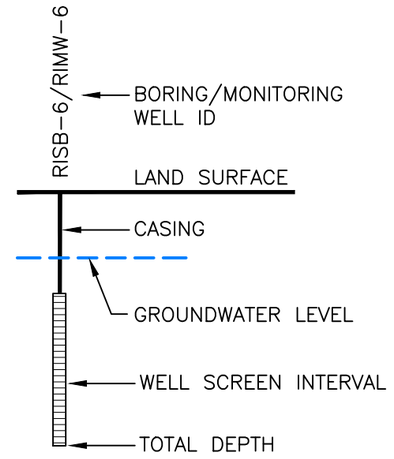
Compiled by: R.L.	Date: 1/28/2026	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	10
Project Mgr: R.L.	Project: 2908.0011Y000	
File: 2908.0011Y142.01.DWG		

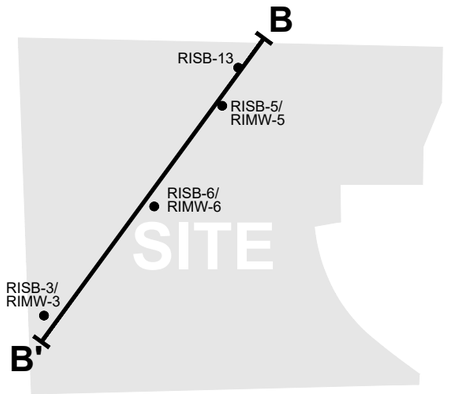
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LEGEND

- FILL
- DECOMPOSED ROCK
- FINE–COARSE SAND
- BEDROCK





LINE OF SECTION

Title:

CROSS SECTION B-B'

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: R.L.	Date: 1/28/2026
Prepared by: B.H.C.	Scale: AS SHOWN
Project Mgr: R.L.	Project: 2908.0011Y000
File: 2908.0011Y142.01.DWG	

FIGURE 11

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LEGEND

- RISB-1 ● LOCATION OF RI/SRI SOIL BORING
- ● PROPOSED ENDPOINT SAMPLE LOCATION
- BCP SITE BOUNDARY
- PARCEL BOUNDARY
- EXCAVATION TO 24 FEET BELOW GRADE

NOTE

REMEDIAL EXCAVATION DEPTH IS APPROXIMATE. FINAL EXCAVATION DEPTH WILL BE BASED ON END POINT SAMPLES MEETING THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVES OR BEDROCK

N

20' 0 20'

Title:

REMEDIAL ALTERNATIVE 1 TRACK 1 UNRESTRICTED USE CLEANUP

3728 PARK AVENUE
BRONX, NEW YORK 10456

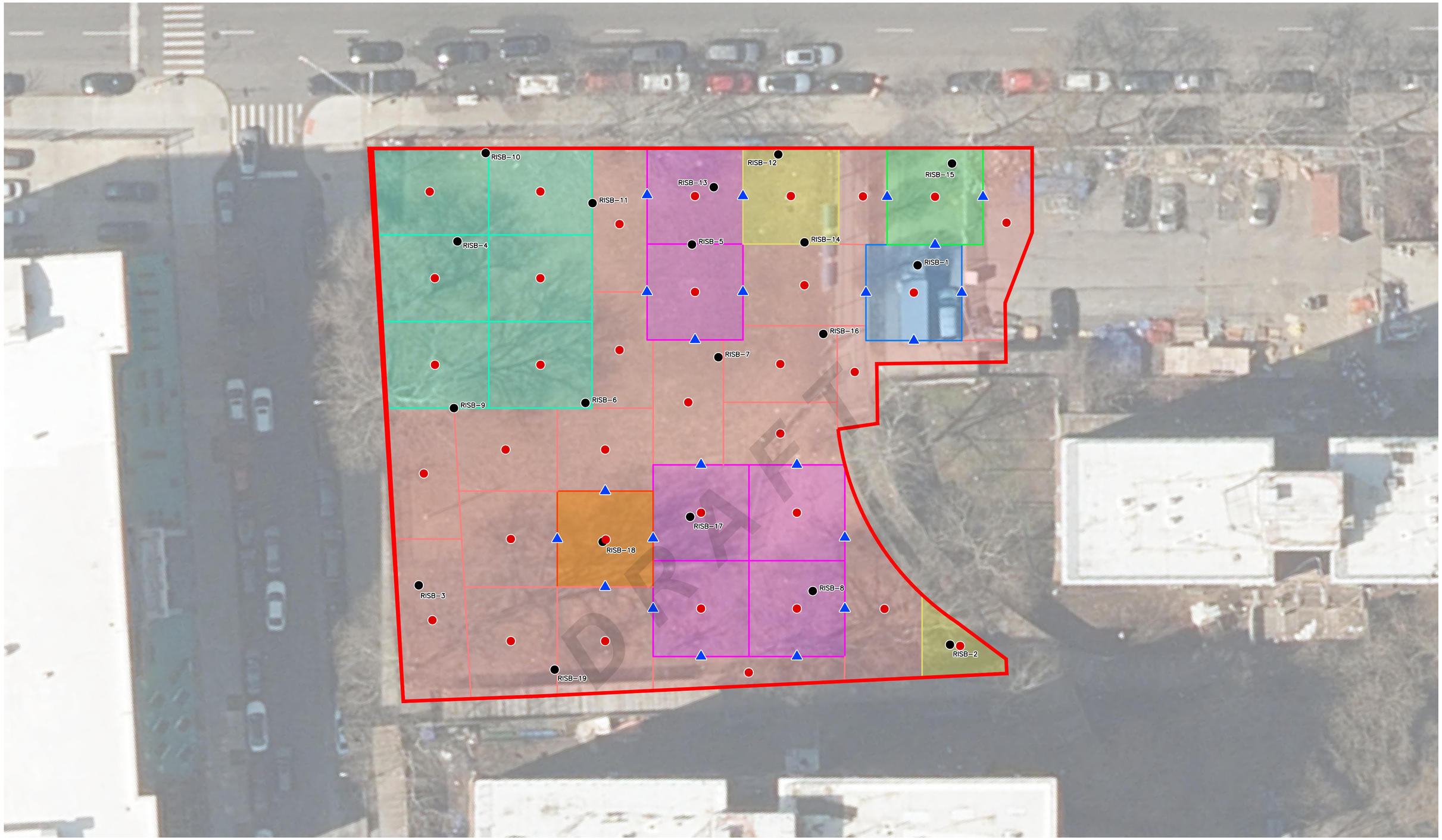
Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.H.	Date: 2/11/2026	PLATE 12
Prepared by: G.M.	Scale: AS SHOWN	
Project Mgr: D.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.01.DWG		

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LEGEND

RISB–1 ● LOCATION OF RI/SRI SOIL BORING

▲ PROPOSED SIDEWALL ENDPOINT SAMPLE

● PROPOSED BOTTOM ENDPOINT SAMPLE

BCP SITE BOUNDARY

PARCEL BOUNDARY

EXCAVATION TO 2 FEET BELOW GRADE

EXCAVATION TO 3 FEET BELOW GRADE

EXCAVATION TO 4 FEET BELOW GRADE

EXCAVATION TO 6 FEET BELOW GRADE

EXCAVATION TO 7 FEET BELOW GRADE

EXCAVATION TO 8 FEET BELOW GRADE

EXCAVATION TO 11 FEET BELOW GRADE

N

20' 0 20'

Title:

REMEDIAL ALTERNATIVE 2 RESTRICTED RESIDENTIAL USE CLEANUP

3728 PARK AVENUE
BRONX, NEW YORK 10456

Prepared for:

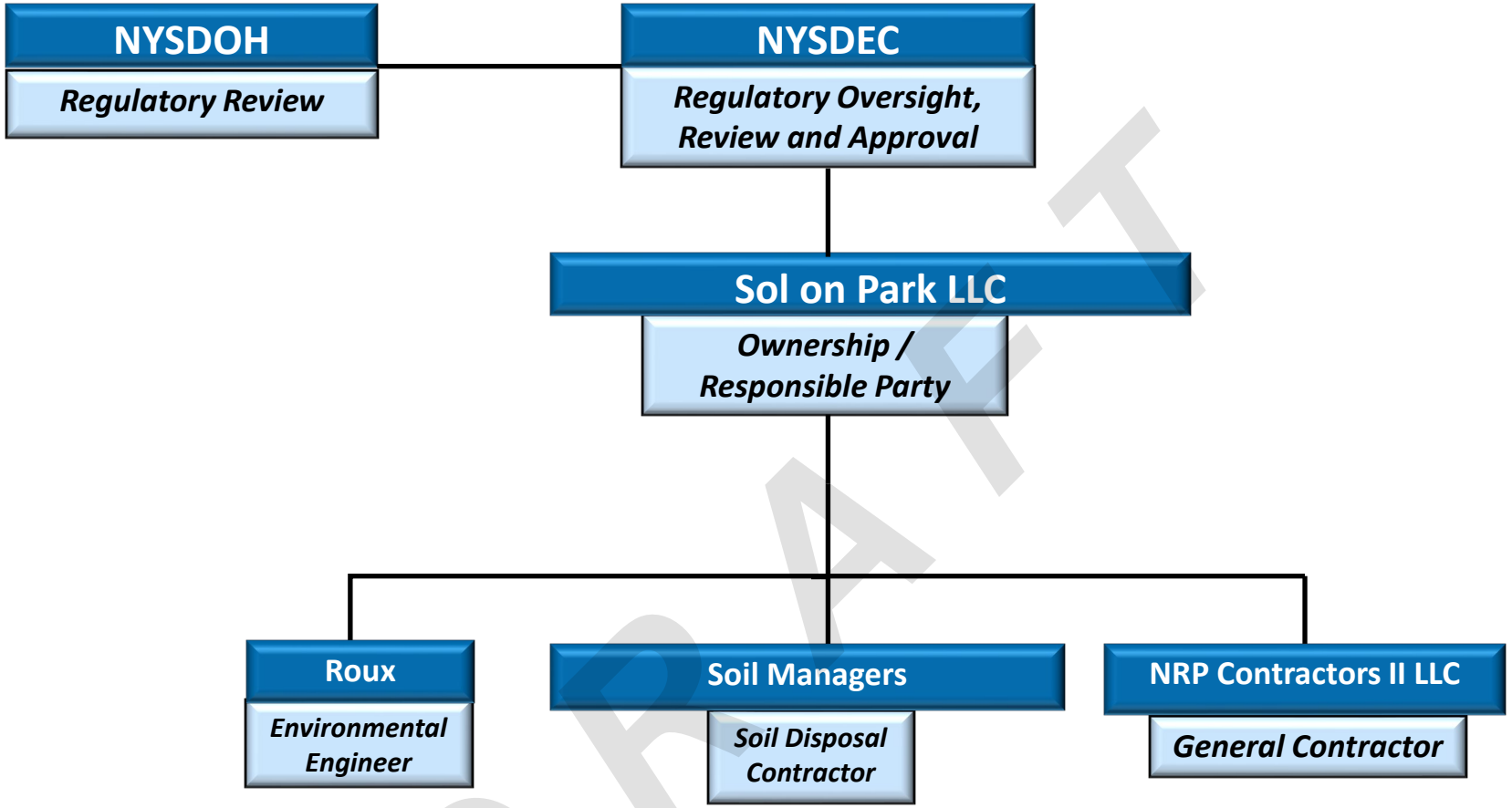
SOL ON PARK LLC

ROUX

Compiled by: D.H.	Date: 2/11/2026	PLATE 13
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Project Mgr: D.H.	Project: 2908.0011Y000	
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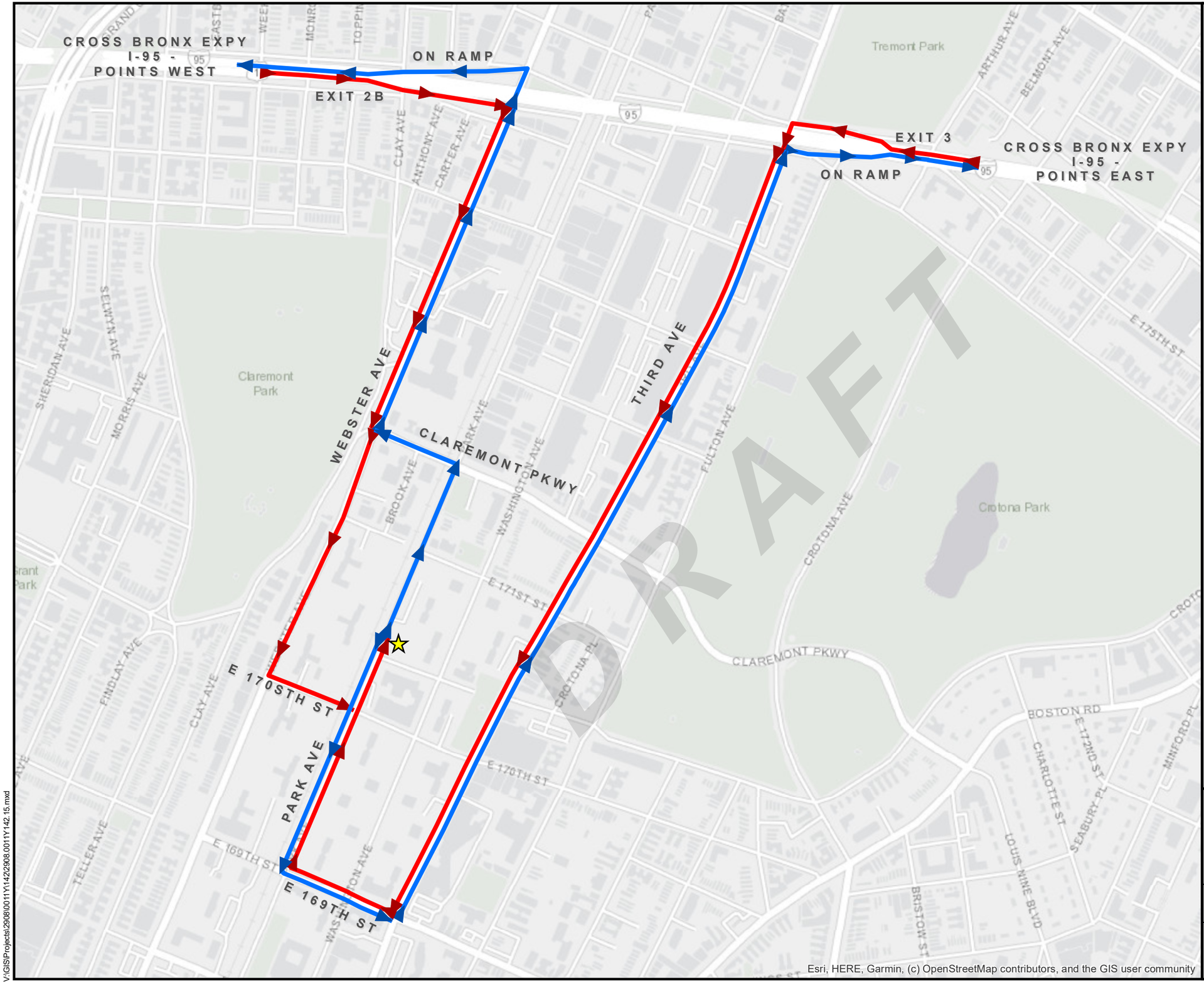
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Sol on Park Site- Project Organization Chart



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FIGURE 14



N

LEGEND

- SITE LOCATION
- FROM SITE
- TO SITE

NOTES

1. TRUCK ROUTE SOURCE: NEW YORK CITY DEPARTMENT OF TRANSPORTATION

500 0 500'

Title:

TRUCK ROUTE MAP

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/12/2026	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	15
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 2908.0011Y142.15.mxd		

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APPENDICES

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A. Metes and Bounds and Survey Map
B. Redevelopment Plans
C. Historic Environmental Reports
D. Sanborn Maps
E. RI Soil Boring and Monitoring Well Logs
F. SRI Soil Boring Logs
G. Purge Logs
H. Laboratory Reports
I. GSR Worksheets
J. Citizens Participation Plan
K. Health and Safety Plan
L. Community Air Monitoring Plan
M. Quality Assurance Project Plan/Field Sampling Plan
N. Professional Profiles
O. Request to Import/Reuse Fill Material Form
P. SSDS and Vapor Barrier Drawings and Manufacturer's Specifications

APPENDIX A

Metes and Bounds and Survey Map

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CONTROL POINT ASSOCIATES, INC.
traditional methods | modern approaches

9 Times Square,
200 West 41st Street, Floor 14
New York, NY 10036
Tel: 908.668.0099
www.cpasurvey.com

JUNE 30, 2023

METES AND BOUNDS DESCRIPTION
SOL ON PARK
PROPOSED SUBDIVISON OF BLOCK 2902 LOT 36
BOROUGH AND COUNTY OF THE BRONX
CITY AND STATE OF NEW YORK

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH BUILDING AND IMPROVEMENTS ERECTED, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF BRONX, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTH SIDE OF ST. PAUL'S PLACE AND THE EAST SIDE OF PARK AVENUE THENCE EASTERLY ALONG NORTHERLY SIDE OF ST. PAUL'S PLACE A DISTANCE OF 171.92 FEET TO A POINT;

THENCE THROUGH LOT 36 BLOCK 2902 THE FOLLOWING THIRTEEN (13) COURSES AND DISTANCES:

1. NORTHERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 93 DEGREES 24 MINUTES 52 SECONDS, A DISTANCE OF 34.26 FEET TO A POINT;

2. CONTINUING NORTHERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 177 DEGREES 26 MINUTES 45 SECONDS, A DISTANCE OF 154.85 FEET TO A POINT;

3. WESTERLY AT RIGHT ANGLES WITH SAID PREVIOUS COURSE A DISTANCE OF 4.44 FEET TO A POINT;

4. SOUTHWESTERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 129 DEGREES 42 MINUTES 44 SECONDS, A DISTANCE OF 19.12 FEET TO A POINT OF TANGENCY;

5. CONTINUING SOUTHWESTERLY ON A CURVE TANGENT TO THE PREVIOUS COURSE WITH A RADIUS OF 92.74 FEET, A CENTRAL ANGLE OF 10 DEGREES 41 MINUTES 01 SECONDS, AND A LENGTH OF 17.29;

6. CONTINUING SOUTHWESTERLY ON A LINE TANGENT TO THE PREVIOUS COURSE, A DISTANCE OF 11.99 FEET TO A POINT;

7. CONTINUING SOUTHWESTERLY ON A CURVE TANGENT TO THE PREVIOUS COURSE WITH A RADIUS OF 67.13 FEET, A CENTRAL ANGLE OF 38 DEGREES 45 MINUTES 37 SECONDS, AND A LENGTH OF 45.41;

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8. NORTHERLY ALONG A LINE WHICH FORMS AN INTERIOR ANGLE OF 86 DEGREES 17 MINUTES 44 SECONDS WITH THE TANGENT OF THE PREVIOUS COURSE, A DISTANCE OF 12.51 FEET TO A POINT;

9. WESTERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 97 DEGREES 03 MINUTES 25 SECONDS, A DISTANCE OF 18.68 FEET TO A POINT;

10. NORTHERLY AT RIGHT ANGLES WITH SAID PREVIOUS COURSE A DISTANCE OF 40.44 FEET TO A POINT;

11. WESTERLY AT RIGHT ANGLES WITH SAID PREVIOUS COURSE A DISTANCE OF 18.50 FEET TO A POINT;

12. NORTHWESTERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 201 DEGREES 07 MINUTES 29 SECONDS, A DISTANCE OF 23.58 FEET TO A POINT;

13. WESTERLY, FORMING AN INTERIOR ANGLE WITH THE PREVIOUS COURSE OF 158 DEGREES 52 MINUTES 31 SECONDS, A DISTANCE OF 26.50 FEET TO THE EASTERLY RIGHT OF WAY LINE OF PARK AVENUE;

THENCE SOUTHERLY ALONG SAID EASTERLY RIGHT OF WAY LINE A DISTANCE OF 207.00 FEET TO THE POINT OR PLACE OF BEGINNING.

CONTAINING 29,630 SQUARE FEET OR 0.680 ACRES

THIS PROPERTY MAY BE SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS EITHER WRITTEN OR IMPLIED.

THIS DESCRIPTION IS PREPARED BASED ON A SURVEY BY CONTROL POINT ASSOCIATES INC PC, ENTITLED "PROPOSED SUBDIVISION EXHIBIT, BLOCK 2902 LOT 36, 1451 WASHINGTON AVENUE, BOROUGH AND COUNTY OF BRONX, CITY AND STATE OF NEW YORK" DATED ON JUNE 30, 2023.

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CONTROL POINT ASSOCIATES, INC.

06/30/2023

JONATHAN S. SCHMIDT, L.S. DATE
NEW YORK PRODESSIONAL LAND SURVEYOR #050821
EMAIL: JSCHMIDT@CPASURVEY.COM

APPENDIX B

Redevelopment Plans

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Sol On Park

1451 Washington Avenue, Bronx, NY

DOB NOW APPLICATIONS

NB: X01091719-11
FOUNDATION: X01091719-S1
SOE: X01091719-S2
STRUCTURAL: X01091719-S3
MS: X01091719-S4
PL: X01091719-S5
SPSD: X01091719-S6
TEMP-SD: X01091719-S7

04/11/2024

REPRICING SET - CELLAR REMOVAL

DOB SEAL:

Sol On Park

3728 Park Avenue
Bronx, NY, 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

NUMBER	DATE	DESCRIPTION
1	3/31/2023	80% Schematic Design
2	4/14/2023	95% Schematic Design
3	5/1/2023	100% Schematic Design
4	5/10/2023	HPD BLDS Design Consultation
5	9/01/2023	50% Design Development
6	04/12/2024	4/12/2024 DD Progress
7	06/28/2024	Full DD Set / DOB Filing
8	04/11/2025	Repricing Set - Cellar Removal

Revisions:

Architect:

Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1278

Structural Engineer:

GACE Consulting Engineers
148 Madison Avenue 4th Floor
New York NY 10016
Tel (212) 545 7878

MEP Engineer:

Ettinger Engineering Associates
505 8th Avenue #2400
New York NY 10018
Tel (212) 244 2410

Landscape Architect:

W Architecture & Landscape Architecture
374 Fulton Street 3rd Floor
Brooklyn NY 11201
Tel (212) 981 3933

Civil Engineer:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016
Tel (212) 696 0670

Filing Representative:

JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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COVER PAGE

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker

DWG No:

T-001.00

SCALE:

1 OF 1

DRAWING LIST — 4/11/2025 REPRICING SET - CELLAR REMOVAL

ARCHITECTURAL

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A-102.00	2ND (PLAZA) FLOOR PLAN
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A-505.00	STAIR PLANS & SECTIONS
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P-099.00	PLUMBING - UNDERGROUND PLAN
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P-308.00	PLUMBING - WATER RISER DIAGRAM
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SPRINKLER/STANDPIPE

FP-001.00	SPRINKLER/STANDPIPE - LEAD SHEET
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FP-101.00	SPRINKLER/STANDPIPE - 1ST (GROUND) FLOOR PLAN
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FIRE ALARM

FA-001.00	FIRE ALARM - LEAD SHEET
FA-002.00	FIRE ALARM - FSAE DETAIL
FA-101.00	FIRE ALARM - 1ST (GROUND) FLOOR PLAN
FA-102.00	FIRE ALARM - 2ND (PLAZA) FLOOR PLAN
FA-200.00	FIRE ALARM - RISER DIAGRAM

TEMP STANDPIPE

SD-001.00	TEMPORARY STANDPIPE - LEAD SHEET
SD-101.00	TEMPORARY STANDPIPE - 1ST (GROUND) FLOOR PLAN
SD-102.00	TEMPORARY STANDPIPE - 2ND (PLAZA) FLOOR PLAN
SD-200.00	TEMPORARY STANDPIPE - RISER DIAGRAM

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY, 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

NUMBER	DATE	DESCRIPTION
1	3/31/2023	80% Schematic Design
2	5/1/2023	100% Schematic Design
3	9/01/2023	50% Design Development
4	04/12/2024	4/12/2024 DD Progress
5	06/28/2024	Full DD Set / DOB Filing
6	04/11/2025	Repricing Set - Cellar Removal

Revisions:

Architect:

Magnusson Architecture & Planning PC
42 West 39th Street, 16th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:

GACE Consulting Engineers
148 Madison Avenue 4th Floor
New York NY 10016
Tel (212) 545 7878

MEP Engineer:

Ettinger Engineering Associates
505 8th Avenue #2400
New York NY 10018
Tel (212) 244 2410

Landscape Architect:

W Architecture & Landscape Architecture
374 Fulton Street 3rd Floor
Brooklyn NY 11201
Tel (212) 981 3933

Civil Engineer:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016
Tel (212) 696 0670

Filing Representative:

JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

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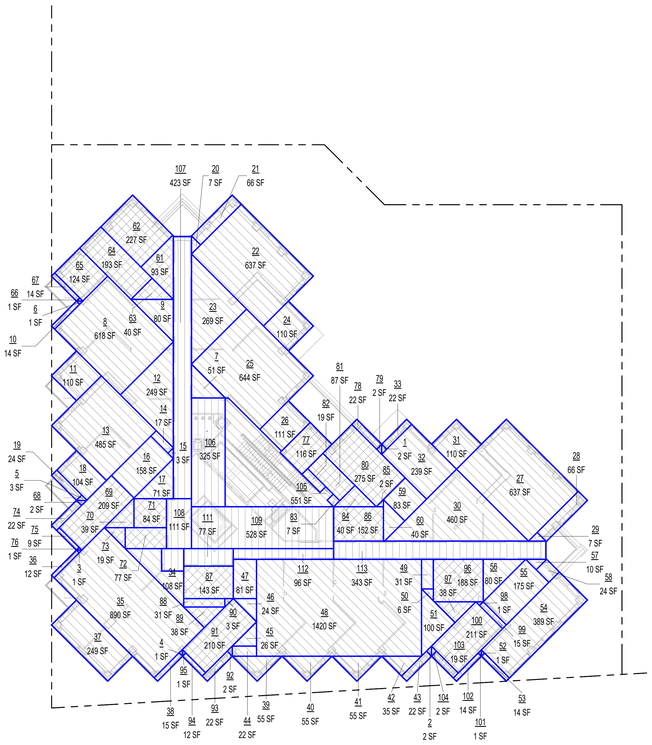
DRAWING INDEX

DOB SEAL:

SEAL & SIGNATURE:

REGISTERED ARCHITECT — RYAN LOUGHLIN — 045828 — STATE OF NEW YORK

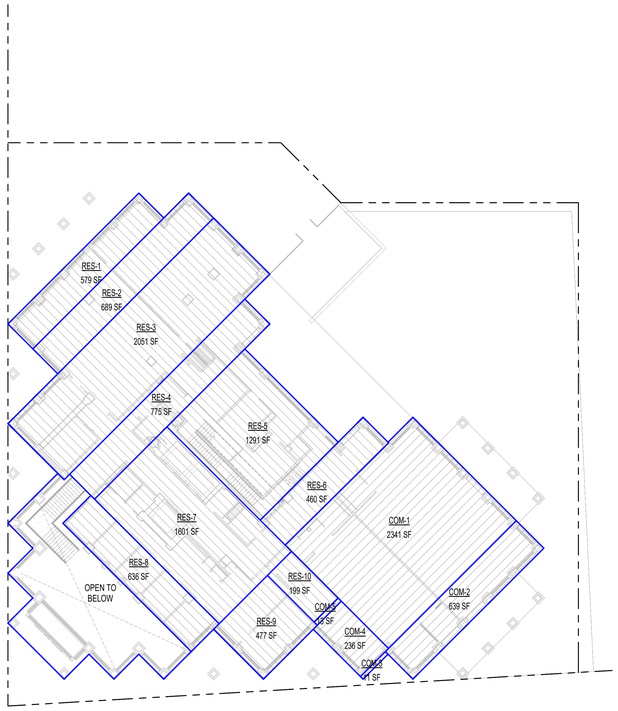
PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	T-002.00
SCALE:	2 OF 2



FLOOR AREA BY USE GROUP - 3RD FLOOR		
Name	Area Group	Area
Common Areas		
105	Common Areas	551 SF
106	Common Areas	325 SF
107	Common Areas	423 SF
108	Common Areas	111 SF
109	Common Areas	526 SF
111	Common Areas	77 SF
111	Common Areas	44 SF
112	Common Areas	66 SF
113	Common Areas	343 SF
		2497 SF
Residential		
1	Residential	2 SF
2	Residential	2 SF
3	Residential	1 SF
4	Residential	1 SF
5	Residential	3 SF
6	Residential	1 SF
7	Residential	51 SF
8	Residential	618 SF
9	Residential	80 SF
10	Residential	14 SF
11	Residential	110 SF
12	Residential	249 SF
13	Residential	485 SF
14	Residential	17 SF
15	Residential	3 SF
16	Residential	158 SF
17	Residential	71 SF
18	Residential	104 SF
19	Residential	24 SF
20	Residential	7 SF
21	Residential	66 SF
22	Residential	637 SF
23	Residential	269 SF
24	Residential	110 SF
25	Residential	644 SF
26	Residential	111 SF
27	Residential	637 SF
28	Residential	66 SF
29	Residential	7 SF
30	Residential	460 SF
31	Residential	110 SF
32	Residential	239 SF
33	Residential	22 SF
34	Residential	108 SF
35	Residential	890 SF
36	Residential	12 SF
37	Residential	249 SF
38	Residential	15 SF
39	Residential	55 SF
40	Residential	55 SF
41	Residential	55 SF
42	Residential	35 SF
43	Residential	22 SF
44	Residential	22 SF
45	Residential	26 SF
46	Residential	24 SF
47	Residential	81 SF
48	Residential	1420 SF
49	Residential	31 SF
50	Residential	6 SF
51	Residential	100 SF

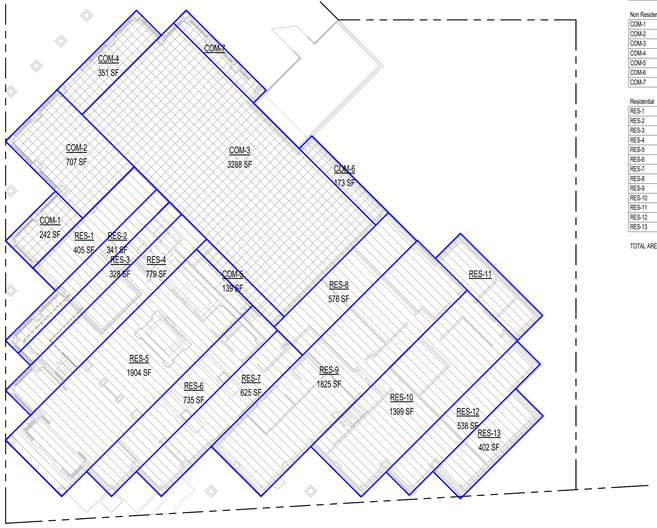
FLOOR AREA BY USE GROUP - 3RD FLOOR		
Name	Area Group	Area
52	Residential	1 SF
53	Residential	14 SF
54	Residential	389 SF
55	Residential	175 SF
56	Residential	80 SF
57	Residential	10 SF
58	Residential	24 SF
59	Residential	83 SF
60	Residential	40 SF
		8099 SF
Use Group 3A		
61	Use Group 3A	93 SF
62	Use Group 3A	227 SF
63	Use Group 3A	40 SF
64	Use Group 3A	193 SF
65	Use Group 3A	124 SF
66	Use Group 3A	1 SF
67	Use Group 3A	14 SF
68	Use Group 3A	2 SF
69	Use Group 3A	209 SF
70	Use Group 3A	39 SF
71	Use Group 3A	94 SF
72	Use Group 3A	77 SF
73	Use Group 3A	19 SF
74	Use Group 3A	22 SF
75	Use Group 3A	9 SF
76	Use Group 3A	1 SF
77	Use Group 3A	118 SF
78	Use Group 3A	22 SF
79	Use Group 3A	2 SF
80	Use Group 3A	275 SF
81	Use Group 3A	87 SF
82	Use Group 3A	19 SF
83	Use Group 3A	7 SF
84	Use Group 3A	40 SF
85	Use Group 3A	2 SF
86	Use Group 3A	152 SF
87	Use Group 3A	143 SF
88	Use Group 3A	31 SF
89	Use Group 3A	38 SF
90	Use Group 3A	3 SF
91	Use Group 3A	210 SF
92	Use Group 3A	2 SF
93	Use Group 3A	22 SF
94	Use Group 3A	12 SF
95	Use Group 3A	1 SF
96	Use Group 3A	188 SF
97	Use Group 3A	38 SF
98	Use Group 3A	1 SF
99	Use Group 3A	15 SF
100	Use Group 3A	211 SF
101	Use Group 3A	1 SF
102	Use Group 3A	14 SF
103	Use Group 3A	19 SF
104	Use Group 3A	2 SF
		2826 SF
TOTAL GROSS FLOOR AREA		14725 SF

5 3RD FLOOR - GROSS FLOOR AREA
1/16" = 1'-0"



FLOOR AREA ANALYSIS - 2ND FLOOR		
Name	Area Group	Area
Non Residential - Community Facility		
COM-1	Non Residential - Community Facility	2341 SF
COM-2	Non Residential - Community Facility	639 SF
COM-3	Non Residential - Community Facility	11 SF
COM-4	Non Residential - Community Facility	236 SF
COM-5	Non Residential - Community Facility	13 SF
		3240 SF
Residential		
RES-1	Residential	579 SF
RES-2	Residential	689 SF
RES-3	Residential	2051 SF
RES-4	Residential	775 SF
RES-5	Residential	1291 SF
RES-6	Residential	460 SF
RES-7	Residential	1601 SF
RES-8	Residential	636 SF
RES-9	Residential	477 SF
RES-10	Residential	199 SF
		8760 SF
TOTAL AREA		12000 SF

3 2ND FLOOR - GROSS FLOOR AREA
1/16" = 1'-0"



FLOOR AREA ANALYSIS - GROUND FLOOR		
Name	Area Group	Area
Non Residential - Community Facility		
COM-1	Non Residential - Community Facility	242 SF
COM-2	Non Residential - Community Facility	707 SF
COM-3	Non Residential - Community Facility	3288 SF
COM-4	Non Residential - Community Facility	351 SF
COM-5	Non Residential - Community Facility	139 SF
COM-6	Non Residential - Community Facility	173 SF
COM-7	Non Residential - Community Facility	180 SF
		5079 SF
Residential		
RES-1	Residential	405 SF
RES-2	Residential	341 SF
RES-3	Residential	328 SF
RES-4	Residential	779 SF
RES-5	Residential	1904 SF
RES-6	Residential	735 SF
RES-7	Residential	625 SF
RES-8	Residential	576 SF
RES-9	Residential	1825 SF
RES-10	Residential	1399 SF
RES-11	Residential	365 SF
RES-12	Residential	538 SF
RES-13	Residential	402 SF
TOTAL AREA		15301 SF

2 GROUND FLOOR - GROSS FLOOR AREA
1/16" = 1'-0"



1 DETENTION TANK LEVEL- GROSS FLOOR AREA
1/16" = 1'-0"

GROSS FLOOR AREA LEGEND

- RESIDENTIAL USE - AIRS
- COMMUNITY FACILITY USE
- USE GROUP 3
- USE GROUP 3A

FLOOR AREA ANALYSIS - CELLAR FLOOR		
Name	Area Group	Area
Residential		
1	Residential	1092 SF
2	Residential	470 SF
3	Residential	124 SF
4	Residential	149 SF
TOTAL GROSS FLOOR AREA		1836 SF

DRAFT

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BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

NUMBER	DATE	DESCRIPTION
1	9/01/2023	50% Design Development
2	04/12/2024	4/12/2024 DD Progress
3	06/28/2024	Full DD Set / DOB Filing
4	11/04/2024	DOB Resubmission
5	04/11/2025	Repricing Set - Cellar Removal

Revisions:

Architect:

MAG
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FLOOR AREA ANALYSIS

DOB SEAL:

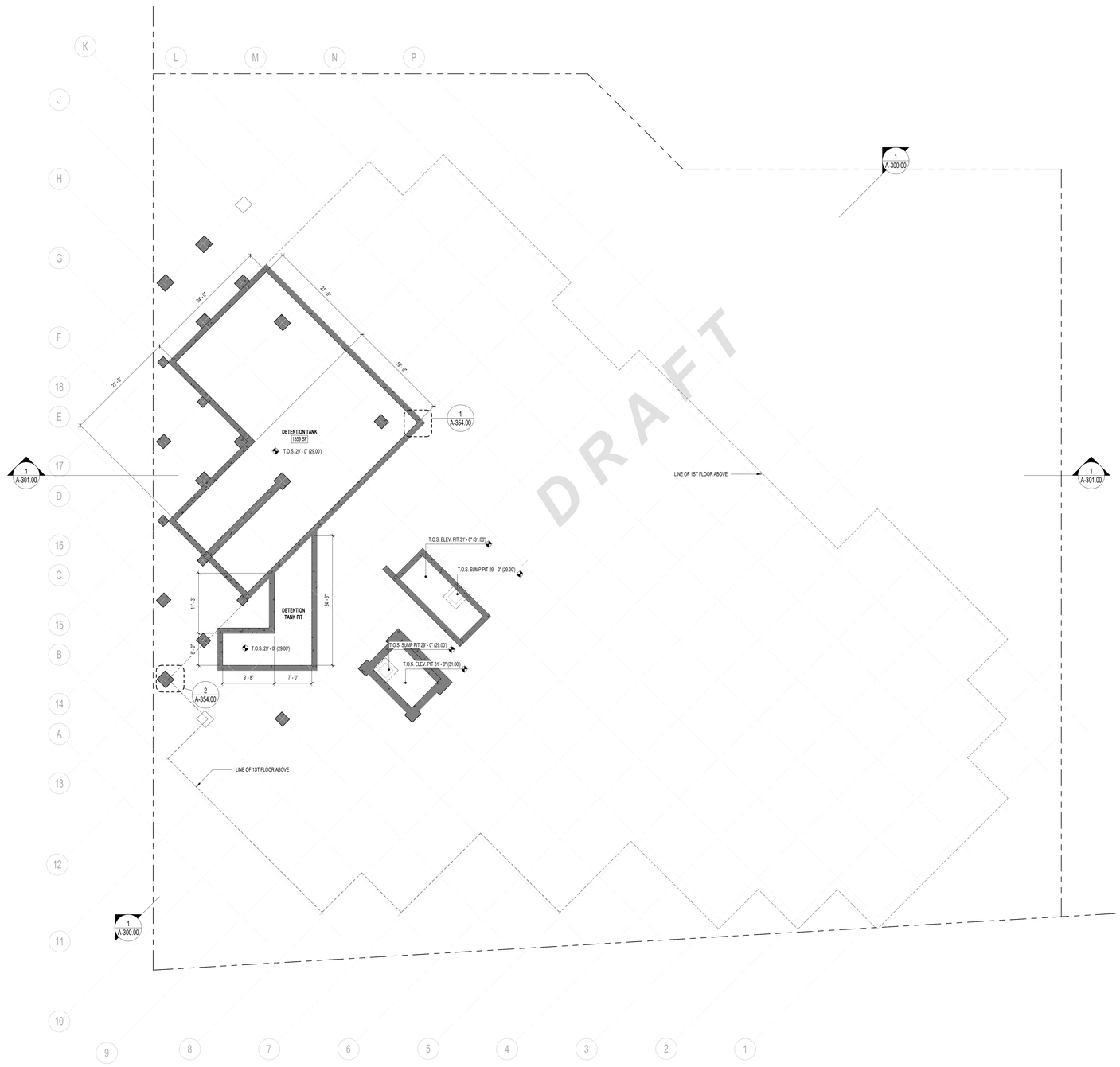
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REGISTERED ARCHITECT BRIAN LOGDRUP 046628 STATE OF NEW YORK

PROJECT No:	22008
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CHK BY:	Checker
DWG No:	Z-010.00
SCALE:	As indicated
	4 OF 6

GENERAL FLOOR PLAN NOTES

1. REFER TO DRAWINGS A-600, A-601 FOR PARTITION TYPES AND DETAILS.
2. REFER TO DRAWING A-612, A-613 FOR DOOR TYPES AND DETAILS.
3. REFER TO REFLECTED CEILING PLANS A-120 THROUGH A-133 FOR ADDITIONAL INFORMATION.
4. SEE DRAWINGS A-142 THROUGH A-142 FOR ENLARGED UNIT PLANS
5. REFER TO DRAWINGS A-501 THROUGH A-506 FOR STAIR DRAWINGS AND STAIR DETAILS.
6. SEE A-510 THROUGH A-513 ELEVATOR DRAWINGS FOR ADDITIONAL INFORMATION.
7. ALL EXPOSED SURFACES TO RECEIVE A FINISH. REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. ALL STRUCTURAL COLUMNS IN RESIDENTIAL AND FRONT OF HOUSE AREAS TO RECEIVE FURRING AND FINISH, WHETHER OR NOT SHOWN ON DRAWINGS.
9. THE FOLLOWING SCOPE IS SUBJECT TO DELEGATED DESIGN:
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   B. CONDENSERS SUPPORT DUNNAGE AND CATWALKS.
   C. PARAPET GUARDRAILS AND WINDSCREENS.
   D. EXTERIOR FACADE MATERIALITY
10. REFER TO DRAWINGS A-006, A-007 FOR ACCESSIBILITY STANDARD REQUIREMENTS, CLEARANCES AND DETAILS.
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13. NO STAIR DOOR IS LOCKED FROM THE STAIR SIDE. STAIR DOORS UNLATCH WHEN EXIT DEVICE OR DOOR LEVER IS ACTIVATED.
14. PROVIDE PENETRATION FIRESTOPING PER BC 714.3 AT FIRE-RESISTANCE RATED WALLS.
15. REFER TO A-900s SERIES FOR EDGE OF SLAB, OPENINGS, AND PAD SIZES LOCATIONS, AND DIMENSIONS
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18. REFER TO DRAWINGS A-420 AND A-421 FOR FIRE RATED COLUMN ENCLOSURE DETAILS AND A-104 FOR REFERENCE OF OF TYPICAL ENCLOSURE APPLICATION
19. HANDRAILS AT 2'-10" AFF TO BE PROVIDED AT ALL CORRIDORS. WHETHER OR NOT SHOWN ON THE DRAWINGS.



1 DETENTION TANK FLOOR PLAN
1/8" = 1'-0"

Sol On Park

3728 Park Avenue
Bronx, NY, 10456

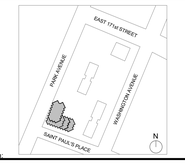
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

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BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

NUMBER	DATE	DESCRIPTION
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3	5/1/2023	100% Schematic Design
4	5/10/2023	HPD BLDS Design Consultation
5	9/01/2023	50% Design Development
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DETENTION TANK FLOOR PLAN

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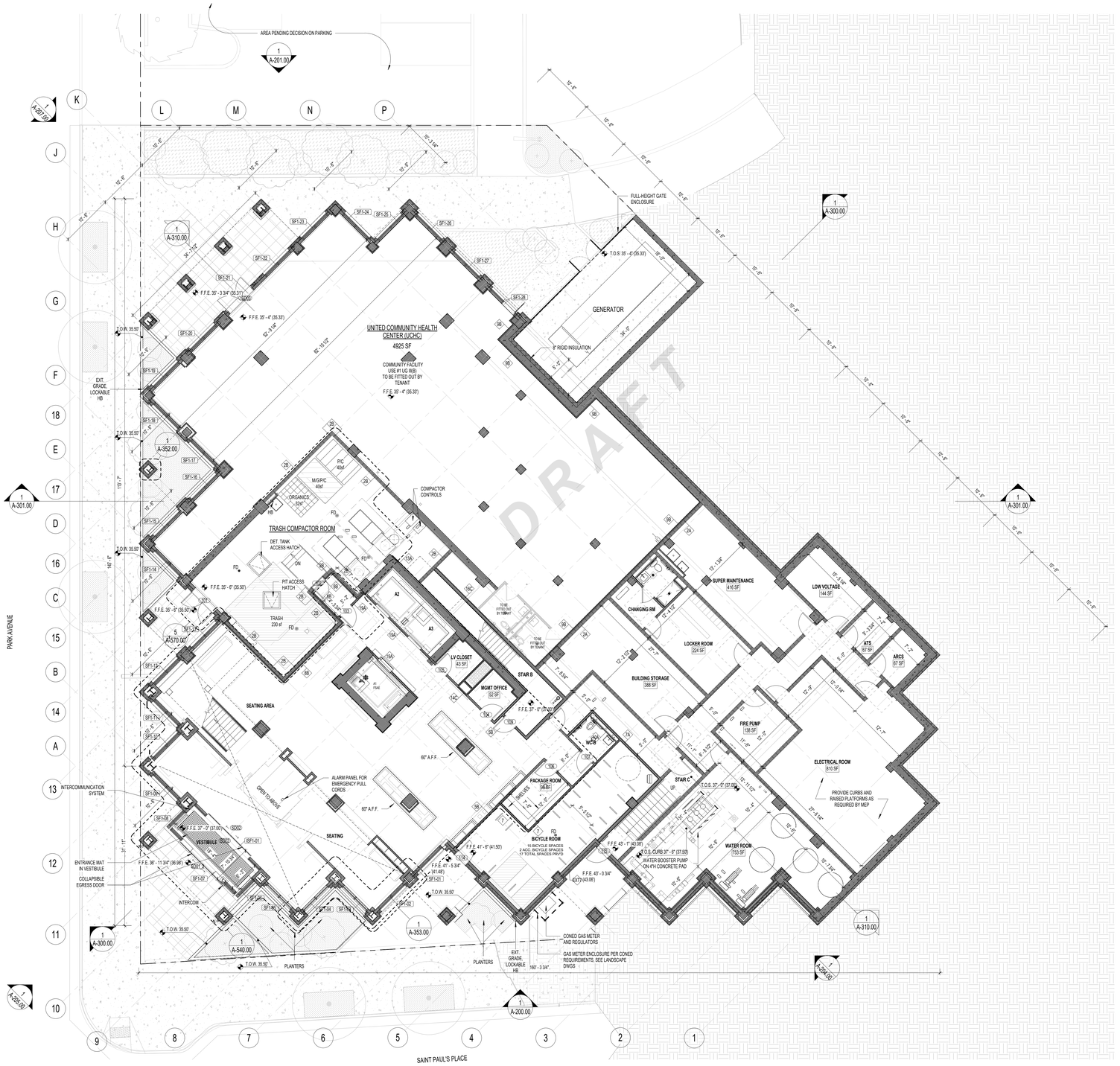
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SCALE: As indicated	18 OF 51

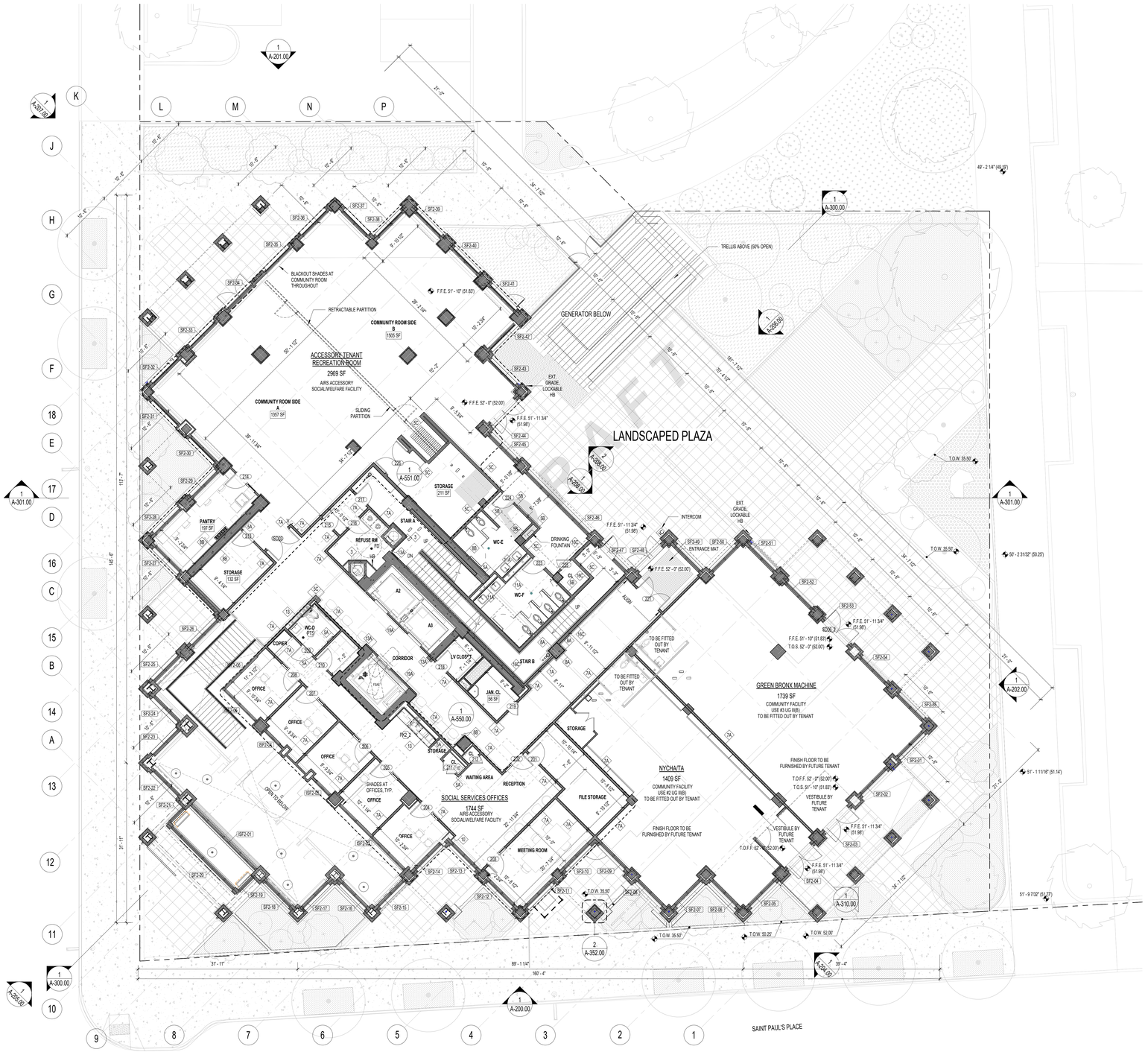
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AREA PENDING DECISION ON PARKING
FULL-HEIGHT GATE ENCLOSURE
GENERATOR
8" RIGID INSULATION
UNITED COMMUNITY HEALTH CENTER (UCHC)
4925 SF
COMMUNITY FACILITY USE PT UG III(5) TO BE FITTED-OUT BY TENANT
TRASH COMPACTOR ROOM
COMPACTOR CONTROLS
DET. TANK ACCESS HATCH
PIT ACCESS HATCH
TRASH 230 sf
M/G/P/C 40sf
ORGANICS 30sf
SEATING AREA
SEATING
ALARM PANEL FOR EMERGENCY PULL CORDS
OPEN TO ABOVE
INTERCOMMUNICATION SYSTEM
INTERCOM
ENTRANCE MAT IN VESTIBULE
COLLAPSIBLE EGRESS DOOR
VESTIBULE 39sf
LV CLOSET 43 SF
MGMT OFFICE 52 SF
PACKAGE ROOM 96 SF
BICYCLE ROOM
15 BICYCLE SPACES
2 ACC. BICYCLE SPACES
17 TOTAL SPACES PROVD
CHANGING RM
SUPER MAINTENANCE 416 SF
LOCKER ROOM 224 SF
BUILDING STORAGE 398 SF
LOW VOLTAGE 144 SF
ATS 57 SF
ARCS 67 SF
FIRE PUMP 138 SF
ELECTRICAL ROOM 810 SF
PROVIDE CURBS AND RAISED PLATFORMS AS REQUIRED BY MEP
WATER ROOM 753 SF
WATER BOOSTER PUMP ON 4"H CONCRETE PAD
STAIR A
STAIR B
STAIR C
A2
A3
PARK AVENUE
SAINT PAUL'S PLACE
EXT. GRADE, LOCKABLE HB
PLANTERS
CONED GAS METER AND REGULATORS
GAS METER ENCLOSURE PER CONED REQUIREMENTS. SEE LANDSCAPE DWGS
T.O.W. 35.50'
T.O.S. 35' - 4" (35.33')
T.O.S. 37' - 0" (37.00')
T.O.S. CURB 37' - 6" (37.50')
F.F.E. 35' - 3 3/4" (35.31')
F.F.E. 35' - 4" (35.33')
F.F.E. 35' - 8" (35.50')
F.F.E. 35' - 11 3/4" (36.98')
F.F.E. 37' - 0" (37.00')
F.F.E. 41' - 5 3/4" (41.48')
F.F.E. 41' - 8" (41.50')
F.F.E. 43' - 0 3/4" (43.06')
F.F.E. 43' - 1" (43.08')
60" A.F.F.
82' - 10 1/2"
52' - 9 1/4"
34' - 0"
18' - 0"
10' - 6"
10' - 0"
10' - 3 1/4"
10' - 7"
10' - 11"
14' - 5"
39' - 11"
160' - 3 3/4"
SF1-01
SF1-02
SF1-03
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SD40

GENERAL FLOOR PLAN NOTES

1. REFER TO DRAWINGS A-000; A-001 FOR PARTITION TYPES AND DETAILS.
2. REFER TO DRAWING A-612; A-613 FOR DOOR TYPES AND DETAILS.
3. REFER TO REFLECTED CEILING PLANS A-120 THROUGH A-133 FOR ADDITIONAL INFORMATION.
4. SEE DRAWINGS A-142 THROUGH A-142 FOR ENLARGED UNIT PLANS
5. REFER TO DRAWINGS A-001 THROUGH A-006 FOR STAIR DRAWINGS AND STAIR DETAILS.
6. SEE A-010 THROUGH A-013 ELEVATOR DRAWINGS FOR ADDITIONAL INFORMATION.
7. ALL EXPOSED SURFACES TO RECEIVE A FINISH. REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. ALL STRUCTURAL COLUMNS IN RESIDENTIAL AND FRONT OF HOUSE AREAS TO RECEIVE FURRING AND FINISH, WHETHER OR NOT SHOWN ON DRAWINGS.
9. THE FOLLOWING SCOPE IS SUBJECT TO DELEGATED DESIGN:
   A. SOLAR ARRAY GALVANIZED STEEL POSTS AND BEAMS, ANCHORS TO SUPERSTRUCTURE AND ROOF
   B. CONDENSERS SUPPORT DUNNAGE AND CATWALKS.
   C. PARAPET GUARDRAILS AND WINDSCREENS.
   D. EXTERIOR FACADE MATERIALITY
10. REFER TO DRAWINGS A-006; A-007 FOR ACCESSIBILITY STANDARD REQUIREMENTS, CLEARANCES AND DETAILS.
11. REFER TO DRAWINGS A-030 THROUGH A-032 FOR LIFE AND SAFETY PLANS AND CODE
12. ALL DUCTWORK TO BE CONTAINED IN 2HR RATED ENCLOSURE, WHETHER OR NOT SHOWN ON DRAWINGS.
13. NO STAIR DOOR IS LOCKED FROM THE STAIR SIDE. STAIR DOORS UNLATCH WHEN EXIT DEVICE OR DOOR LEVER IS ACTIVATED.
14. PROVIDE PENETRATION FIRESTOPPING PER BC 714.3 AT FIRE-RESISTANCE RATED WALLS.
15. REFER TO A-900s SERIES FOR EDGE OF SLAB, OPENINGS, AND PAD SIZES, LOCATIONS, AND DIMENSIONS
16. REFER TO SPECIFICATIONS FOR TREATMENT AND FINISH OF ALL EXPOSED CONCRETE/CMU
17. PULL CORDS ARE TO BE PROVIDED IN ALL COMMON RESTROOMS, IN ALL UNIT BATHROOMS, AND BEDROOMS.
18. REFER TO DRAWINGS A-420 AND A-421 FOR FIRE RATED COLUMN ENCLOSURE DETAILS AND A-104 FOR REFERENCE OF OF TYPICAL ENCLOSURE APPLICATION
19. HANDRAILS AT 2'-10" AFF TO BE PROVIDED AT ALL CORRIDORS. WHETHER OR NOT SHOWN ON THE DRAWINGS.



1 2ND (PLAZA) FLOOR PLAN
1/8" = 1'-0"

Sol On Park

3728 Park Avenue
Bronx, NY, 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

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2ND (PLAZA) FLOOR PLAN

DOB SEAL:

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-102.00
SCALE: As indicated	18 OF 51

RCP NOTES

1) COORDINATE WITH MEP DRAWINGS.
2) LIGHTING CONTROLS TO COMPLY WITH NYC ENERGY CODE
3) ALL PUBLIC LIGHTING SHALL BE METERED SEPARATELY FROM RESIDENTIAL UNITS.
4) ALL DWELLING UNITS SHALL BE INDIVIDUALLY METERED.
5) 100% OF PERMANENTLY INSTALLED FIXTURES WITHIN DWELLING UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY LAMPS, MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
6) REFER TO LIGHTING FIXTURE SCHEDULE IN INTERIORD DESIGN AND MEP DRAWINGS.
7) ALL NON-APARTMENT AREAS SHALL BE PROVIDED WITH OCCUPANCY SENSOR CONTROLS, OR AUTOMATIC BI-LEVEL LIGHTING CONTROLS; AND SHALL HAVE COMBINED BALLAST AND LAMP EFFICACIES MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
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9) WHERE INVERTERS ARE REQUIRED FOR EMERGENCY LIGHT FIXTURES, PLACE ONE PER FLOOR MIN. IN THE ELECTRICAL CLOSET. COORD WITH ELECTRICAL DWGS.
10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
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1 REFLECTED CEILING PLAN - 1ST (GROUND) FLOOR
1/8" = 1'-0"

LEGEND

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- UHPC / FIBER CEMENT SOFFIT
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- OS OCCUPANCY SENSOR
- VS VACANCY SENSOR
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- DIRECTIONAL ILLUMINATED EXIT SIGN
- CAPPED, RECESSED CEILING SPRINKLER HEAD
- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- CEILING HVAC LINEAR DIFFUSER
- 7'-0" CEILING ELEVATION
- SPRINKLER HEAD. SEE FP DRAWING FOR REQ'D QUANTITIES AND LOCATIONS

Sol On Park

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NOT FOR CONSTRUCTION

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NYC DOB # : X01091719



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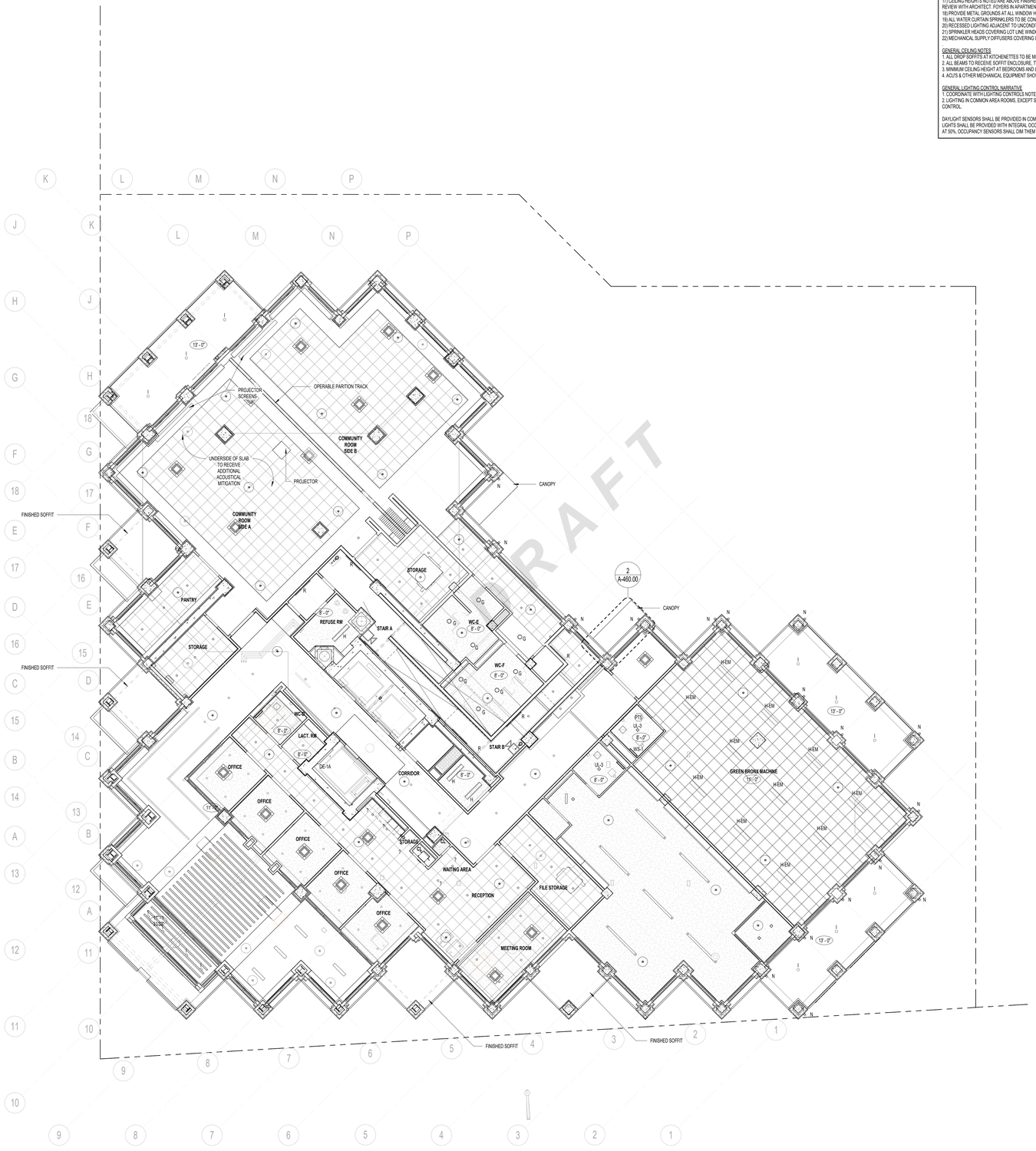
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1ST (GROUND) FLOOR RCP

DOB SEAL:

SEAL & SIGNATURE:
REGISTERED ARCHITECT BIHAN LOUGHLIN 045628 STATE OF NEW YORK

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-121.00
SCALE:	As indicated



1 REFLECTED CEILING PLAN - 2ND (PLAZA) FLOOR
1/8" = 1'-0"

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NYC DOB # : X01091719



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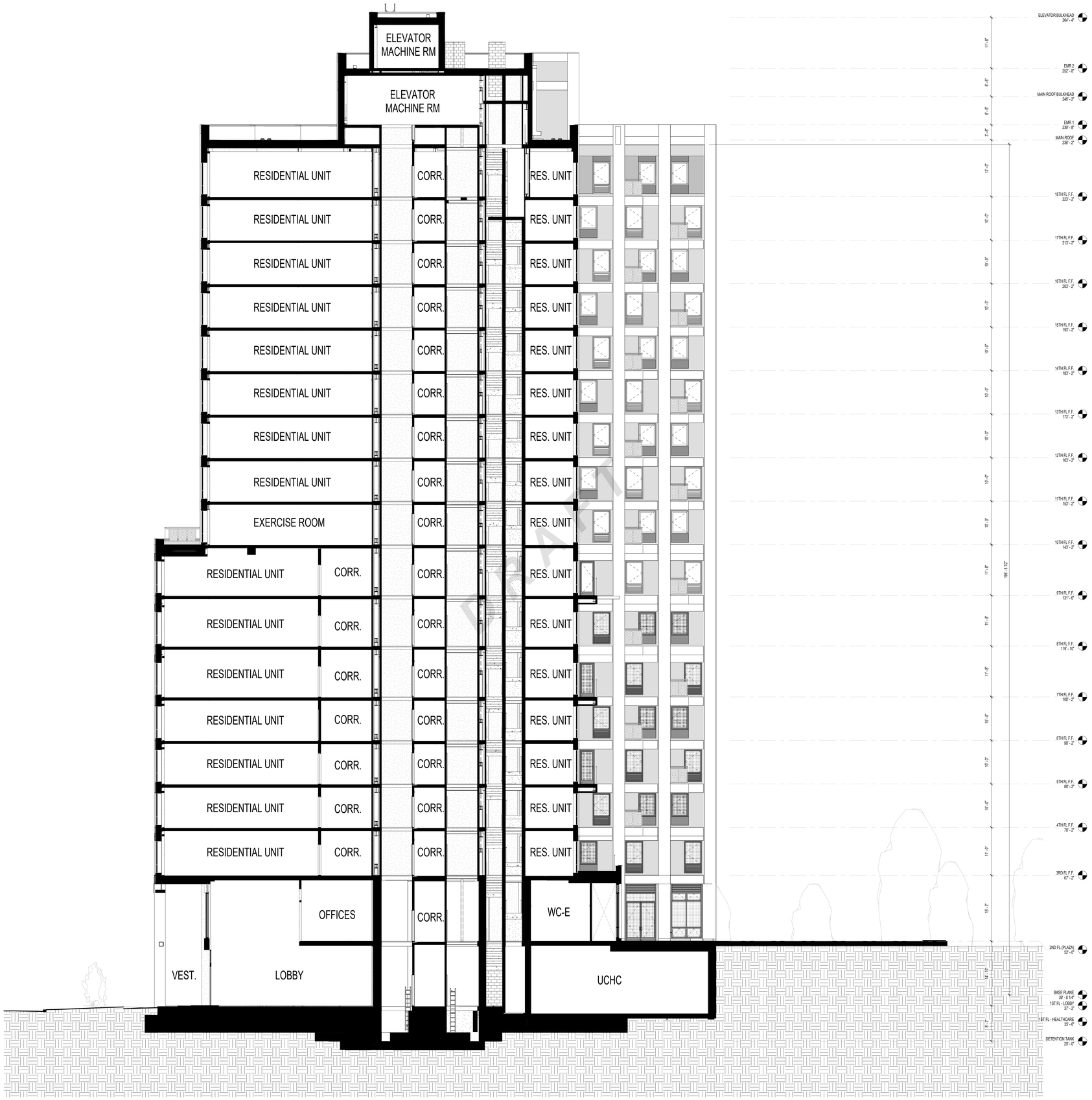
2ND (PLAZA) FLOOR RCP

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

DOB SEAL:

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-122.00
SCALE:	As indicated
	49 OF 169



1 NE-SW SECTION THROUGH TOWER FACING NORTHWEST
1/8" = 1'-0"

DRAFT

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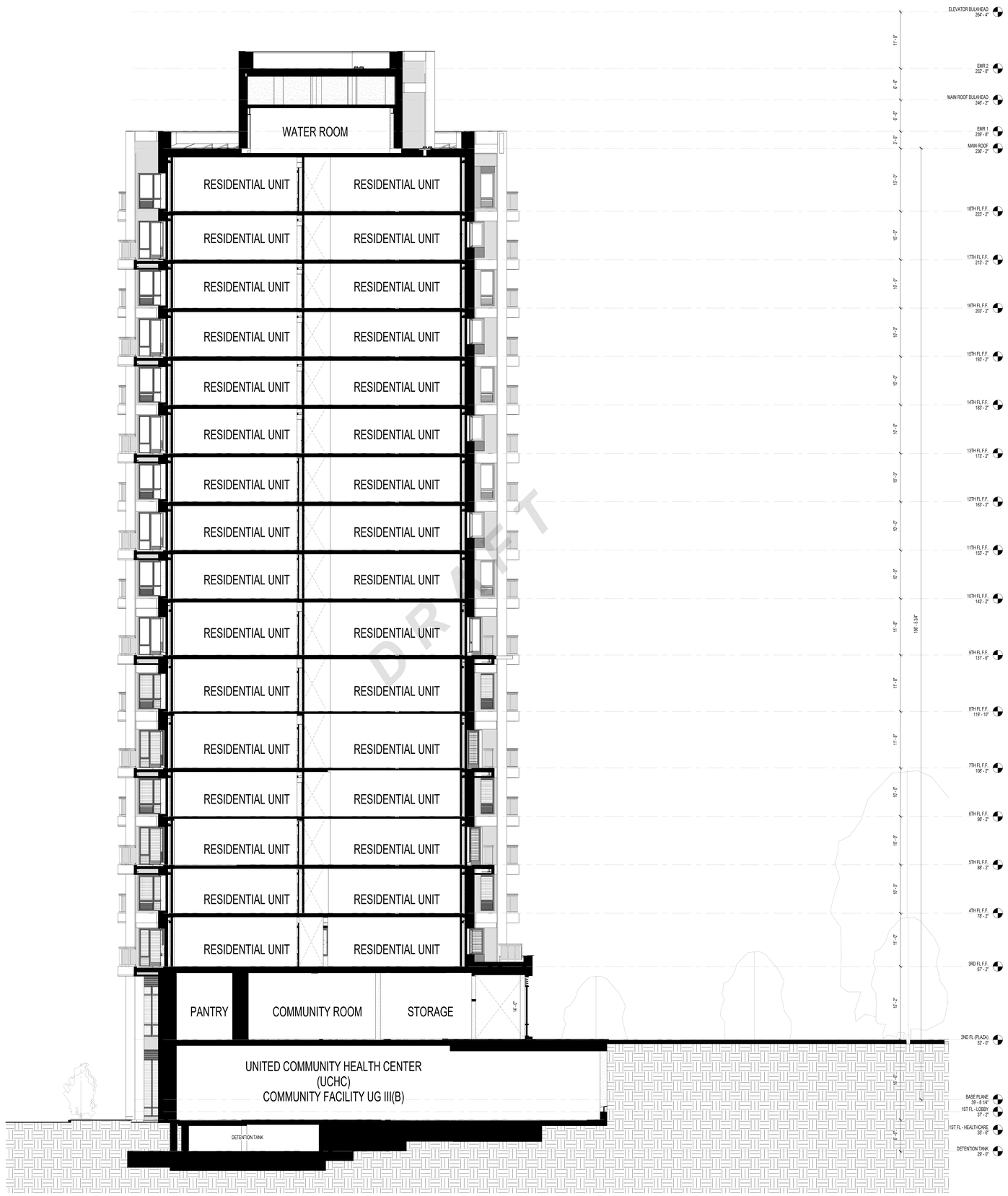
DOB SEAL:

BUILDING SECTION

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-300.00
SCALE: 1/8" = 1'-0"	37 OF 51



1 E-W SECTION THROUGH TOWER FACING NORTH
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Tel (212) 981 3933

Civil Engineer:

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New York, NY 10016
Tel (212) 696 0670

Filing Representative:

JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

Do Not Scale Plans
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DOB SEAL:

BUILDING SECTION

SEAL & SIGNATURE:

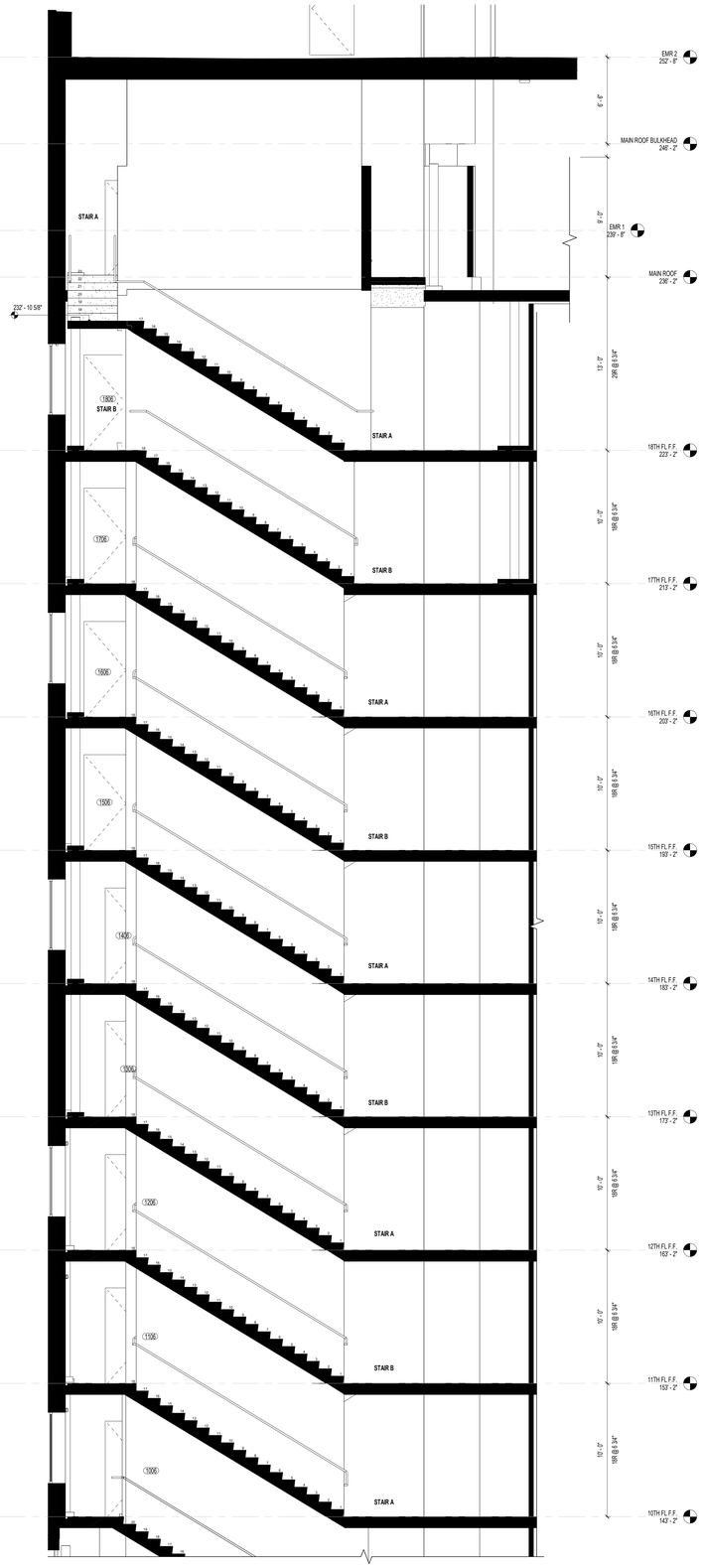
REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker

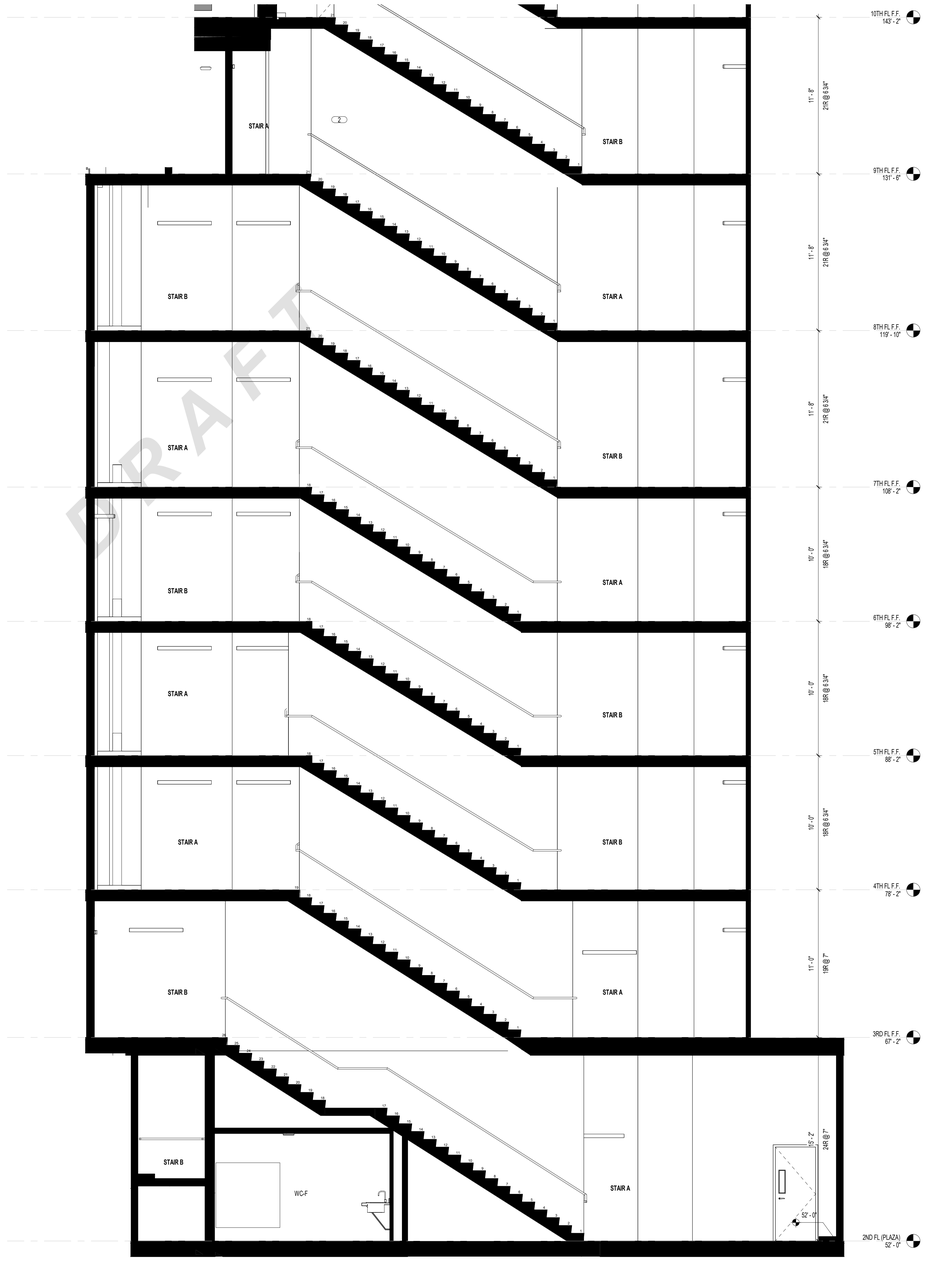
DWG No:

A-301.00

SCALE: 1/8" = 1'-0"



2 STAIRCASE SECTION A
1/4" = 1'-0"



1 STAIRCASE SECTION A
1/4" = 1'-0"

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY, 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



Key Plan:

NUMBER	DATE	DESCRIPTION
1	9/01/2023	50% Design Development
2	04/12/2024	4/12/2024 DD Progress
3	06/28/2024	Full DD Set / DOB Filing
4	04/11/2025	Repricing Set - Cellar Removal

Revisions:

Architect:

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42 West 39th Street, 15th Floor
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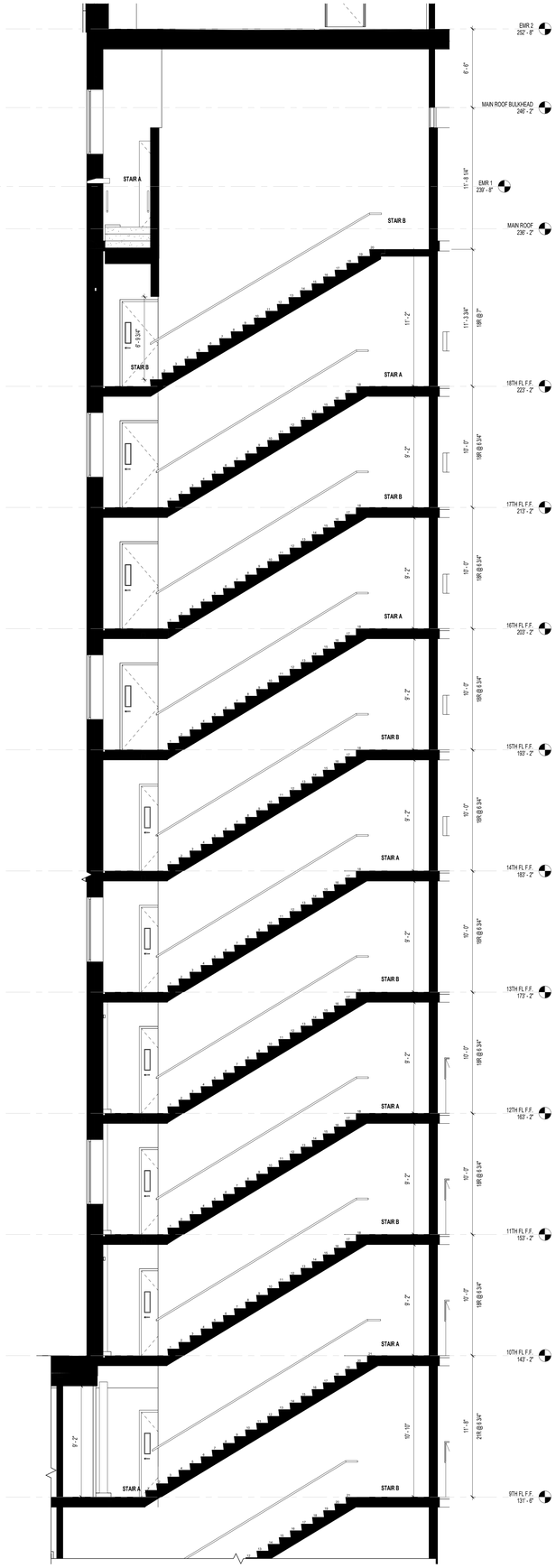
STAIR PLANS & SECTIONS

DOB SEAL:

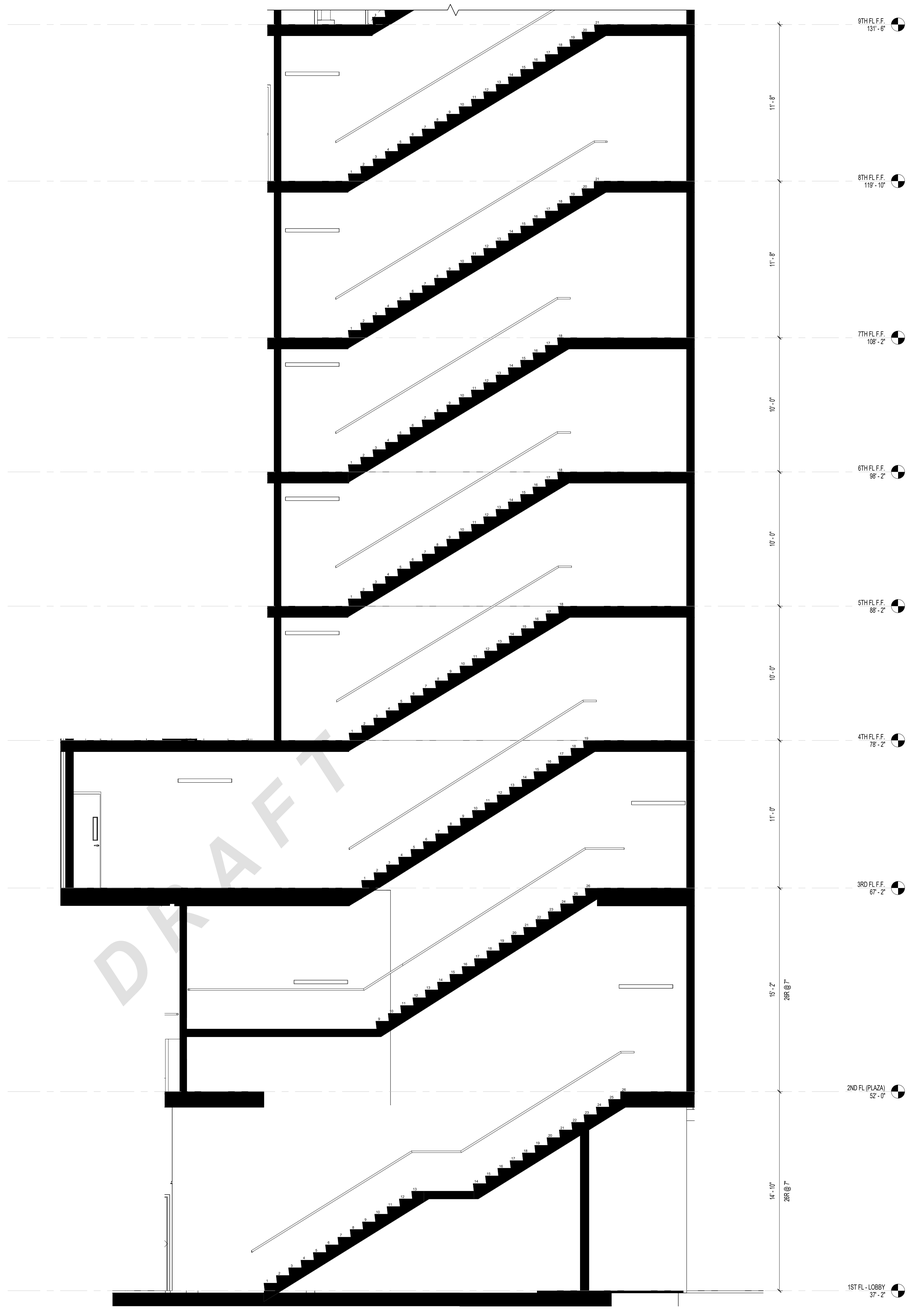
SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

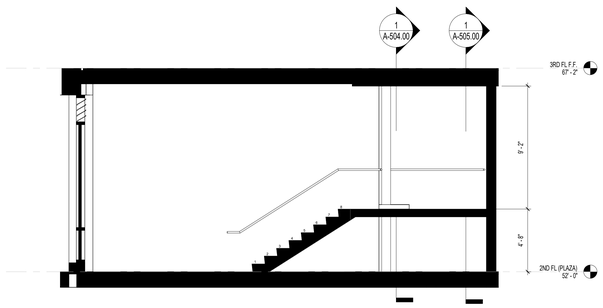
PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-504.00
SCALE:	1/4" = 1'-0"



2 STAIRCASE SECTION B
1/4" = 1'-0"



1 STAIRCASE SECTION B
1/4" = 1'-0"



3 STAIRCASE B SEGMENT
1/4" = 1'-0"

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BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



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STAIR PLANS & SECTIONS

DOB SEAL:

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045628 STATE OF NEW YORK

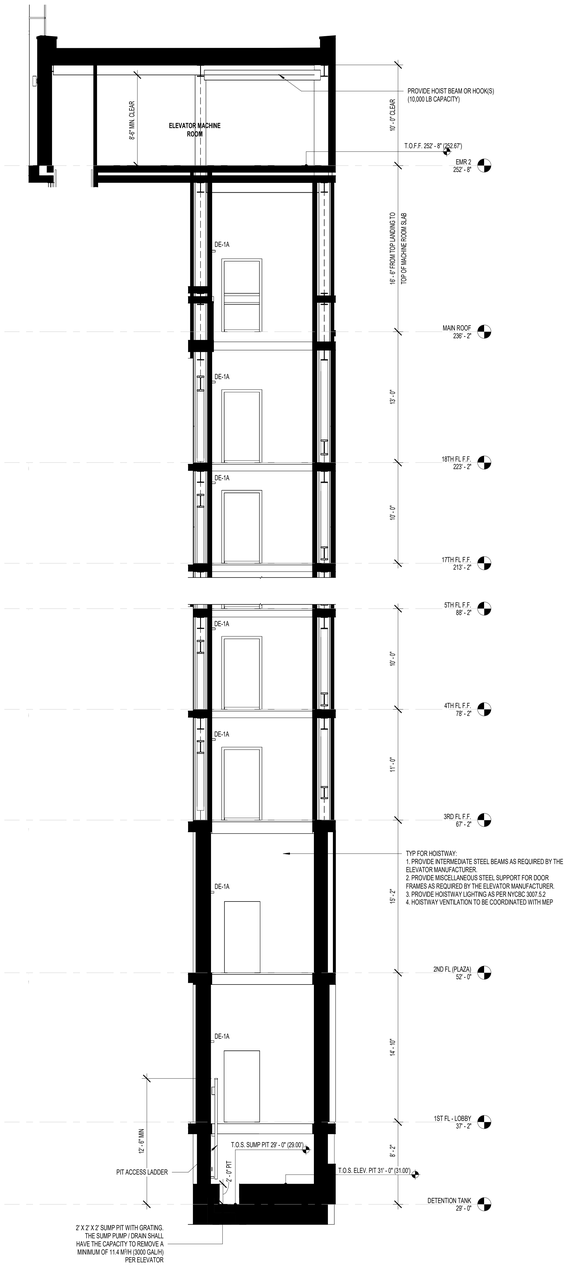
PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker

DWG No:

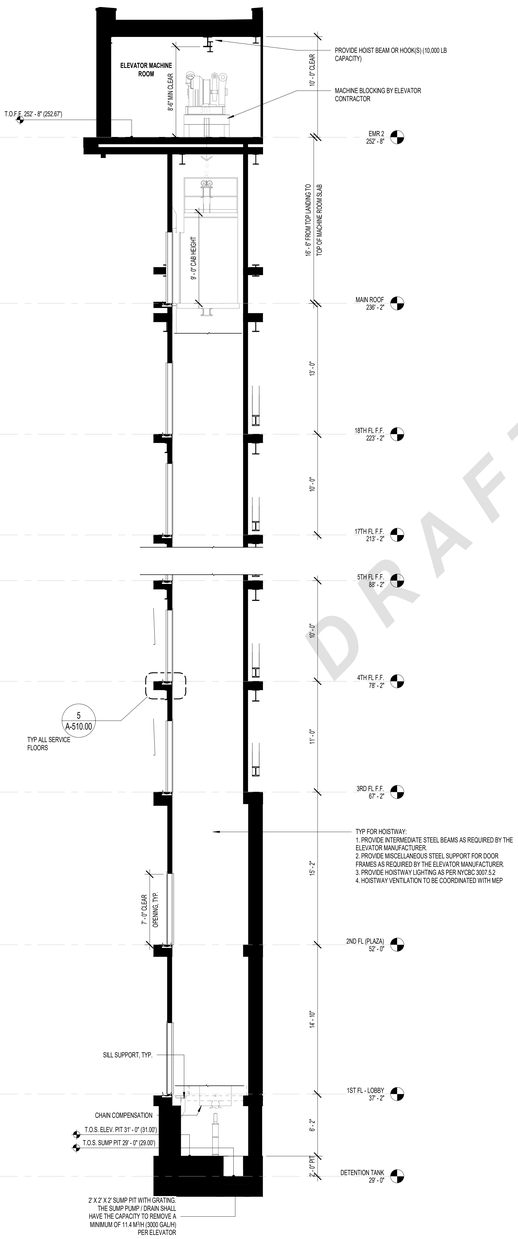
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SCALE: 1/4" = 1'-0"

80 OF 169



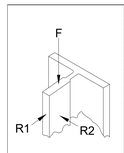
1 ELEVATOR A1 SECTION 01
3/16" = 1'-0"



2 ELEVATOR A1 SECTION 02
3/16" = 1'-0"

DRAFT

PIT AND RAIL LOADS



			A1	A2-A3 (EACH)
SEISMIC			S1	S1
CLASS LOAD RATING			A	A
RAIL WEIGHT/SIZE			15	15
CAR BUFFER REACTION ***	A	*	53.5 K	47.3 K
CWT BUFFER REACTION ***	B	*	45.2 K	41.4 K
WEIGHT ONE STACK CAR RAIL			3900 #	3700 #
WEIGHT ONE STACK CWT RAIL			3100 #	3000 #
UP PULL ON COMPENSATOR	C		---	---
RAIL LOADS PER RAIL	F_{CAR}	*	25.4 K	22.5 K
	F_{CWT}	*	---	---
NORMAL FORCES	R1		800 #	700 #
	R2		300 #	200 #
SEISMIC FORCES	R1	**	---	---
	R2	**	---	---
MAX VERT SPAN GUIDE RAIL SUPPORT			13.3'	14'

* LOADS SHOWN DO NOT ACT SIMULTANEOUSLY

** CAR AND CWT RAILS

*** BUFFER REACTIONS ARE DOUBLED FOR IMPACT

Rail support points shall have a max deflection of 1/8" when acted upon by forces R1 and R2

LOADS SHOWN ARE ESTIMATED, COORDINATE FINAL LOADS WITH ELEVATOR MANUFACTURER

FLOOR	FTF	F	
ROOF	–	X	*
18	13'-0"	X	
17	10'-0"	X	
16	10'-0"	X	
15	10'-0"	X	
14	10'-0"	X	
13	10'-0"	X	
12	10'-0"	X	
11	10'-0"	X	
10	10'-0"	X	
9	11'-8"	X	
8	11'-8"	X	
7	11'-8"	X	
6	10'-0"	X	
5	10'-0"	X	
4	10'-0"	X	
3	11'-0"	X	
2	15'-0"	X	*
G	15'-0"	X	*

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

Sol On Park

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Bronx, NY, 10456

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NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 30

NYC DOB # : X01091719



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DOB SEAL:

SEAL & SIGNATURE:

REGISTERED ARCHITECT BRIAN LOUGHLIN 045828 STATE OF NEW YORK

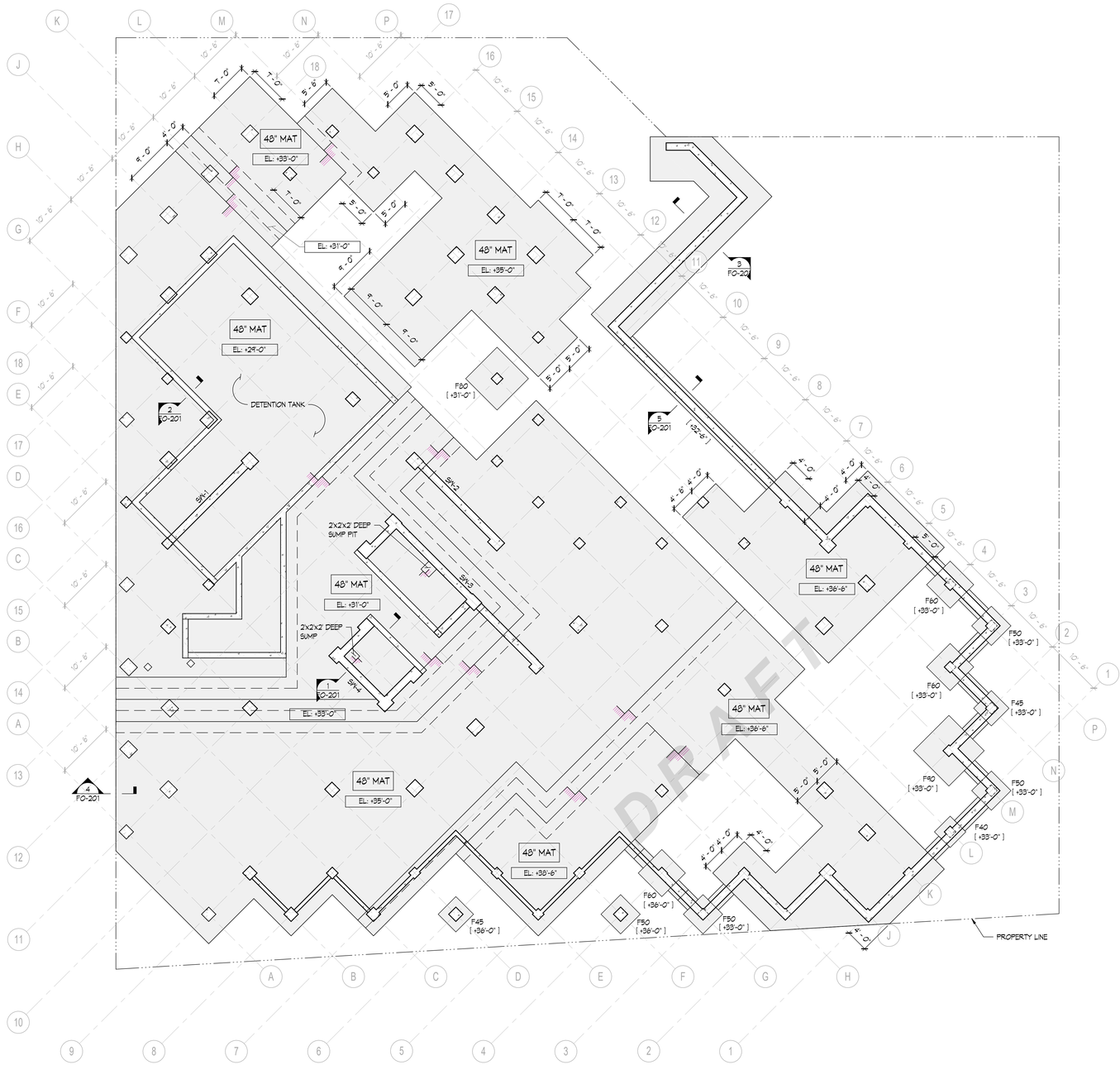
ELEVATOR A1 SECTIONS

PROJECT No:	22008
DRAWING BY:	Author
CHK BY:	Checker

DWG No:

A-511.00

SCALE: As indicated



DRAFT

FOUNDATION & DETENTION TANK FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. ALL ELEVATIONS INDICATED WITH RESPECT TO NAVD88 DATUM.
2. [X" MAT] DENOTES CONCRETE MAT OF THICKNESS 'X'. SEE DETAIL X ON FO-XXX FOR REINFORCEMENT.
3. [EL. XX'-XX"] DENOTES TOP OF SLAB ELEVATION.
4. FXX DENOTES SPREAD FOOTING. FOR FOOTING SIZE & REINFORCEMENT, SEE SCHEDULE ON THIS DRAWING.
5. [X'-X"] DENOTES BOTTOM OF FOOTING ELEVATION. IF PROPER BEARING MATERIAL IS NOT FOUND AT THE ELEVATION INDICATED, LOWER THE BOTTOM OF FOOTING AS NECESSARY. A [H:1V] INFLUENCE LINE SHALL BE MAINTAINED BETWEEN BOTTOM OF ADJACENT FOOTINGS.
6. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL REINFORCEMENT AS FOLLOWS:

   48" SLAB: #11@5" BOTTOM EACH WAY CONTINUOUS, #11@5" TOP EACH WAY CONTINUOUS
7. ___ (B) ___ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
8. _____ DENOTES ADDITIONAL TOP REINFORCEMENT.
9. PLACE NORTH-SOUTH REINFORCEMENT IN THE OUTERMOST LAYER.
10. FOOTINGS TO BE CENTERED ON COLUMNS ABOVE, UNLESS OTHERWISE NOTED.
11. FOR GRADE BEAM REINFORCEMENT, SEE SCHEDULE ON FO-XXX.
12. BOTTOM OF GRADE BEAM ELEVATION DENOTED THUS [X'-X"].
13. CENTERLINE OF GRADE BEAMS TO ALIGN WITH CENTROID OF FOOTING & COLUMN, UNLESS OTHERWISE NOTED.
14. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWINGS S-301 THRU S-304.
15. SW-XX DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.

FOOTING SCHEDULE

MARK	SIZE	THICKNESS	REINFORCING (EACH WAY U.O.N.)
F40	4'-0" x 4'-0"	1'-4"	5#5
F45	4'-6" x 4'-6"	1'-4"	6#5
F50	5'-0" x 5'-0"	1'-6"	6#5
F50/60	5'-0" x 6'-0"	2'-6"	8#5 LONG WAY 9#5 SHORT WAY
F55/100	5'-6" x 10'-0"	2'-6"	8#9 LONG WAY 10#7 SHORT WAY
F60	6'-0" x 6'-0"	1'-8"	6#6
F70	7'-0" x 7'-0"	2'-0"	9#6
F75	7'-6" x 7'-6"	2'-0"	7#7
F80	8'-0" x 8'-0"	2'-2"	8#6
F90	9'-0" x 9'-0"	2'-6"	8#8

GRAPHIC SCALE 8' 0' 8' 16'

DOB SEAL:

SEAL & SIGNATURE:

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Bronx, NY 10456

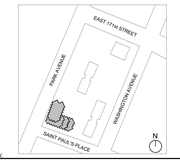
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S1



Key Plan:

NUMBER	DATE	DESCRIPTION
1	04/12/2024	4/12/2024 DD PROGRESS
2	04/19/2024	TA FILING SET
3	06/28/2024	FULL DD SET/DOB FILING
4	07/25/2024	TA FILING SET
5	08/23/2024	DOB FILING
6	04/11/2025	REPRICING SET - CELLAR REMOVAL

Revisions:

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FOUNDATION & DETENTION TANK FRAMING PLAN

PROJECT No: C1238.00
DRAWING BY: MO
CHK BY: MM
DWG No:

FO-101.00

SCALE: As indicated

FOUNDATION NOTES:

1. REFER TO S-001 FOR BALANCE OF INFORMATION, INCLUDING BUT NOT LIMITED TO BUILDING CODE INFORMATION, MATERIALS AND INSPECTIONS.

2. FOUNDATION DESIGN HAS BEEN BASED ON GEOTECHNICAL REPORT PREPARED BY LANGAN ENGINEERING DATED AUGUST 2, 2024. A COPY OF THIS REPORT SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.

3. ALL EARTHWORK, SUBGRADE PREPARATION AND FOUNDATION WORK SHALL BE DONE ACCORDING TO THE GEOTECHNICAL REPORT AND UNDER SUPERVISION OF LICENSED GEOTECHNICAL ENGINEER IN OWNERS DIRECT EMPLOY.

4. SPREAD FOOTINGS SHALL BEAR ON MEDIUM-DENSE SOIL (BUILDING CODE CLASS 3b AND 3a) WITH A MINIMUM BEARING CAPACITY OF 3 TONS PER SQUARE FOOT. IF MATERIAL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED THE FOOTINGS SHALL BE LOWERED AT THE DIRECTION OF THE LICENSED GEOTECHNICAL ENGINEER IN OWNERS DIRECT EMPLOY.

5. MAKE NO EXCAVATION TO THE FULL DEPTH INDICATED WHEN FREEZING TEMPERATURES MAY BE EXPECTED UNLESS THE FOOTINGS OR SLABS CAN BE PLACED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. PROTECT THE BOTTOM OF EXCAVATION FROM FROST IF PLACING OF CONCRETE IS DELAYED. SHOULD PROTECTION FAIL, REMOVE FROZEN MATERIALS AND REPLACE WITH CONCRETE OR GRAVEL FILL.

6. WALLS SHALL BE TEMPORARILY BRACED AGAINST EARTH PRESSURE AND OTHER FORCES UNTIL SLABS, BEAMS AND OTHER MEMBERS DESIGNED TO BRACE THE FINISHED STRUCTURE HAVE BEEN IN PLACE AND HAVE ATTAINED REQUIRED CONCRETE ULTIMATE STRENGTH.

7. UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER'S REPORT, SLABS ON GRADE SHALL BE SUPPORTED BY A COMPACTED POROUS FILL AT LEAST 6 INCHES THICK. AT INTERIOR SLABS A VAPOR BARRIER AT LEAST 15 MILS THICK SHALL BE PLACED BETWEEN THE SLAB AND THE POROUS FILL. THE POROUS FILL SHALL, IN TURN, BE SUPPORTED BY EITHER CLEAN, INORGANIC ORIGINAL SOIL OR A COMPACTED FILL WITH A MODIFIED PROCTOR DENSITY OF 90.

SUPPORT OF EXCAVATION

1. SUPPORT OF EXCAVATION, (SHEETING, SHORING, BRACING ETC.)SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER EXPERIENCED IN THIS TYPE OF WORK, EMPLOYED BY THE OWNER. THIS ENGINEER, FURTHER REFERRED TO AS THE SUPPORT OF EXCAVATION (SOE) ENGINEER SHALL BE RESPONSIBLE FOR INSPECTION OF THIS WORK AS REQUIRED BY THE PERTINENT BUILDING CODE.

2. THE SOE ENGINEER SHALL SUBMIT SHEETING, SHORING AND BRACING DRAWINGS TO THE ARCHITECT FOR COORDINATION WITH DESIGN DRAWINGS. SUCH DRAWINGS SHALL BE SUBMITTED PRIOR TO FILING OF THE STRUCTURAL DRAWINGS BY THE OFFICE FOR APPROVAL BY DOB.

3. THE SOE ENGINEER SHALL CARRY PROPER PROFESSIONAL AND GENERAL LIABILITY INSURANCE. GACE SHALL BE NAMED AS AN "ADDITIONAL INSURED" ON AND UNDER SOE ENGINEERS INSURANCE POLICIES FOR GACE'S BENEFIT.

4. SHEETING, SHORING AND BRACING, AS WELL AS OTHER ELEMENTS OF SUPPORT OF EXCAVATION (SOE) SHALL BE SHOWN ON PLANS AND DETAILED BY THE SOE ENGINEER. THE SOE ENGINEER SHALL FILE SUCH PLANS AND OBTAIN APPROVAL FROM THE DEPARTMENT OF BUILDINGS AS PART OF THE FILING FOR THE FOUNDATION PERMIT.

SPECIAL INSPECTION NOTES:

1. SPECIAL INSPECTION ITEMS REQUIRED BY NYC BUILDING CODE RELATED TO FOUNDATION WORK SHOWN ON GACE DRAWINGS. GACE SHALL BE THE DESIGN APPLICANT FOR THESE ITEMS.

A. CONCRETE - CAST-IN-PLACE
B. CONCRETE SAMPLING AND TESTING
C. CONCRETE DESIGN MIX
D. POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019, 2015-027, 2016-005)

THE CONTRACTOR IS OBLIGATED TO NOTIFY THE INSPECTOR AT LEAST 72 HOURS BEFORE INSTALLATION OF SUCH ITEMS SO THAT PROPER INSPECTION CAN BE MADE. IN NO CASE SHALL SUCH ITEMS BE INSTALLED OR CONSTRUCTED WITHOUT COMPLETE APPROVAL OF THE INSPECTOR. UNAPPROVED INSTALLATION IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S SOLE EXPENSE.

ALL SPECIAL INSPECTIONS SHALL BE PERFORMED BASED ON APPROVED SHOP DRAWINGS. INSPECTIONS PERFORMED BASED ON UNAPPROVED DRAWINGS SHALL BE CONSIDERED INVALID AND SHALL BE REJECTED.

2. SPECIAL INSPECTION ITEMS REQUIRED BY NYC BUILDING CODE RELATED TO THE STRUCTURAL WORK NOT SHOWN ON GACE DRAWINGS. GACE SHALL NOT BE THE DESIGN APPLICANT FOR THESE ITEMS AND SHALL NOT BE LISTED AS SUCH ON THE TECHNICAL RESPONSIBILITY FORMS REQUIRED BY THE DEPARTMENT OF BUILDINGS. GACE SHALL TAKE NO RESPONSIBILITY FOR THE DESIGN AND/OR CONSTRUCTION OF SUCH ITEMS AND ANY RELATED WORK.

A. MASONRY
B. SUBGRADE INSPECTION
C. SUBSURFACE CONDITIONS - FILL PLACEMENT & IN-PLACE DENSITY
D. SUBSURFACE INVESTIGATION (BORINGS/TEST PITS) - TR4
E. EXCAVATIONS - SHEETING, SHORING, AND BRACING

NEW YORK CITY CODE NOTES

SCOPE OF WORK:
STRUCTURAL WORK PROPOSED FOR NEW BUILDING AS SHOWN ON PLANS HEREIN.

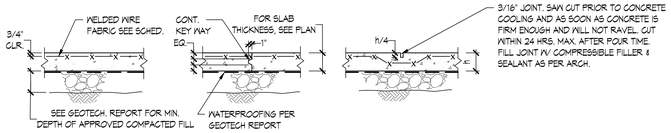
- ALL FOUNDATIONS EXTEND BELOW THE FROST LINE. BOTTOM OF FOOTING ELEVATIONS ARE ALL 4 FEET BELOW GRADE OF MORE.
- FOUNDATION DRAWINGS ARE IN COMPLIANCE WITH: AC 28-104.7, AC 28-104.8 AND BC 107.1.1.
- REFER TO DRAWING S-002 FOR LOAD CRITERIA AND SCHEDULES.

RELATED JOB APPLICATION NUMBERS:

NEW BUILDING (NB):	X01091719-I1
FOUNDATION (FO):	X01091719-S1
STRUCTURAL (ST):	X01091719-S3
SUPPORT OF EXCAVATION (SE):	X01091719-S2
MECHANICAL SYSTEMS (MS):	X01091719-S4
PLUMBING (PL):	X01091719-S5
STANDPIPE, SPRINKLER:	X01091719-S6

REINFORCEMENT SCHEDULE

SLAB THICKNESS	REINFORCEMENT	MAX. JOINT SPACING (@ INTERIOR SLABS)	MAX. JOINT SPACING (@ EXTERIOR SLABS)
4"	6x6-W1.4xW1.4	10'-0" E/W.	8'-0" E/W.
5"	6x6-W2.1xW2.1	12'-0" E/W.	10'-0" E/W.
6"	6x6-W2.9xW2.9	15'-0" E/W.	12'-0" E/W.

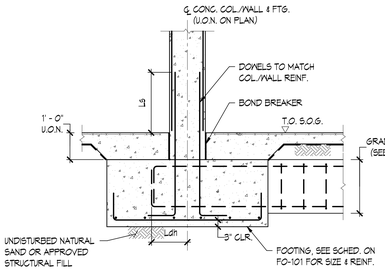


TYPICAL SLAB-ON-GRADE | CONSTRUCTION JOINT | SAW CUT CONTRACTION JOINT

NOTE: PROVIDE CONTINUOUS WATERSTOP IN ALL JOINTS AS REQ'D. BY ARCHITECT.

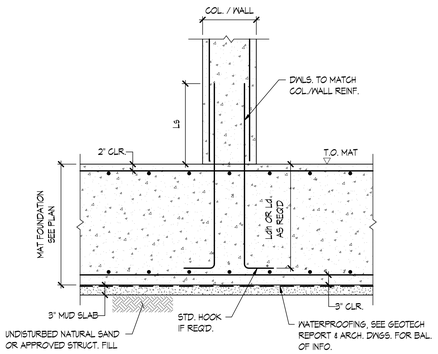
NOTES:
1. FOR MAXIMUM SPACING SEE TABLE ABOVE. PROVIDE JOINTS AT HALF THE INDICATED SPACING WHEN ADJACENT TO SLAB STEPS.
2. CONTRACTOR TO PROVIDE PROPOSED JOINT LAYOUT PLAN FOR REVIEW AND APPROVAL.

1 TYPICAL SLAB-ON-GRADE
3/4" = 1'-0"

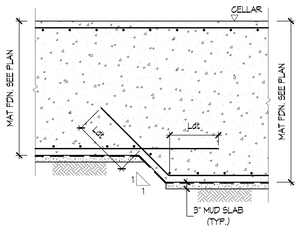


2 TYPICAL FOOTING DETAIL
1/2" = 1'-0"

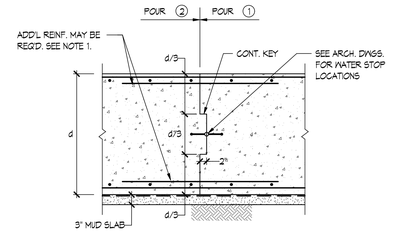
NOTES:
1. HAUNCH SLAB ON GRADE TO TOP OF FOOTING WHERE 'A' IS LESS THAN 12" AND PROVIDE BOND BREAKER BETWEEN TOP OF FOOTING AND SLAB.
2. GRADE BEAM(S) TO BE POURED MONOLITHICALLY WITH FOOTINGS/PIERS. ALTERNATIVELY, CONTRACTOR TO SUBMIT PROPOSED CONSTRUCTION JOINT LOCATION(S) FOR APPROVAL.



3 TYPICAL MAT FOUNDATION
3/4" = 1'-0"

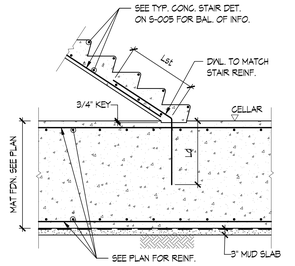


4 TYPICAL CHANGE IN MAT FOUNDATION THICKNESS
1/2" = 1'-0"

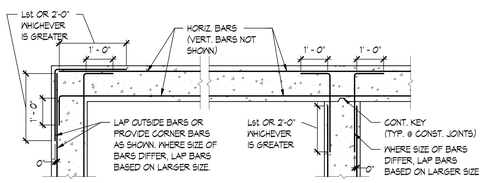


5 TYPICAL MAT FOUNDATION CONSTRUCTION JOINT
3/4" = 1'-0"

NOTES:
1. CONTRACTOR SHALL SUBMIT ALL PROPOSED CONSTRUCTION JOINTS FOR APPROVAL.
2. SEE FO-001 FOR BALANCE OF INFORMATION.

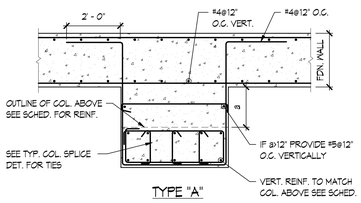


6 TYPICAL CONCRETE STAIR AT CELLAR CONNECTION
1/2" = 1'-0"

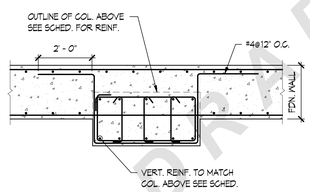


7 TYPICAL HORIZONTAL REINFORCING FOR CONCRETE WALLS (PLAN)
1/2" = 1'-0"

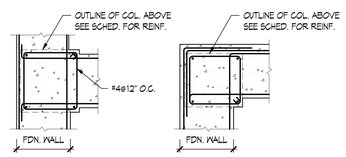
NOTE: PROVIDE CONTINUOUSE WATERSTOPS IN ALL JOINTS AS REQUIRED BY ARCHITECT.



TYPE "A"

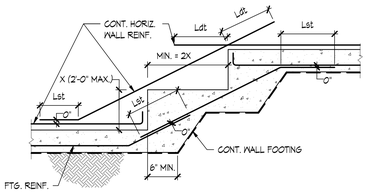


TYPE "B" COLUMN BUTTRESS WITHIN FOUNDATION WALL

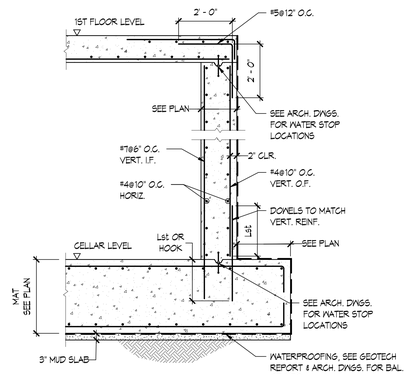


8 TYPICAL COLUMN BUTTRESS PLAN
1/2" = 1'-0"

NOTE: FOR BALANCE OF WALL REINFORCEMENT & OTHER INFORMATION SEE TYPICAL WALL SECTIONS / PIER-BUTTRESS DETAIL.

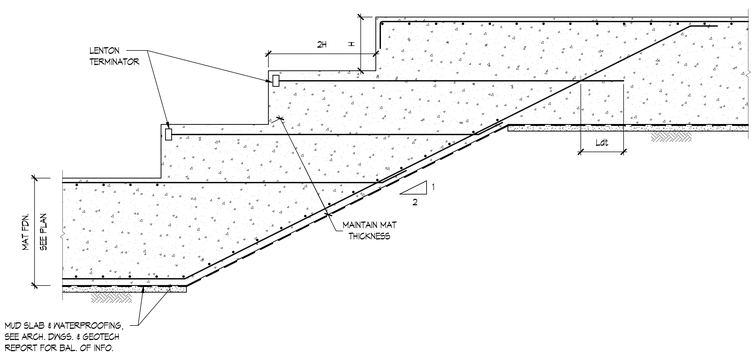


9 TYPICAL STEPPED WALL FOOTING
1/2" = 1'-0"

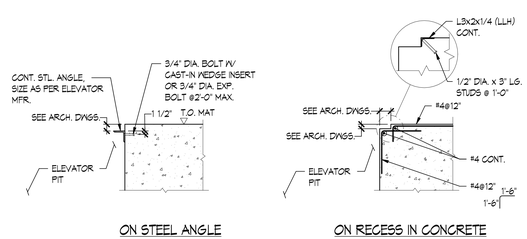


10 TYPICAL FOUNDATION WALL
1/2" = 1'-0"

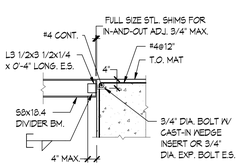
NOTE: PROVIDE CONTINUOUS WATERSTOPS IN JOINTS AS REQUIRED BY ARCHITECT.



11 TYPICAL STEPPED MAT
1/2" = 1'-0"



ELEVATOR SILL



DIVIDER BEAM CONNECTION TO ELEVATOR PIT

12 TYPICAL ELEVATOR PIT DETAILS
1/2" = 1'-0"

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	C1238.00
DRAWING BY:	MO
CHK BY:	MM
DWG No:	FO-001.00
SCALE: As indicated	3 OF 32

Sol On Park

3728 Park Avenue
Bronx, NY 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S1



Key Plan:

NUMBER	DATE	DESCRIPTION
1	04/12/2024	4/12/2024 DD PROGRESS
2	04/19/2024	TA FILING SET
3	06/28/2024	FULL DD SET/DOB FILING
4	07/25/2024	TA FILING SET
5	08/23/2024	DOB FILING
6	04/11/2025	REPRICING SET - CELLAR REMOVAL

Revisions:

Architect:

Magnusson Architecture & Planning PC
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New York NY 10018
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New York NY 10016
Tel (212) 545 7878

MEP Engineer:

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New York NY 10018
Tel (212) 244 2410

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Tel (212) 981 3933

Civil Engineer:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016
Tel (212) 696 0670

Filing Representative:

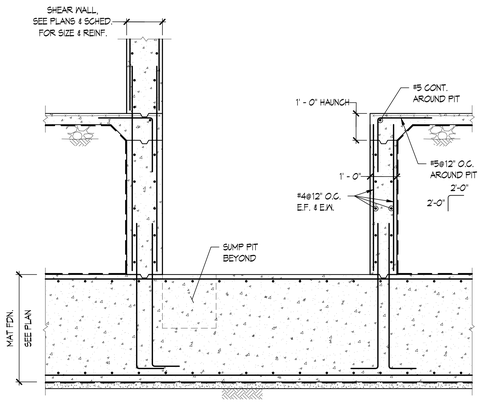
JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

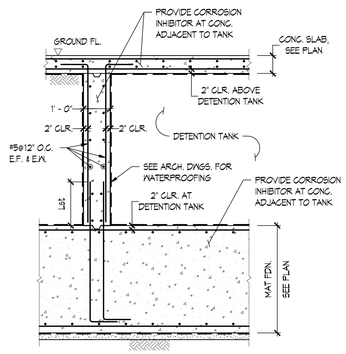
© COPYRIGHT 2025 Magnusson Architecture and Planning PC

FOUNDATION NOTES & DETAILS

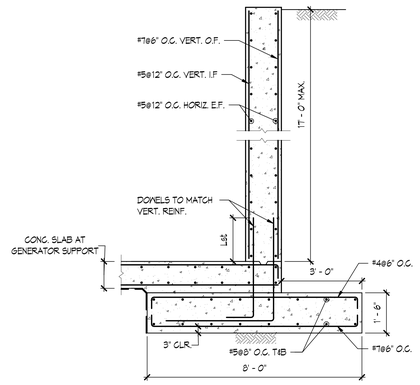
DRAFT



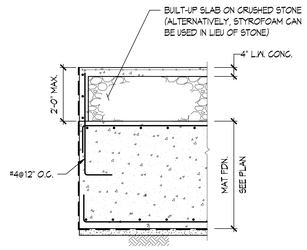
1 SECTION
1/2" = 1'-0"



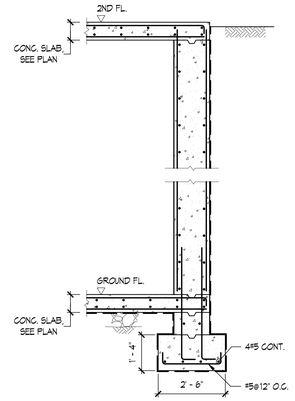
2 SECTION
1/2" = 1'-0"



3 SECTION
1/2" = 1'-0"



4 SECTION
1/2" = 1'-0"
NOTE: SEE DETAIL 6 ON S-004 FOR BALANCE OF INFORMATION.



5 SECTION
1/2" = 1'-0"
NOTE: SEE TYPICAL FOUNDATION WALL DETAIL 10 ON FO-001 FOR BALANCE OF INFORMATION.

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY 10456

Owner:

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1228 Euclid Avenue, 4th floor
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NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S1



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FOUNDATION SECTIONS

DOB SEAL:

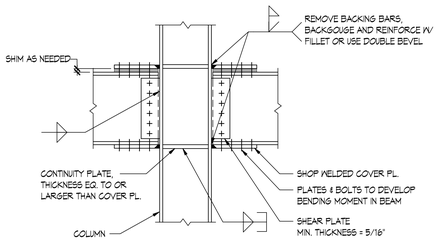
SEAL & SIGNATURE:

PROJECT No: C1238.00
DRAWING BY: MO
CHK BY: MM
DWG No:

FO-201.00

SCALE: 1/2" = 1'-0"

5 OF 32

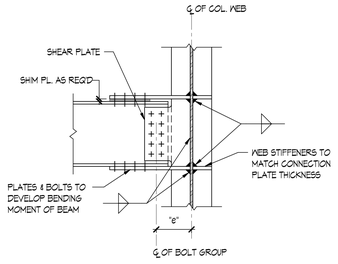


1 TYPICAL MOMENT CONNECTION AT COLUMN FLANGE

3/4" = 1'-0"

NOTES:

1. MOMENT CONNECTIONS SHALL DEVELOP FULL PLASTIC MOMENT CAPACITY OF BEAM U.O.N.
2. ADDITIONAL CHANNEL SUPPORTS FOR FLOOR STRUCTURE SUPPORT NOT SHOWN FOR CLARITY.

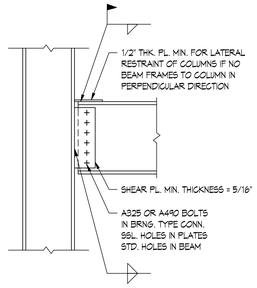


2 TYPICAL BEAM TO COLUMN WEB MOMENT CONNECTION

3/4" = 1'-0"

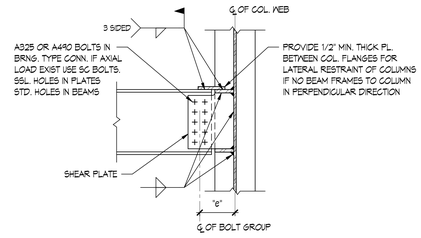
NOTES:

1. DESIGN SHEAR CONNECTION FOR ECCENTRICITY "e".
2. IF THERE IS ALSO A MOMENT CONNECTION TO FLANGE OF COLUMN, WELDS OF MOMENT CONNECTING PLATE TO COLUMN ARE TO BE PROPORTIONED TO TAKE FORCES FROM BOTH DIRECTIONS SIMULTANEOUSLY.



3 TYPICAL BEAM TO COLUMN FLANGE SHEAR CONNECTION

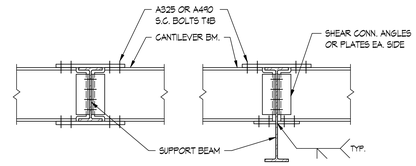
3/4" = 1'-0"



4 TYPICAL BEAM TO COLUMN WEB SHEAR CONNECTION

3/4" = 1'-0"

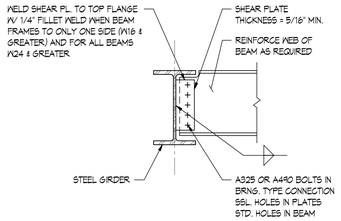
NOTE: DESIGN CONNECTION FOR ECCENTRICITY "e"



SUPPORT BEAM SAME DEPTH SUPPORT BEAM DEEPER

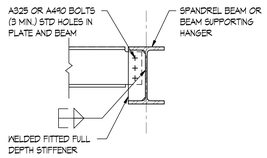
5 TYPICAL CANTILEVER BEAM CONNECTION

3/4" = 1'-0"



6 TYPICAL BEAM TO GIRDER CONNECTION

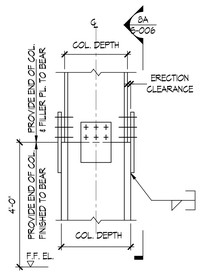
3/4" = 1'-0"



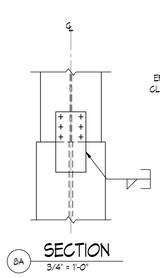
7 TYPICAL END CONNECTION TO SPANDREL BEAMS OR STAIR HANGERS

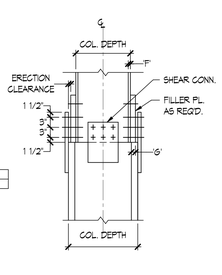
3/4" = 1'-0"

NOTE: SEE TYPICAL BEAM TO GIRDER CONNECTION FOR BALANCE OF INFORMATION.



WITHOUT FILLER PLATE



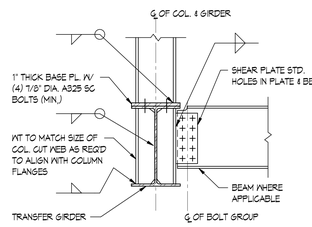


WITH FILLER PLATE

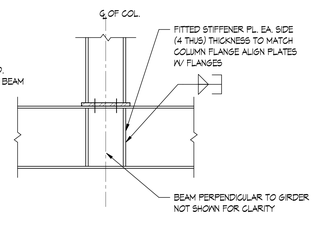
8 TYPICAL STEEL COLUMN SPLICE

3/4" = 1'-0"

NOTE: BEARING DIMENSION 'G' SHALL BE EQUAL OR GREATER THAN 'F'.



COLUMN WEB PERPENDICULAR TO GIRDER

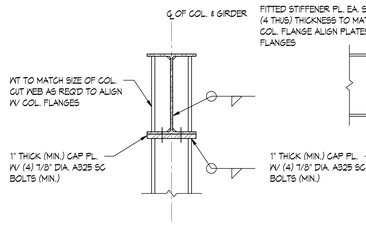


COLUMN WEB PARALLEL TO GIRDER

9 TYPICAL COLUMN TRANSFER

3/4" = 1'-0"

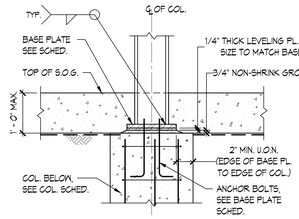
NOTE: DESIGN CONNECTION FOR ECCENTRICITY "e"



COLUMN WEB PERPENDICULAR TO GIRDER COLUMN WEB PARALLEL TO GIRDER

10 BEAM ON TOP OF COLUMN

3/4" = 1'-0"



11 TYPICAL STEEL COLUMN TO CONCRETE COLUMN CONNECTION (NON-SEISMIC)

3/4" = 1'-0"

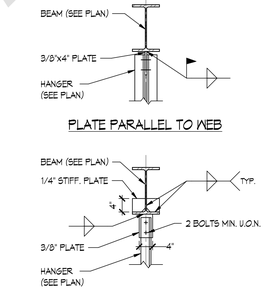


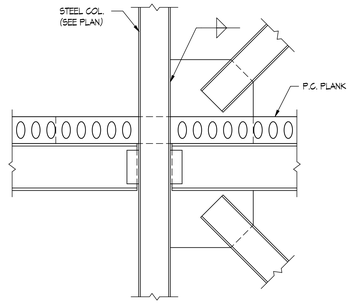
PLATE PARALLEL TO WEB

PLATE PERPENDICULAR TO WEB

12 TYPICAL HANGER CONNECTION

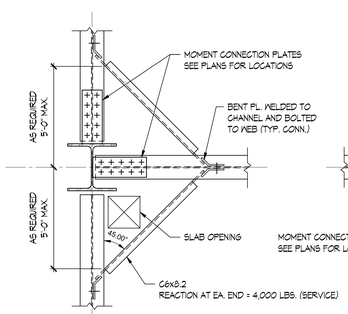
3/4" = 1'-0"

NOTE: SIZE OF PLATES, WORKING WELDS AND NUMBER OF BOLTS SHALL BE DESIGNED INDIVIDUALLY IF HANGER LOAD IS IN EXCESS OF 10,000 LBS.

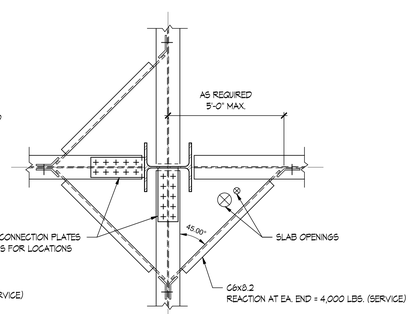


13 TYPICAL BRACE CONNECTION

3/4" = 1'-0"



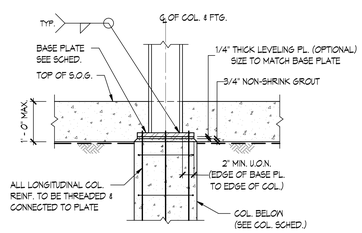
AT EXTERIOR COLUMNS WHERE REQUIRED



AT INTERIOR COLUMNS WHERE REQUIRED

14 TYPICAL METAL DECK SUPPORTS AT COLUMNS WITH OPENINGS AND/OR MOMENT CONNECTION PLATES

3/4" = 1'-0"



15 LATERAL STEEL COLUMN TO CONCRETE COLUMN CONNECTION (NON-SEISMIC)

3/4" = 1'-0"

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY 10456

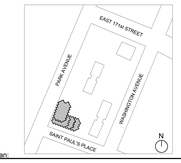
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S3



Key Plan:

NUMBER	DATE	DESCRIPTION
1	9/01/2023	50% DESIGN DEVELOPMENT
2	04/12/2024	4/12/2024 DD PROGRESS
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MAP
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MEP Engineer:

Ettinger Engineering Associates
505 8th Avenue #2400
New York NY 10018
Tel (212) 244 2410

Landscape Architect:

W Architecture & Landscape Architecture
374 Fulton Street 3rd Floor
Brooklyn NY 11201
Tel (212) 981 3933

Civil Engineer:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016
Tel (212) 696 0670

Filing Representative:

JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

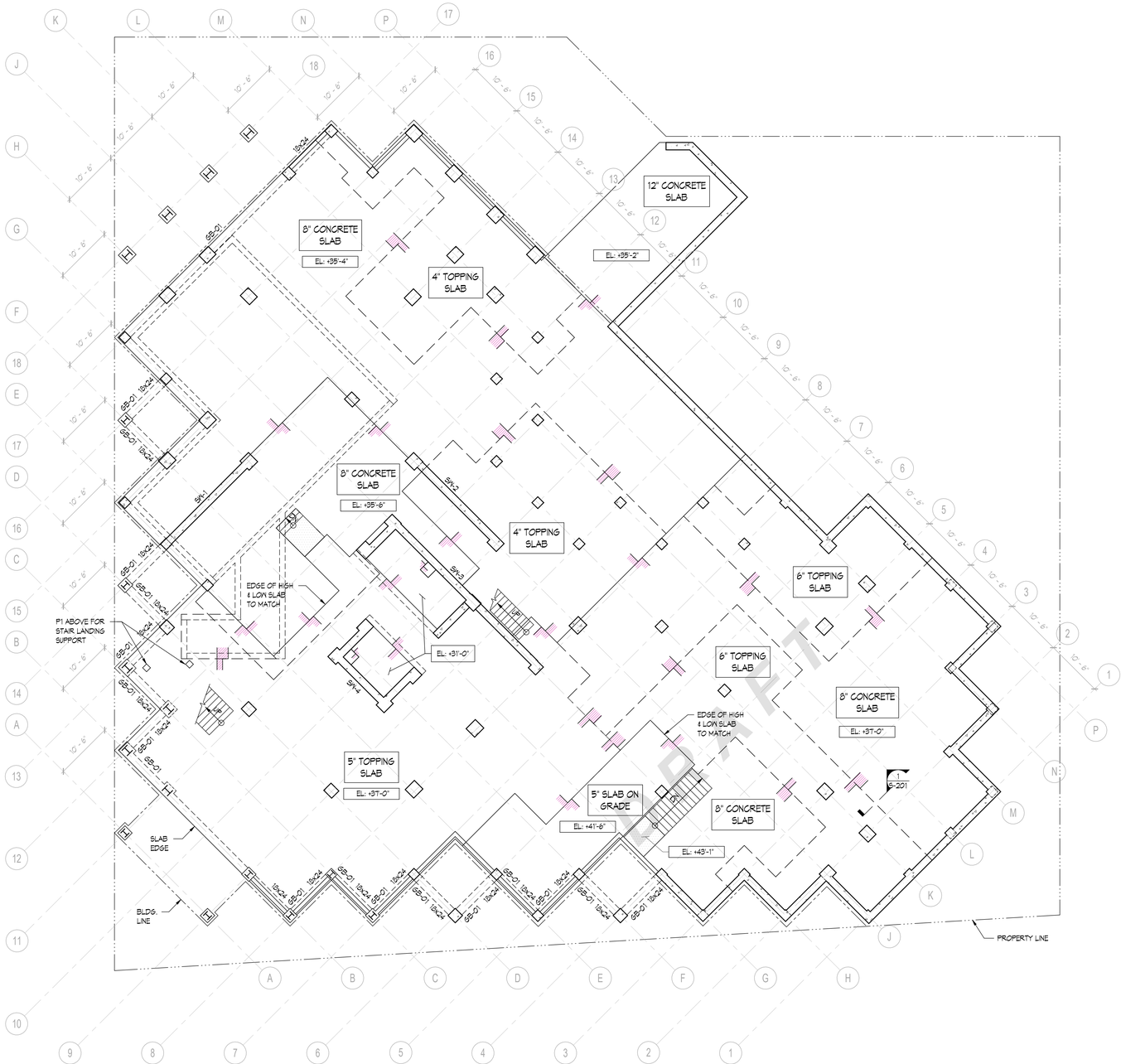
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TYPICAL DETAILS 4

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	C1238.00
DRAWING BY:	MO
CHK BY:	MM
DWG No:	S-006.00
SCALE: 3/4" = 1'-0"	9 OF 32



1ST (GROUND) FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWING S-001 FOR BALANCE OF INFORMATION.
2. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM.
3. REINFORCING BARS SHOWN ON PLAN TO BE PLACED IN ACCORDANCE WITH TYPICAL FLAT PLATE DETAILS ON DRAWING S-003 AND IN ADDITION TO ANY STANDARD REINFORCEMENT CALLED FOR IN THOSE DETAILS.
4. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL BOTTOM REINFORCEMENT OF #5@12" EACH WAY CONTINUOUS AND TYPICAL TOP REINFORCEMENT OF #6@12" EACH WAY CONTINUOS..
5. ___ (B) ___ — DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
6. _____ — DENOTES ADDITIONAL TOP REINFORCEMENT.
7. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.
8. ALL REINFORCEMENT IN BALCONIES, EYEBROWS & OTHER AREAS OF EXPOSED CONCRETE ARE TO BE EPOXY COATED. INCREASE BAR LENGTHS AS REQUIRED PER SCHEDULE ON S-002.
9. SLAB OPENINGS AND PENETRATIONS SHOWN SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & SPRINKLER DRAWINGS.
10. FOR BEAM REINFORCEMENT, SEE BEAM SCHEDULES ON DRAWING S-305. TOP OF BEAMS TO BE EVEN WITH TOP OF SLAB, UNLESS OTHERWISE NOTED THUS (X-X").
11. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWINGS S-301 THRU S-304.
12. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
13. ___ X-X-- ___ — DENOTES STEEL FRAMING.
14. [ ] — DENOTES RAISED LIGHTWEIGHT CONCRETE SLAB. SEE DETAIL 6 ON DRAWING S-004.
15. P1 — DENOTES 12x12 CONCRETE POST WITH 4#6 VERTICAL BARS.

GRAPHIC SCALE 8' 0' 8' 16'

DOB SEAL:

Sol On Park

3728 Park Avenue
Bronx, NY 10456

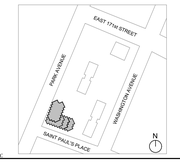
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S3



Key Plan:

NUMBER	DATE	DESCRIPTION
1	9/01/2023	50% DESIGN DEVELOPMENT
2	04/12/2024	4/12/2024 DD PROGRESS
3	04/19/2024	TA FILING SET
4	06/28/2024	FULL DD SET/DOB FILING
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7	04/11/2025	REPRICING SET - CELLAR REMOVAL

Revisions:

Architect:

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42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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1ST (GROUND) FLOOR FRAMING PLAN

SEAL & SIGNATURE:

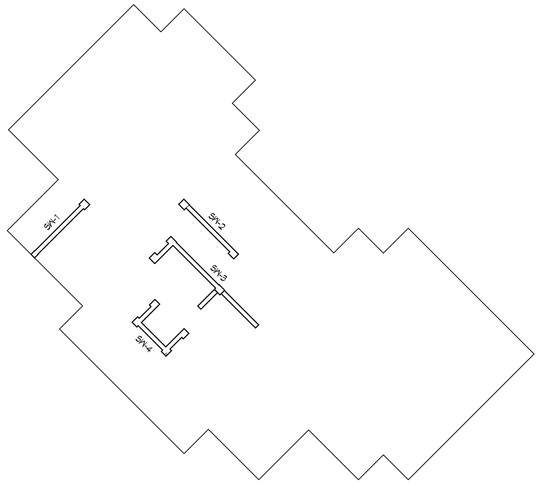
PROJECT No:	C1238.00
DRAWING BY:	MO
CHK BY:	MM
DWG No:	S-101.00
SCALE: 1/8" = 1'-0"	11 OF 32

SHEAR WALL SCHEDULE

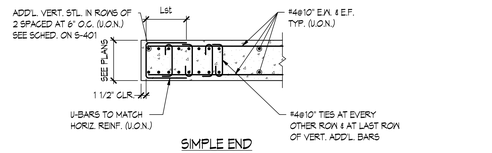
FLOOR \ GROUP	ADDITIONAL VERTICAL REINFORCEMENT GROUPS											
	GROUP 1A	GROUP 1B	GROUP 2A	GROUP 3A	GROUP 3B	GROUP 3C	GROUP 3D	GROUP 3E	GROUP 4A	GROUP 4B	GROUP 4C	GROUP 4D
2ND	12#9	16#10	10#10	12#11	20#11	16#11	8#8	8#10	14#10	20#11	20#11	16#10
1ST	16#10	20#10	12#10	12#11	20#11	16#11	8#8	10#11	14#10	22#11	27#11	18#10

NOTES:

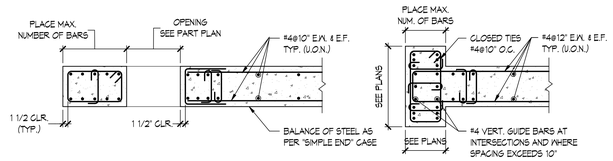
1. ALL BARS USED IN SHEAR WALLS MUST BE TENSION SPLICED. SEE SCHEDULE ON S-003.
2. STANDARD MATS TO BE PLACED AT EACH FACE OF WALLS.
3. ADDITIONAL VERTICAL GROUP REINFORCEMENT IN WALLS SHALL BE TIED WITH TIE HOOKS (SEE DETAIL 1 ON S-401)
4. THE CONTRACTOR SHALL NOT TROWEL CONSTRUCTION JOINTS BETWEEN SLABS AND SHEAR WALLS.
5. OPENINGS AND PENETRATIONS ARE SHOWN SCHEMATICALLY TO PROVIDE GOVERNING CRITERIA WHERE REQUIRED FOR STRUCTURAL REASONS ONLY. REFER TO MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS FOR BALANCE OF INFO.
6. SEE DETAIL 1 ON S-401 FOR TYPICAL DETAIL AT SHEAR WALL EXTREMITIES.
7. SEE PLANS FOR LOCATION OF SHEAR WALLS.



KEY PLAN
N.T.S.



SIMPLE END



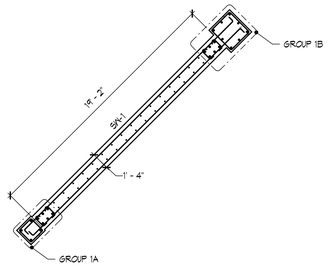
INTERRUPTED END

HAMMERHEAD END

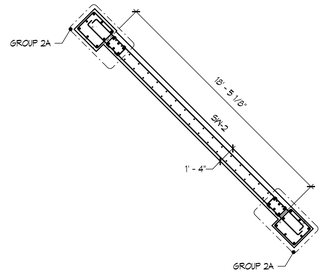
1 TYPICAL DETAIL AT SHEAR WALL EXTREMITIES
3/4" = 1'-0"

NOTE:

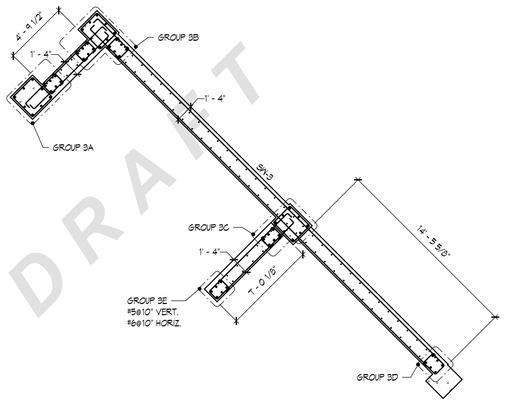
1. SEE SHEAR WALL PLANS FOR BALANCE OF INFORMATION.



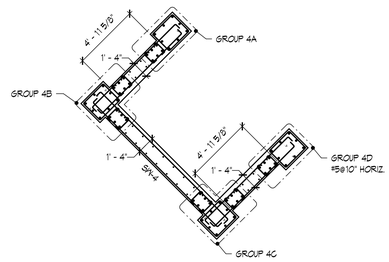
2 SW-1 @ FIRST THRU 2ND FLOOR PART PLAN
1/4" = 1'-0"



3 SW-2 @ FIRST THRU 2ND FLOOR PART PLAN
1/4" = 1'-0"



4 SW-3 @ FIRST THRU 2ND FLOOR PART PLAN
1/4" = 1'-0"



5 SW-4 @ FIRST THRU 3RD FLOOR PART PLAN
1/4" = 1'-0"

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY 10456

Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB NOW # : X01091719-S3



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6	04/11/2025	REPRICING SET - CELLAR REMOVAL

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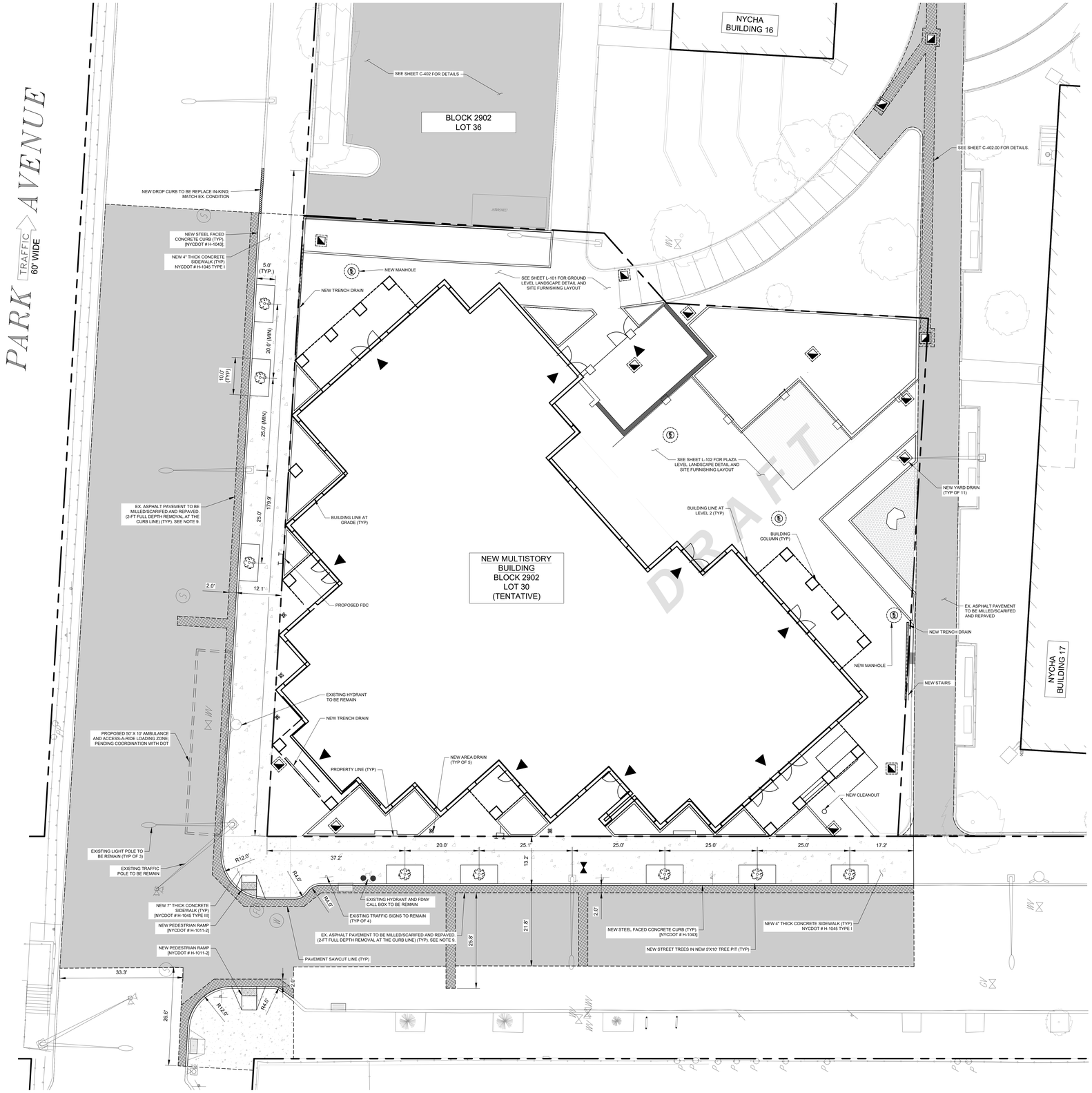
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SHEAR WALL DETAILS AND SCHEDULE

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: C1238.00
DRAWING BY: MO
CHK BY: MM
DWG No: S-401.00
SCALE: As indicated



GENERAL NOTES

01 SCOPE SUBJECT TO CHANGE PENDING NYC AGENCY APPROVALS.

02 ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) AS ESTABLISHED BY THE NATIONAL GEODETIC SURVEY (NGS). REFER TO SURVEY PREPARED BY CONTROL POINT ASSOCIATES, INC. PC. DATED JANUARY 24, 2023

03 CONTRACTOR TO VERIFY ALL FIELD CONDITIONS WITH THE ENGINEER.

04 FOR ALL CONSTRUCTION OUTSIDE OF THE PROPERTY LINE, THE CONTRACTOR SHALL REFER TO THE APPROVED PERMIT PLAN.

05 CONTRACTOR TO COORDINATE ALL BPP STRUCTURES WITH PROPOSED UTILITIES

06 THE CONTRACTOR SHALL ENSURE THAT ANY DOOR ENCROACHMENTS ONTO THE SIDEWALK SHALL NOT EXCEED 18-INCHES, AS PER THE NYC DOB BC.

07 ALL VAULT GRATING SHALL BE ADA COMPLIANT.

08 ALL PAVEMENT STRIPING WITHIN THE CITY RIGHT-OF-WAY DISTURBED DUE TO CONSTRUCTION ACTIVITY TO BE REPLACED IN-KIND UNLESS NOTED OTHERWISE.

09 RIGHT-OF-WAY PAVEMENT RESTORATION AREA MAY WIDEN TO CURB-TO-CURB, PENDING OFFICIAL DOT "PROTECTED" STREET STATUS NOTIFICATION FOR PARK AVENUE AND SAINT PAUL'S PLACE.

STREET TREE TABLE:

(NEW BUILDING FRONTAGE ONLY)

TOTAL NUMBER OF TREES REQUIRED BY NYC DOB	14
EXISTING TREES TO PROTECT	0
EXISTING TREES TO REMOVE/RELOCATE	0
PROPOSED TREES TO PLANT ON-SITE	8
TREES TO PLANT OFF-SITE	0
TREES TO PAY INTO TREE FUND AS ON-SITE PLANTINGS	0
TREES TO PAY INTO TREE FUND AS OFF-SITE PLANTINGS	6

LEGEND

- PROPERTY LINE
- NEW BUILDING
- NEW SIDEWALK CONCRETE PAVEMENT
- NEW ASPHALT PAVEMENT
- NEW FULL DEPTH ASPHALT PAVEMENT
- BUILDING DOOR / ACCESS
- NEW YARD DRAIN
- NEW PLANER DRAIN
- NEW FLOOR DRAIN
- NEW MANHOLE
- NEW STREET TREE IN NEW 5'X10' TREE PIT

0 5 10 20
SCALE: 1" = 10'

SITE/CIVIL ENGINEER

akrf

AKRF INC.
440 PARK AVENUE SOUTH
NEW YORK, NY 10016
(212) 696-0670

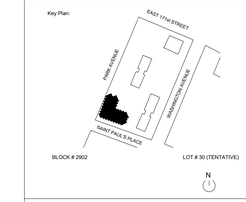
OWNER
NYC HOUSING AUTHORITY
90 CHURCH STREET
NEW YORK, NY 10007
(212)306-4019

DEVELOPER
SOL ON PARK LLC
1228 EUCLID AVENUE, 4TH FLOOR
CLEVELAND, OH 44115
(646)259-3590

ARCHITECT
MAGNUSSON ARCHITECTURE & PLANNING PC
42 WEST 39TH STREET, 15TH FLOOR
(212)253-7820

SURVEYOR
CONTROL POINT ASSOCIATES INC PC
9 TIMES SQUARE,
200 WEST 41ST STREET, 14TH FLOOR
NEW YORK, NY 10036
(646)780-0411

Key Plan:



NEW YORK STATE EDUCATION LAW 145, SECTION 7209, PROHIBITS ANY INDIVIDUAL FROM ALTERING THESE DRAWINGS AND/OR ACCOMPANYING SPECIFICATIONS IN ANY WAY, UNLESS IT IS UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. IF ALTERATIONS ARE MADE, THE ALTERING ENGINEER MUST SIGN, SEAL, DATE, AND DESCRIBE THE FULL DESCRIPTION OF THE ALTERATION ON THE DRAWING AND/OR SPECIFICATIONS.

JOHN CARBONE, P.E.

REVISIONS

No.	DATE	DESCRIPTION
	04/11/2025	REPRICING SET - CELLAR REMOVAL

PROJECT
SOL ON PARK

ADDRESS:
3728 PARK AVENUE, BRONX, NY
3730 PARK AVENUE, BRONX, NY
449 ST. PAUL'S PLACE, BRONX, NY
451 ST. PAUL'S PLACE, BRONX, NY

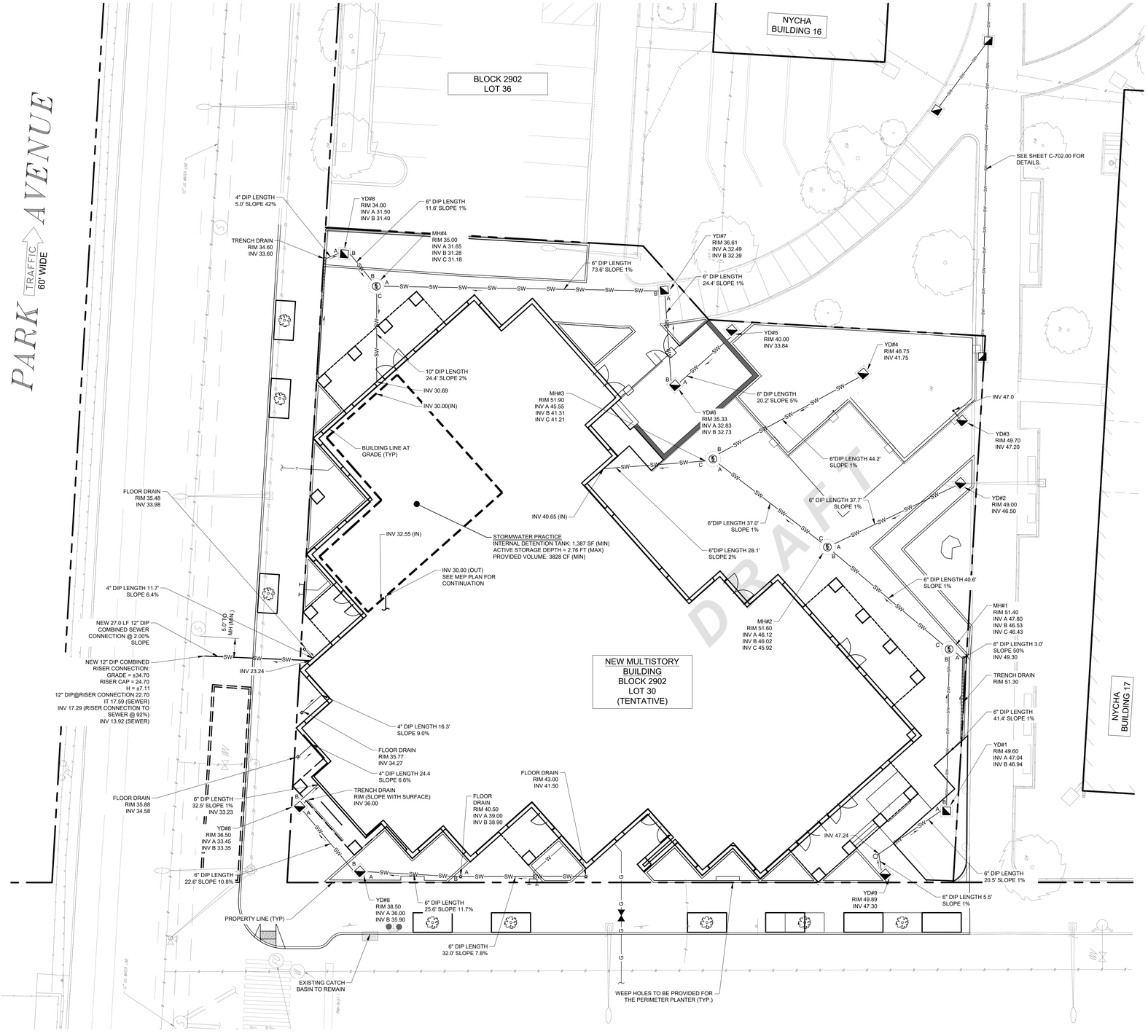
BLOCK: 2902, LOT: 30 (TENATIVE)

DRAWN BY	CHECKED BY
JL	AA
SCALE	DATE
1"=10'	11/18/2024

DRAWING TITLE
SITE PLAN 1

DRAWING NO.
C-401.00

SHEET NO.
SHEET OF



GENERAL NOTES

01 SCOPE SUBJECT TO CHANGE PENDING NYC AGENCY APPROVALS.

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03 CONTRACTOR TO VERIFY ALL FIELD CONDITIONS WITH THE ENGINEER.

04 FOR ALL CONSTRUCTION OUTSIDE OF THE PROPERTY LINE, THE CONTRACTOR SHALL REFER TO THE APPROVED PERMIT PLAN.

05 CONTRACTOR TO SUBMIT SHOP DRAWINGS AND MATERIAL SUBMITTALS TO ENGINEER FOR REVIEW.

06 ALL DAMAGED MANHOLES AND SEWER PIPING CAUSED BY THE CONTRACTOR'S WORK SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE OWNER/CITY.

07 CONTRACTOR TO RESET ALL EXISTING ELECTRICAL, WATER AND GAS VALVE COVERS AND ALL OTHER SURFACE UTILITY COVERS TO THE PROPOSED GRADE. THE CONTRACTOR SHALL COORDINATE WITH CON EDISON, NATIONAL GRID, NYCDEP AND OTHER RESPECTIVE UTILITY AGENCIES FOR THE RESETTING OF COVERS. FOR SERVICES TO REMAIN, CONTRACTOR IS RESPONSIBLE TO PROTECT ALL SERVICES AND UTILITY INFRASTRUCTURE TO REMAIN DURING CONSTRUCTION.

LEGEND

- PROPERTY LINE
- NEW BUILDING
- BUILDING DOOR / ACCESS
- NEW STORMWATER PIPING
- NEW COMBINED STORM/SANITARY SEWER CONNECTION
- NEW WATER SERVICE
- NEW ELECTRICAL SERVICE
- NEW GAS SERVICE
- NEW TELECOMMUNICATION SERVICE
- NEW YARD DRAIN
- NEW PLANER DRAIN
- NEW FLOOR DRAIN
- NEW MANHOLE

0 5 10 20
SCALE: 1" = 10'

SITE/CIVIL ENGINEER
akrf
AKRF INC.
440 PARK AVENUE SOUTH
NEW YORK, NY 10016
(212) 696-0670

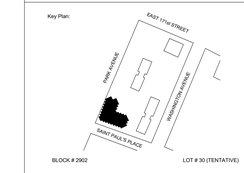
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REVISIONS

No.	DATE	DESCRIPTION
	04/11/2025	REPRICING SET - CELLAR REMOVAL

PROJECT
SOL ON PARK

ADDRESS:
3728 PARK AVENUE, BRONX, NY
3730 PARK AVENUE, BRONX, NY
449 ST. PAUL'S PLACE, BRONX, NY
451 ST. PAUL'S PLACE, BRONX, NY

BLOCK: 2902, LOT: 30 (TENATIVE)

DRAWN BY	CHECKED BY
JL	AA
SCALE	DATE
AS NOTED	11/18/2024

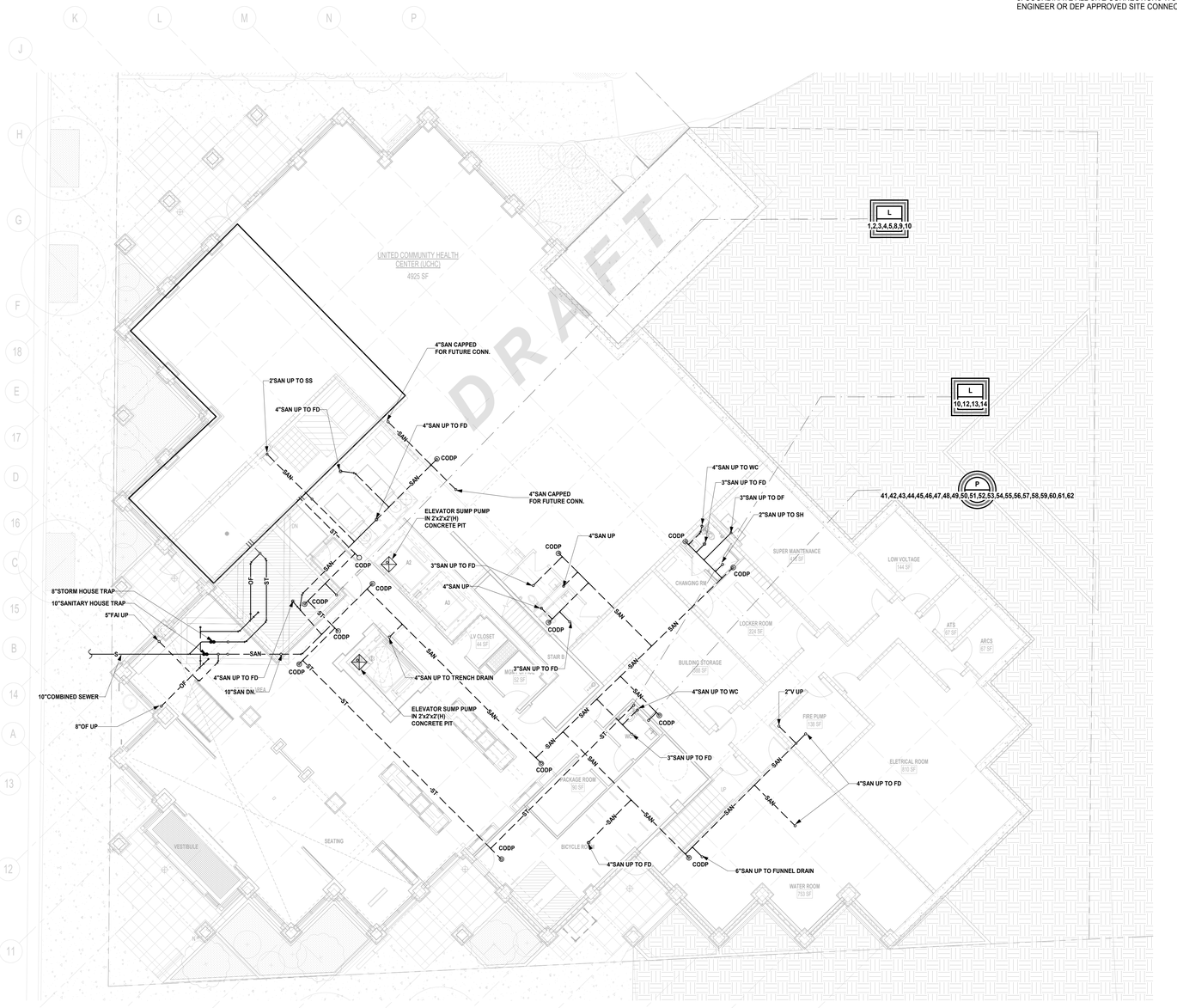
DRAWING TITLE
DRAINAGE PLAN 1

DRAWING NO.
C-701.00

SHEET NO.
SHEET OF

UNDERGROUND COORDINATION NOTES:

1. CONTRACTOR SHALL COORDINATE SOIL TYPE AND ANGLE OF REPOSE
PERMITTED WITH ALL THE BUILDING NEW BUILDING SEWERS AND HORIZONTAL
BRANCHES.
2. CONTRACTOR SHALL VERIFY ALL EXISTING SANITARY, STORM SEWER
ELEVATIONS AND FOOTING ELEVATIONS AND COORDINATE DETAILS OF PIPING
THROUGH OUTSIDE WALL WITH THE ARCHITECT, GENERAL CONTRACTOR AND
STRUCTURAL ENGINEERS ETC.
3. CONTRACTOR SHALL COORDINATE ALL HATCHED AREAS ON THIS PLAN
WITH STRUCTURAL ENGINEER FOR DROPPED FOOTING PRIOR TO ANY FOOTING
POURING AND CONSTRUCTION BEGINS.
4. CONTRACTOR SHALL USE DEEP SEAL TRAP ON ALL FLOOR DRAINS.
5. WHERE THE EXISTING FOOTING WALLS ARE DISTURBED DURING THE
INSTALLATIONS OF NEW PIPING, RESTORE TO ORIGINAL CONDITION AND NOTIFY
ARCHITECT TO INSPECT PRIOR TO BACKFILL.
6. CONTRACTOR SHALL VERIFY ALL EXISTING SANITARY, STORM SEWER AND/OR
FIRE MAIN PRIOR TO BID SUBMISSIONS.
7. CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO STORM, SANITARY
LATERALS INSTALLED BY SITE CONTRACTOR BUT NOT LIMITED TO.
8. COORDINATE ALL SITE CONNECTIONS WORK WITH CIVIL ENGINEER OR DEP APPROVED SITE CONNECTION DOCUMENTS.



THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET RELIED UPON OR TO BE CONSIDERED AS EITHER BEING ALL OTHER MATTERS SHOWN ARE NOT TO BE APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

DOB SEAL:

Sol on Park

3728 Park Avenue
Bronx, NY, 10456

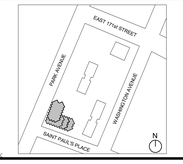
Owner:

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1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB # : X01091719-S5



Key Plan:

NUMBER	DATE	DESCRIPTION
1	04-14-23	SD Progress
2	05-01-23	100% SD SUBMISSION
3	09-01-23	50% DD
4	04-12-2024	DD PROGRESS
5	05-31-2024	DD PROGRESS
6	06-28-2024	FULL DD SET / DOB FILING
7	04-11-2025	REPRICING SET - CELLAR REMOVAL

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Tel (212) 696 0670

Filing Representative:

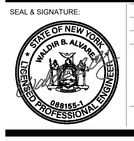
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Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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PLUMBING - UNDERGROUND PLAN

SEAL & SIGNATURE:



PROJECT No:	2675
DRAWING BY:	EK
CHK BY:	AS
DWG No:	P-099.00
SCALE:	1/8" = 1'-0"

GENERAL NOTES

1. SCOPE OF WORK: THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE LAYOUT AND INSTALLATION FOR SOLDIER PILES, LAGGING, SOIL TIEBACK ANCHORS, SOIL MIX COLUMNS, AND PERFORMING GENERAL EXCAVATION AS NEEDED TO ACHIEVE FINAL FOUNDATION SUBGRADES FOR THE PROPOSED DEVELOPMENT. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND OTHER APPURTENANCES AS MAY BE REASONABLY INFERRED TO BE NECESSARY TO FACILITATE THE INSTALLATION OF THE SUPPORT OF EXCAVATION SYSTEM SHOWN AND DESCRIBED HEREIN.
2. THESE PLANS ARE FILED IN CONJUNCTION WITH THE NEW BUILDING APPLICATION (DOB NOW #X01091719-I1) AND WITH THE FO-SERIES DRAWINGS (DOB NOW #X01091719-S1)
3. FOR THE PURPOSES OF THESE DRAWINGS, "ENGINEER OF RECORD" AND "EOR" SHALL REFER TO THE ENGINEER OF RECORD FOR SUPPORT OF EXCAVATION UNLESS OTHERWISE NOTED.
4. ALL ELEVATIONS SHOWN ON THESE DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988, UNLESS OTHERWISE NOTED.
   DATUM CONVERSIONS:
   NGVD29 = NAVD88 +1.109'
5. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OUTLINED ON THESE DRAWINGS AND AS INDICATED IN THE PROJECT SPECIFICATIONS.
6. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE AND THE REQUIREMENTS OF ALL OTHER AGENCIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE FEDERAL, STATE, AND CITY REGULATIONS.
8. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES PRIOR TO COMMENCING WORK, AS REQUIRED.
9. THE CONTRACTOR SHALL REVIEW ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK. VERIFY ALL DIMENSIONS, ELEVATIONS, AND LOCATIONS OF EXISTING FOUNDATIONS AND UTILITIES AND REPORT ANY DISCREPANCIES BETWEEN SURVEYS, CONTRACT DRAWINGS, AND THE FIELD CONDITIONS TO THE OWNER AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION PRIOR TO COMMENCING WORK.
10. SHOULD FIELD CONDITIONS CONFLICT WITH THOSE INDICATED ON THESE DRAWINGS, THE EOR SHALL DETERMINE IMPACTS TO THE DESIGN AND PROVIDE REQUIRED DESIGN CHANGES, IF ANY.
11. THE WORK SHOWN IN THESE DRAWINGS SHALL BE EXECUTED IN CONJUNCTION WITH DRAWINGS OF ALL OTHER DISCIPLINES. DISCREPANCIES BETWEEN THESE DRAWINGS AND THOSE OF OTHER DISCIPLINES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION PRIOR TO COMMENCING WORK.
12. THE CONTRACTOR SHALL ACCOUNT FOR ENCOUNTERING NUMEROUS OBSTRUCTIONS, SUCH AS REMNANTS FROM PAST LAND USES, BULKHEADS, TIMBER PILES, TIMBER CRIBS, CONCRETE FOOTINGS AND SLABS, BOULDERS OR LARGE PIECES OF DEBRIS, IN THE FILL MATERIAL.
13. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES, INCLUDING BUT NOT LIMITED TO: SITE UTILITIES, GENERAL EARTHWORK, AND BUILDING FOUNDATION CONSTRUCTION.
14. REFER TO STRUCTURAL DRAWINGS (FO AND S SERIES) FOR ALL FOUNDATION AND OTHER BUILDING DETAILS.
15. REFER TO ARCHITECTURAL DRAWINGS (A SERIES) FOR GENERAL BUILDING AND WATERPROOFING DETAILS.
16. REFER TO CIVIL DRAWINGS (C SERIES) FOR SITE UTILITIES AND GRADING DETAILS.
17. EXISTING UTILITIES AND STRUCTURES TO REMAIN SHALL BE PROTECTED, AS REQUIRED.
18. THE CONTRACTOR SHALL COORDINATE WITH AND OBTAIN APPROVAL FROM THE EOR PRIOR TO RELOCATING ANY SUPPORT OF EXCAVATION ELEMENT.
19. BENCH CUT OR SLOPE ALL EXCAVATIONS IN ACCORDANCE WITH OSHA STANDARDS AND SECTION 3304.4.2 OF THE NEW YORK CITY BUILDING CODE UNLESS SUITABLE TEMPORARY SHORING OR BRACING IS PROVIDED.
20. DO NOT OVER-EXCAVATE UNLESS DIRECTED BY THE EOR.
21. SURVEY BACKGROUND TAKEN FROM DRAWING TITLED "BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY" DRAWING BY CONTROL POINT ASSOCIATES, INC. PC. LAST REVISED 16 NOVEMBER 2022.
22. FOUNDATION BACKGROUND TAKEN FROM PROGRESS DRAWING FO-101.00 PROVIDED BY GACE CONSULTING ENGINEERS PROVIDED 19 APRIL 2024.
23. REFER TO THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY LANGAN (DATED 02 AUGUST 2024) FOR INFORMATION PERTAINING TO GENERAL SUBSURFACE CONDITIONS. THE SUBSURFACE CONDITIONS INDICATED ON THESE DRAWINGS ARE INFERRED FROM A LIMITED NUMBER OF TEST LOCATIONS. THE ACTUAL SUBSURFACE CONDITIONS MAY VARY.
24. THE SUPPORT OF EXCAVATION SYSTEM HAS BEEN DESIGNED ASSUMING A UNIFORM VERTICAL SURCHARGE OF 300 PSF (DESIGN SURCHARGE) UNLESS OTHERWISE INDICATED ON THE DRAWINGS. THE DESIGN SURCHARGE SHALL NOT BE EXCEEDED WITHOUT PRIOR APPROVAL.
25. IF CONSTRUCTION ENTERS A "STALLED SITE" CONDITION, THE EXCAVATION SHALL BE BACKFILLED OR THE PERIMETER BERMED TO PROTECT ADJOINING PROPERTY AND RIGHTS-OF-WAY AS REQUIRED BY THE EOR AND DOB. WHERE SLOPES ARE UTILIZED, THE INCLINATION SHALL NOT EXCEED 1V:1.5H.

GENERAL PHASING NOTES

1. THE CONTRACTOR SHALL ESTABLISH AND INSTALL ALL REQUIRED MONITORING FOR ADJACENT BUILDINGS AND STRUCTURES, IN CONSULTATION WITH THE ENGINEER OF RECORD.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF, AND CLEAR ALL UTILITIES AND STRUCTURES OVER AND UNDER AREA OF EXCAVATION.
3. INSTALL PERIMETER SOLDIER PILES PER SEQUENCING NOTES AND DETAILS PROVIDED HEREIN.
4. PERFORM GENERAL EXCAVATION TO TEMPORARY SUBGRADE ELEVATIONS, AND INSTALL BRACING ELEMENTS WHERE REQUIRED PER SEQUENCING NOTES PROVIDED HEREIN, OR AS DIRECTED BY THE OWNER'S ENGINEER.
5. CONTINUE GENERAL EXCAVATION TO GENERAL SUBGRADE ELEVATION SHOWN ON THESE DRAWINGS, OR AS DIRECTED BY THE OWNER'S ENGINEER.
6. BACKFILL ANNULUS BETWEEN SUPPORT OF EXCAVATION SYSTEM AND NEW FOUNDATION WALLS PER THE NOTES PROVIDED HEREIN AND THE CONTRACT SPECIFICATIONS. BACKFILL SHALL NOT BE PLACED UNTIL THE FOUNDATION WALLS HAVE BEEN SUITABLY BRACED AGAINST LATERAL MOVEMENT AND HAVE ATTAINED SUITABLE STRENGTH AS DETERMINED BY THE OWNER'S STRUCTURAL ENGINEER.
7. REMOVE BRACING ONLY AT APPROVED INTERVALS FOLLOWING CONSTRUCTION OF PERMANENT FOUNDATION ELEMENTS AND PLACEMENT OF BACKFILL.
8. REMOVE ANY SOE ELEMENTS LOCATED OUTSIDE THE PROPERTY LIMITS TO A MINIMUM DEPTH OF 4'-0" BELOW FINAL GRADE.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 OR A992, GRADE 50, U.O.N.
2. PLATES AND ALL OTHER MISCELLANEOUS STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572, GRADE 50, U.O.N.
3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
4. FIELD AND SHOP WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.
5. WELDING ELECTRODES SHALL BE E70XX, U.O.N.
6. SINGLE PASS FILLET WELDS SHALL BE AS NOTED ON THESE DRAWINGS, BUT SHOULD NOT BE LESS THAN 1/4 INCH.
7. REFER TO STRUCTURAL DRAWINGS (FO AND S SERIES) AND THE PROJECT SPECIFICATIONS FOR STRUCTURAL STEEL REQUIREMENTS RELATED TO ALL OTHER WORK.

TIMBER NOTES

1. TIMBER FOR GUARDRAILS SHALL BE ROUGH SAWN, FULL SIZE, CONSTRUCTION GRADE LUMBER WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1,500 PSI.
2. ALL OTHER TIMBER SHALL BE ROUGH SAWN, FULL SIZE, SELECT STRUCTURAL GRADE LUMBER. SHEETING MEMBERS SHALL HAVE A MINIMUM ALLOWABLE BENDING STRESS OF 1,450 PSI. ALL TIMBERS SHALL BE OF THE MINIMUM SIZES SHOWN ON THE DRAWINGS.
3. ALL TIMBER SHALL BE OF THE MINIMUM DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS.

GROUT NOTES

1. GROUT SHALL CONSIST OF A PUMPABLE MIXTURE OF PORTLAND CEMENT (TYPE I, II, OR III) AND WATER, AND ANY REQUIRED FINE AGGREGATE, SUPPLEMENTAL CEMENTITIOUS MATERIALS, OR ADMIXTURES.
2. THE CONTRACTOR SHALL SUBMIT A GROUT MIX DESIGN SUITABLE FOR ACHIEVING A MINIMUM UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS (F'C) OF 5,000 PSI.
3. GROUT SHALL BE MIXED THOROUGHLY WITH A HIGH-SPEED PADDLE MIXER. READY- MIX GROUT SHALL BE AN ACCEPTABLE ALTERNATIVE.
4. GROUT SHALL BE PLACED BY TREMIE METHODS.
5. ONE SET OF SIX 3-INCH X 6-INCH CYLINDERS SHALL BE TAKEN BY AN INDEPENDENT TESTING AGENCY FOR EVERY 50 CUBIC YARDS OF GROUT PLACED OR A MINIMUM OF ONE SET FOR EACH DAY THAT GROUT IS CAST. SAMPLES SHALL BE COMPRESSION TESTED AS FOLLOWS: (1) @ 3 DAYS, (1) @ 7 DAYS, (1) @ 14 DAYS, AND (2) @ 28 DAYS AND (1) RESERVE. SAMPLES ATTAINING THE REQUIRED COMPRESSIVE STRENGTH PRIOR TO THE NEXT TESTING INTERVAL SHALL NOT REQUIRE FURTHER TESTING. COMPRESSION TESTING SHALL BE IN ACCORDANCE WITH ASTM C39.

SOLDIER PILE AND LAGGING WALL

1. ALL SOLDIER PILES SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE CONTRACT DRAWINGS UNLESS OTHERWISE APPROVED BY THE EOR. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE PILES THROUGH ANY OBSTRUCTIONS WITHOUT CAUSING ANY DAMAGE TO SURROUNDING STRUCTURES, SIDEWALKS, PAVEMENTS, AND UTILITIES.
2. PILES SHALL NOT DEVIATE FROM THE THEORETICAL LOCATION BY MORE THAN 3 INCHES AND FROM THE VERTICAL PLUMB BY MORE THAN 1%. SOLDIER PILES INSTALLED OUTSIDE OF THE ABOVE TOLERANCES SHALL BE EXTRACTED AND REINSTALLED.
3. SOLDIER PILES INSTALLATION SEQUENCE:
   3.1. GRADE SURFACE AS REQUIRED TO PROVIDE LEVEL WORKING PLATFORM.
   3.2. PERFORM PRE-EXCAVATIONS AS REQUIRED ALONG ALIGNMENT TO CLEAR UTILITIES OR OBSTRUCTIONS, WITHIN 30 FEET OF ADJACENT NEIGHBORING STRUCTURES/UTILITIES OR WHEREVER NEEDED.
   3.3. SET UP RIG AT THE PROPER LOCATION AND PLUMB MAST.
   3.4. INSTALL SOLDIER PILES TO THE REQUIRED DEPTH INDICATED ON THE CONTRACT DRAWINGS.
   3.5. CUT SOLDIER PILES TO PROPER ELEVATION AS SHOWN ON THE CONTRACT DRAWINGS.
4. LAGGING BOARDS SHALL BE INSTALLED AS THE EXCAVATION PROGRESSES. IN NO CASE SHALL THE EXCAVATION EXTEND MORE THAN 2 FT BELOW LAGGED SECTIONS OF WALL.
5. ADJACENT LAGGING BOARDS SHALL BE LOUVERED 2 INCHES TO ALLOW FOR BACKPACKING OF DISTURBED AREAS OR VOIDS.
6. DISTURBED AREAS, VOIDS AND MATERIAL LOST BEHIND LAGGING SHALL BE BACKPACKED WITH A DRY SOIL/CEMENT MIXTURE. HAY OR FILTER FABRIC SHALL BE USED TO PREVENT MIGRATION OF FINES THROUGH LOUVER OPENINGS.

TIEBACK ANCHOR GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL EXISTING UTILITIES BEFORE STARTING TIEBACK INSTALLATION WORK.
2. CONTRACTOR SHALL SUBMIT ANCHOR SHOP DRAWINGS FOR APPROVAL PRIOR TO COMMENCING ANCHOR INSTALLATION. SHOP DRAWINGS SHALL CONTAIN ANCHOR DETAILS, INSTALLATION & TESTING PROCEDURES.
3. PROVIDE FREE STRESSING LENGTHS AS INDICATED ON EACH SOE SECTION USING SMOOTH PVC SHEATH.
4. THE ANCHOR BOND ZONE SHALL HAVE A MINIMUM NOMINAL DIAMETER OF AT LEAST 6 INCHES.
5. WELDING SHALL NOT BE PERFORMED ON OR IN THE VICINITY OF ANCHOR BARS. ANCHOR BARS SHALL NOT BE USED AS A WELDING GROUND AND SHALL NOT BE EXCESSIVELY HEATED. CUTTING OF ANCHOR BARS SHALL BE PERFORMED WITH A METAL CUT-OFF SAW; TORCHES AND PLASMA CUTTERS SHALL NOT BE USED.
6. MATERIAL:
   6.1. ANCHORS SHALL CONSIST OF SINGLE-CORROSION PROTECTION HOLLOW BARS MANUFACTURED BY STRESSBAR SYSTEMS INTERNATIONAL, LLC (SSSI), OR APPROVED EQUIVALENT.
   6.2. PLATES SHALL CONFORM TO ASTM A-36.
   6.3. NUTS & COUPLERS SHALL BE CAPABLE OF DEVELOPING 100% OF THE ULTIMATE STRENGTH OF ANCHOR BARS.
   6.4. CARE SHALL BE TAKEN NOT TO DAMAGE THE ANCHOR BARS. THE ANCHOR BARS SHALL BE KEPT FREE OF DIRT OR OTHER DELETERIOUS SUBSTANCES.
   6.5. ANCHOR BARS SHALL NOT BE WELDED OR USED AS A GROUND FOR WELDING.
   6.6. GROUT SHALL CONSIST OF A MIXTURE OF PORTLAND CEMENT (TYPE I, II, OR III) AND WATER. SUBMIT MIX DESIGN SUITABLE FOR ACHIEVING AN UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS (F'C) OF 5,000 PSI.
7. INSTALLATION PROCEDURES:
   7.1. THE CONTRACTOR MUST BE AWARE OF THE PRESENCE OF DEBRIS AND OBSTRUCTIONS IN THE SOIL AND SELECT MEANS AND METHODS APPROPRIATE FOR BYPASSING OBSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER. GRADE SHALL NOT BE EXCAVATED MORE THAN 2 FEET BELOW THE DESIGN ANCHOR ELEVATION UNTIL THE ROW OF ANCHORS ARE TESTED AND LOCKED OFF.
   7.2. DRILL TIE-BACK ANCHOR HOLLOW BARS USING A SACRIFICIAL DRILL BIT AT THE LOCATIONS INDICATED ON THESE DRAWINGS. DRILLING SHALL BE PERFORMED AS FOLLOWS:
      7.2.1. THE CONTRACTOR SHALL USE APPROPRIATE MEANS AND METHODS TO PREVENT LOSS OF GROUND DURING DRILLING. SIMULTANEOUS DRILLING AND GROUTING SHALL BE USED. CONSTANT GROUT SUPPLY SHALL BE MAINTAINED TO ENSURE THAT THE GROUT CIRCULATES WITHIN THE DRILL HOLE DURING DRILLING. AIR DRILLING SHALL NOT BE ALLOWED.
      7.2.2. RE-JECTION OF DRILL HOLES: HOLES REJECTED BECAUSE OF NON-CONFORMANCE TO ALIGNMENT TOLERANCES OR BECAUSE THEY INTERCEPT OTHER HOLES SHALL BE FILLED WITH GROUT AND ANOTHER HOLE SHALL BE DRILLED AT THE CONTRACTOR'S EXPENSE.
      7.2.3. GROUT SHALL BE CEMENT GROUT HAVING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.
      7.2.4. THE HOLES SHALL BE GROUTED UNTIL UNCONTAMINATED GROUT RETURNS TO THE SURFACE.
   7.3. ANCHOR BAR PLACEMENT:
      7.3.1. A SMOOTH PLASTIC TUBING, FITTING SNUGLY OVER THE ANCHOR BAR, SHALL BE PROVIDED IN THE FREE STRESSING LENGTH OF THE TIE-BACK ANCHORS AND SHALL GUARANTEE UNOBSTRUCTED ELONGATION DURING STRESSING.
      7.3.2. ANCHOR CENTERLINES SHALL BE NORMAL TO THE BEARING PLATES.
8. TIE-BACK ANCHOR TESTING:
   8.1. TEN PERCENT (10%) OF THE TIE-BACK ANCHORS SHALL BE PERFORMANCE TESTED. ALL OTHER ANCHORS SHALL BE PROOF TESTED USING A CALIBRATED CENTER HOLE JACK. ALL TESTING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE POST-TENSIONING INSTITUTE (PTI) DOCUMENT "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS", PTI-DC35.1-04.
   8.2. JACKING SHALL BE PERFORMED UTILIZING A CALIBRATED CENTER-HOLE JACK.
   8.3. ANCHOR MOVEMENTS SHALL BE RECORDED WITH A DIAL INDICATOR CAPABLE OF READING TO INCREMENTS OF 0.001-INCH.
   8.4. PERFORMANCE AND PROOF TESTING SHALL BE AS FOLLOWS:
      PERFORMANCE TEST:
      AL, .25P
      AL, .25P, .50P
      AL, .25P, .50P, .75P
      AL, .25P, .50P, .75P, 1.00P
      AL, .25P, .50P, .75P, 1.00P, 1.20P
      AL, .25P, .50P, .75P, 1.00P, 1.20P, 1.33P
      HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS USING A DIAL INDICATOR CAPABLE OF READING INCREMENTS OF 0.001-INCH. RECORD READINGS AT 0, 1, 2, 3, 4, 5, 6 AND 10 MINUTES. IF THE INCREMENTAL MOVEMENT IS GREATER THAN 0.04-INCH, HOLD FOR AN ADDITIONAL 50 MINUTES AND TAKE READINGS IN 10 MINUTE INTERVALS. RELEASE TO ALIGNMENT LOAD, RE-STRESS TO TRANSFER LOAD, AND LOCK OFF ANCHOR NUT. PERFORM A LIFT-OFF TEST TO CONFIRM THE ACTUAL LOCK-OFF LOAD IS WITHIN 5% OF THE DESIGN LOCK-OFF LOAD.

      PROOF TEST:
      AL, .25P, .50P, .75P, 1.00P, 1.20P, 1.33P.
      HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS USING A DIAL INDICATOR CAPABLE OF READING INCREMENTS OF 0.001-INCH. RECORD READINGS AT 0, 1, 2, 3, 4, 5, 6 AND 10 MINUTES. IF THE INCREMENTAL MOVEMENT IS GREATER THAN 0.04-INCH, HOLD FOR AN ADDITIONAL 50 MINUTES AND TAKE READINGS IN 10 MINUTE INTERVALS. RELEASE TO ALIGNMENT LOAD, RE-STRESS TO TRANSFER LOAD, AND LOCK OFF ANCHOR NUT. PERFORM A LIFT-OFF TEST TO CONFIRM THE ACTUAL LOCK-OFF LOAD IS WITHIN 5% OF THE DESIGN LOCK-OFF LOAD.
   8.5. ACCEPTANCE: IF THE INCREMENTAL MOVEMENT BETWEEN 0 AND 10 MINUTES IS LESS THAN 0.04-INCH, OR THAT BETWEEN 6 AND 60 MINUTES IS LESS THAN 0.08-INCH; AND THE APPARENT FREE LENGTH IS GREATER THAN 80% OF THE DESIGN FREE LENGTH AND LESS THAN 100% FREE LENGTH PLUS 50% BOND LENGTH; THE ANCHOR WILL BE ACCEPTED.
   8.6. REJECTED ANCHORS SHALL BE ABANDONED AND REPLACEMENT ANCHORS DRILLED AT CONTRACTOR'S EXPENSE.
   8.7. THE LOCK-OFF LOAD FOR ALL ANCHORS SHALL BE AT 80% OF THE DESIGN LOAD.

DRAINAGE NOTES

1. CONTRACTOR SHALL IMPLEMENT PROPER DRAINAGE MEASURES AS TO PREVENT THE ACCUMULATION OF WATER OR WATER DAMAGE TO ANY FOUNDATIONS ON THE PREMISES OR TO ADJOINING PROPERTY.
2. NO CONDITION SHALL BE CREATED AS A RESULT OF CONSTRUCTION OR DEMOLITION OPERATIONS THAT WILL INTERFERE WITH NATURAL SURFACE DRAINAGE. WATER COURSES, DRAINAGE DITCHES, ETC., SHALL NOT BE OBSTRUCTED BY DEBRIS, REFUSE, WASTE BUILDING MATERIALS, EARTH, STONES, TREE STUMPS, BRANCHES, OR OTHER OBJECTS THAT MAY INTERFERE WITH SURFACE DRAINAGE OR CAUSE THE IMPOUNDMENT OF SURFACE WATERS.
3. ALL EXCAVATIONS SHALL BE DRAINED, AND THE DRAINAGE SHALL BE MAINTAINED AS LONG AS THE EXCAVATION CONTINUES OR REMAINS. WHERE NECESSARY, PUMPING SHALL BE USED, PROVIDED PROPER PERMITS ARE OBTAINED FROM THE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL REVELANT AGENCIES HAVING JURISDICTION.
4. A MAJOR DEWATERING SYSTEM IS NOT NEEDED IN ORDER TO EXCAVATE, INSTALL SOE AND FOUNDATIONS. THE SOE IS NOT DESIGNED AS A GROUNDWATER CUTOFF SYSTEM. LOCAL GROUNDWATER CONTROL MAY BE REQUIRED AT CERTAIN LOCATIONS FOR SURFACE RUNOFF (BY OTHERS), AND SHALL BE PERFORMED IN ACCORDANCE TO THE NEW YORK CITY BUILDING CODE AND ALL LOCAL JURISDICTIONS.

UTILITY NOTES

1. IDENTIFIED UTILITIES ARE SHOWN ON THE PROVIDED SITE SURVEY. AT THIS TIME, NO UTILITIES ARE ANTICIPATED WITHIN THE FOOTPRINT OF THE PROPOSED SUPPORT OF EXCAVATION SYSTEM AND OVERALL EXCAVATION, HOWEVER IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS, ELEVATIONS, AND LOCATIONS OF EXISTING UTILITIES. CONTRACT SHALL PROTECT AND MAINTAIN EXISTING UTILITIES.

NYC DEPARTMENT OF BUILDINGS NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE 2022 NEW YORK CITY BUILDING CODE.
2. EXCAVATION AND FILL OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER THAT LIFE AND PROPERTY ARE NOT ENDANGERED AS PER SECTION 3304 OF THE NEW YORK CITY BUILDING CODE.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF BUILDINGS AT LEAST 24 HOURS, BUT NO MORE THAN 48 HOURS PRIOR TO COMMENCING EXCAVATION, OR ON THE LAST BUSINESS DAY BEFORE THE COMMENCEMENT DATE AS PER SECTION 3304.3.1 OF THE NEW YORK CITY BUILDING CODE.
4. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE ADJACENT PROPERTY OWNER NOT LESS THAN 10 DAYS PRIOR TO THE SCHEDULED STARTING DATE OF EXCAVATION. THE WRITTEN NOTICE SHALL PROVIDE A DESCRIPTION OF THE WORK TO BE PERFORMED, THE TIMEFRAME AND SCHEDULE, AND THE CONTACT INFORMATION OF THE PERSON CAUSING THE EXCAVATION AND OF THE DEPARTMENT AS PER SECTION 3304.3.2 OF THE NEW YORK CITY BUILDING CODE.
5. ALL SIDES OR SLOPES OF EXCAVATIONS OR EMBANKMENTS SHALL BE INSPECTED AFTER RAINSTORMS, OR ANY OTHER HAZARD-INCREASING EVENT, AND SAFE CONDITIONS SHALL BE RESTORED AS PER SECTION 3304.5.1 OF THE NEW YORK CITY BUILDING CODE.
6. WATER CONDITIONS SHALL BE IN ACCORDANCE WITH SECTION 3303.14 OF THE NEW YORK CITY BUILDING CODE, INCLUDING: 3303.14.2 - PROTECTION OF FOUNDATIONS; 3303.14.3 - DRAINAGE OF EXCAVATIONS; AND 3303.14.5 - DEWATERING. WHERE DEWATERING IS REQUIRED, PERMITS SHALL BE OBTAINED FROM THE AGENCIES HAVING JURISDICTION.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE WEATHERPROOFING INTEGRITY OF ADJOINING STRUCTURES IN ACCORDANCE WITH SECTION 3309.9 OF THE NEW YORK CITY BUILDING CODE
8. ALL CONSTRUCTION FENCES SHALL COMPLY WITH THE REQUIREMENTS OUTLINED IN SECTION 3307.7 OF THE NEW YORK CITY BUILDING CODE AND SITE SAFETY PLANS (SSP) BY OTHERS.
9. ALL WORK CONTAINED HEREIN SHALL BE SUBJECT TO SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 AND SECTION 3304.5 OF THE NEW YORK CITY BUILDING CODE. SPECIAL INSPECTORS SHALL MEET THE QUALIFICATIONS OUTLINED IN THE RULES OF THE CITY OF NEW YORK, CHAPTER 101-06. REQUIRED SPECIAL INSPECTIONS INCLUDE:
   9.1. EXCAVATIONS - SHEETING, SHORING, AND BRACING (BC 1705.25.3, 1817, AND 3304.4)
   9.2. GROUTING OPERATIONS (BC 1812.1.1.2)
      9.2.1. GROUT MIX DESIGN
      9.2.2. GROUT CYLINDERS AND TESTING
10. ALL SPECIAL INSPECTIONS ASSOCIATED WITH EXCAVATIONS - SHEETING, SHORING AND BRACING SHALL BE PERFORMED ON A CONTINUOUS BASIS UNLESS OTHERWISE APPROVED BY THE ENGINEER OF RECORD BASED ON THE CONDITIONS OBSERVED DURING CONSTRUCTION.
11. AN ACCREDITED SPECIAL INSPECTION FIRM SHALL BE RETAINED TO PERFORM THE REQUIRED SPECIAL INSPECTIONS.
12. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION ON SCOPE AND DETAILED REQUIREMENTS FOR INSPECTIONS AND TESTING PERTAINING TO THIS WORK.
13. REFER TO THE PROJECT SPECIFICATIONS AND CONTRACT DRAWINGS FOR INSPECTION AND TESTING REQUIREMENTS PERTAINING TO ALL OTHER WORK.

GENERAL EXCAVATION NOTES

1. SLOPED EXCAVATIONS SHALL BE PERMITTED WHERE ADEQUATE CLEARANCES EXIST.
2. EXCAVATIONS SHALL BE SLOPED IN ACCORDANCE WITH THESE DRAWINGS AND ALL APPLICABLE OSHA AND DOB STANDARDS.
3. SOIL SLOPES SHALL NOT EXCEED AN INCLINATION OF 1H:1.5V OR AS SHOWN ON PLANS. THE INCLINATION SHALL BE DECREASED SHOULD INSTABILITY SUCH AS RAVELING BE OBSERVED OR WHERE WATER IS FOUND FLOWING THROUGH THE SLOPE FACE.
4. STOCKPILING OF EXCAVATED MATERIAL SHALL NOT BE PERMITTED WITHIN 10'-0" OF THE TOP OF SLOPES OR SOE WALLS, OR OTHERWISE APPROVED BY THE EOR.
5. EXCAVATION WITHIN 10'-0" OF THE SITE PERIMETER SHALL NOT EXTEND MORE THAN 2'-0" BELOW THE BRACING LEVELS INDICATED ON THESE DRAWINGS UNTIL SUCH BRACING HAS BEEN INSTALLED, TESTED, AND PRELOADED, OR OTHERWISE APPROVED BY THE EOR.
6. EXCAVATION SHOULD BE MAINTAINED REASONABLY DRY FOR THE ENTIRE SOE AND FOUNDATION CONSTRUCTION DURATION. CONTRACTOR MUST USE APPROPRIATE MEANS AND METHODS SO AS NOT TO CAUSE ANY ADVERSE IMPACTS TO NEIGHBORING STRUCTURES AND SURROUNDING UTILITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDRESSING ALL WATER CONDITIONS PURSUANT TO SECTION 3303.14 OF THE NEW YORK CITY BUILDING CODE.
8. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) PRELIMINARY FLOOD INSURANCE RATE MAP (FIRM) OF 2013, THE PROPOSED BUILDING FOOTPRINT FALLS WITHIN ZONE AE, A COASTAL FLOOD ZONE WITH A BASE FLOOD ELEVATION (BFE) OF 12. ACCORDING TO THE BUILDING CODE APPENDIX G, ZONE AE IS DEEMED AS AN AREA THAT REQUIRES SPECIAL FLOOD HAZARD CONSIDERATIONS.

BACKFILL NOTES

1. BACKFILL SHALL CONSIST OF CERTIFIED, CLEAN GRANULAR SOIL, FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS, IN ACCORDANCE WITH SECTION 1804.2 OF THE NEW YORK CITY BUILDING CODE, AND MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3-INCH	100
1/4-INCH	30 TO 75
NO.40	5 TO 40
NO.200	0 TO 10

2. MOLE ROCK SHALL NOT BE PERMITTED.
3. THE CONTRACTOR SHALL SUBMIT GRADATION TEST RESULTS AND MOISTURE DENSITY RELATIONSHIPS FOR ALL PROPOSED FILL MATERIALS.
4. ALL BACKFILL MATERIALS SHALL BE APPROVED BY THE PROJECT ENVIRONMENTAL AND GEOTECHNICAL ENGINEER PRIOR TO DELIVERY OR PLACEMENT.
5. BACKFILL SHALL BE PLACED IN HORIZONTAL LIFTS. THE THICKNESS OF LIFTS PRIOR TO COMPACTION SHALL NOT EXCEED 1'-0".
6. BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR).
7. COMPACTION SHALL BE VERIFIED BY THE SPECIAL INSPECTOR IN ACCORDANCE WITH ASTM D2922, AS APPLICABLE. TESTING SHALL BE PERFORMED AT INTERVALS OF ONE TEST PER 1,000 SQUARE FEET FOR EACH LIFT PLACED OR MORE FREQUENTLY IF REQUESTED BY THE SPECIAL INSPECTOR OR EOR.
8. FREE DRAINING GRAVEL OR CRUSHED STONE (NYSDOT ITEM 605.0901 UNDERDRAIN FILTER TYPE I OR AAHSTO NO. 57). LEAN CONCRETE, AND CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE ACCEPTABLE ALTERNATES

MONITORING NOTES

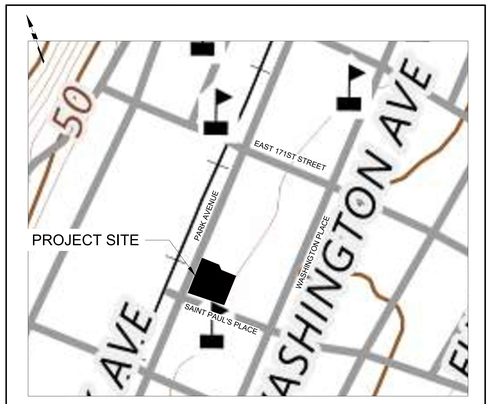
1. REFER TO SOE-110 FOR MONITORING PLAN AND DETAILS.
2. OPTICAL SURVEY MONITORING POINTS ON SUPPORT OF EXCAVATION ELEMENTS MUST BE INSTALLED AT LOCATIONS DETERMINED IN CONSULTATION WITH THE OWNER'S GEOTECHNICAL AND SOE ENGINEERS. OPTICAL MONITORING POINTS MUST BE INSTALLED AND BASELINE READINGS BE TAKEN BEFORE COMMENCING EXCAVATION ACTIVITIES.
3. THE QUANTITY AND LOCATION OF OPTICAL MONITORING POINTS MAY BE REVISED AS REQUIRED BASED ON OBSERVED FIELD CONDITIONS.

ENERGY CODE NOTES

1. THE SCOPE OF WORK SHOWN HEREIN IS SOLELY FOR TEMPORARY CONSTRUCTION PURPOSES AND IS NOT SUBJECT TOT THE REQUIREMENTS OF THE 2020 NEW YORK CITY ENERGY CONSERVATION CONSTRUCTION CODE. REFER TO THE TABLE BELOW FOR TABULAR ANALYSIS.

WORK ITEMS	PROPOSED DESIGN VALUES	CODE-PRESCRIBED VALUE & CITATION
STEEL SOLDIER PILES	N/A	N/A
TIMBER LAGGING	N/A	N/A
TEMPORARY SOIL TIEBACKS	N/A	N/A

TO THE BEST OF MY KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK.



PLOT PLAN

SCALE: 1" = 200'

SOURCE:
"CENTRAL PARK QUADRANGLE MAP, NEW YORK 7.5-MINUTE SERIES", U.S. GEOLOGICAL SURVEY, 2011



A SUPPORT OF EXCAVATION PLAN
Scale: 1/8" = 1'-0"

Sol On Park

3728 Park Avenue
Bronx, NY 10456

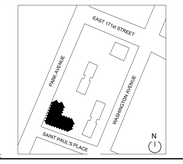
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB # : X01091719-S2



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Revisions:

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SUPPORT OF EXCAVATION PLAN

SEAL & SIGNATURE:

DOB SEAL:

PROJECT No:	C1238.00
DRAWING BY:	LFP/CT
CHK BY:	HF
DWG No:	SOE-101.00
SCALE: 1/8" = 1'-0"	2 OF 5

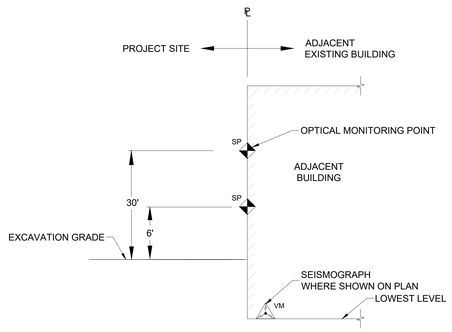
MONITORING NOTES

1. SURVEY MONITORING POINTS LOCATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE OWNER'S ENGINEER BASED ON SITE CONDITIONS.
2. PRIOR TO START OF WORK, PERFORM PRECONSTRUCTION CONDITIONS DOCUMENTATION OF ADJACENT STRUCTURES: MORRIS HOUSE EAST BUILDING AND MORRIS HOUSE NORTH BUILDING - 1451 WASHINGTON AVENUE, 10456 (BLOCK 2902, LOT 36), AND METRO NORTH RAILROAD RETAINING WALL.
3. INSTALL SURVEY MONITORING POINTS WHERE SHOWN AT MAXIMUM HORIZONTAL INTERVALS OF 25 FT, AND NOT LESS THAN TWO POINTS PER ALIGNMENT.
4. MONITORING INTERVALS MAY BE INCREASED WHERE MOVEMENTS ARE FOUND TO EXCEED THE THRESHOLD LIMIT PRESCRIBED ALERT LEVELS.
5. IN THE EVENT THAT MONITORING INDICATES LATERAL MOVEMENT EXCEEDS THE LIMIT LEVELS DEFINED IN THE PROJECT SPECIFICATIONS AND IN THE TABLE BELOW, THE CONTRACTOR SHALL CEASE CONSTRUCTION ACTIVITIES. WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE STABILIZATION OF THE EXCAVATION SUPPORT SYSTEM VIA INSTALLATION OF TEMPORARY EARTHEN BERMS AND/OR ADDITIONAL BRACING. ADDITIONAL EXCAVATION ACTIVITIES SHALL NOT PROCEED WITHOUT THE AUTHORIZATION OF THE SOE ENGINEER OF RECORD AND ANY AGENCIES HAVING JURISDICTION.
6. ALL SURVEY MONITORING POINTS SHALL BEAR A UNIQUE IDENTIFICATION. AS-BUILT PLANS SHALL BE PREPARED FOR ALL SURVEY MONITORING POINTS INSTALLED. PLANS SHALL BE AMENDED AS REQUIRED DURING CONSTRUCTION FOR THE ABANDONMENT, REPLACEMENT, OR ADDITION OF NEW SURVEY MONITORING LOCATIONS. ALL MONITORING RESULTS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER AND ALL PARTIES WITHIN 24 HOURS OF TAKING READINGS.
7. A BASELINE SURVEY SHALL BE PERFORMED PRIOR TO START OF WORK ON ADJACENT STRUCTURES AND ONCE EACH SOLDIER PILE IS INSTALLED AND THE TIMBER LAGGING BEHIND IS INSTALLED UP TO 4 FEET BELOW THE SIDEWALK GRADE. SOLDIER PILE SURVEY MONITORING WILL START AFTER THE LAGGING IS INSTALLED TO THE FULL DEPTH OF EXCAVATION, AND WILL CONCLUDE ONCE THE FOUNDATION WALLS IN FRONT OF THE SOLDIER PILES ARE CONSTRUCTED AND BACKFILLED; AND THE STRUCTURAL ENGINEER HAS DEEMED THE STRUCTURE IS CAPABLE OF SUSTAIN THE EARTH PRESSURES BEHIND THE WALL.
8. ALL SURVEY MONITORING SYSTEMS SHOULD HAVE AN ACCURACY OF AT LEAST 0.005". THRESHOLD AND LIMIT VALUES ARE AS SUCH:

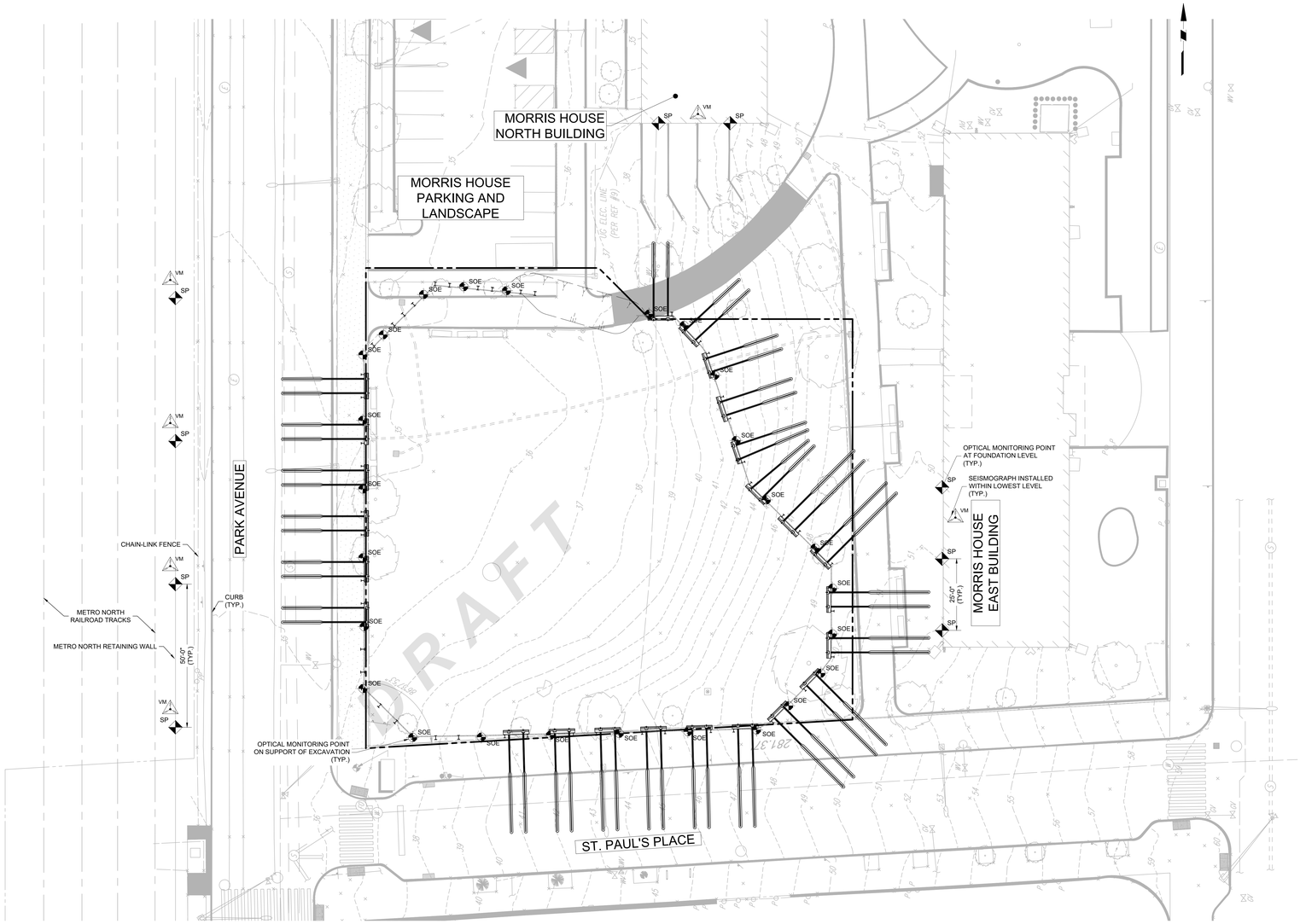
INSTRUMENT RESPONSIBILITY, INSTALLATION AND MONITORING SCHEDULE

SYMBOL	INSTRUMENTS	READING FREQUENCY	ALERT CRITERIA	LIMITING CRITERIA
VM	SEISMOGRAPH (ADJACENT BUILDINGS)	CONTINUOUS 15-MIN. HISTOGRAM SUPPLEMENTED WITH A WAVEFORM FOR EVENTS ABOVE THE THRESHOLD CRITERIA, MONITOR CONTINUOUSLY THROUGHOUT SOE INSTALLATION, GENERAL EXCAVATION AND FOUNDATION CONSTRUCTION.	0.5 IN/SEC	1.0 IN/SEC
VM	SEISMOGRAPH (METRO NORTH RAILROAD RETAINING WALL)	CONTINUOUS 15-MIN. HISTOGRAM SUPPLEMENTED WITH A WAVEFORM FOR EVENTS ABOVE THE THRESHOLD CRITERIA, MONITOR CONTINUOUSLY THROUGHOUT SOE INSTALLATION.	0.5 IN/SEC	1.0 IN/SEC
SP	OPTICAL MONITORING POINT (BUILDINGS AND STRUCTURES)	MONITORING ALL POINTS (X, Y, Z POSITION) TWICE PER WEEK DURING EXCAVATION. MONITORING ALL POINTS (X, Y, Z POSITION) ONCE PER WEEK AFTER COMPLETING EXCAVATION UNTIL FOUNDATION WALL IS CONSTRUCTED AND BACKFILLED.	0.5 INCH	0.75 INCH
SP	OPTICAL MONITORING POINT (METRO NORTH RAILROAD RETAINING WALL)		1/8 INCH HORIZONTAL OR VERTICAL	1/4 INCH HORIZONTAL OR VERTICAL
SOE	OPTICAL MONITORING POINT (SOLDIER PILES)		0.5 INCH	1.0 INCH

9. IN THE EVENT THAT MONITORING INDICATES MOVEMENT EXCEEDS THE ABOVE DEFINED ALERT LEVELS (LATERAL OR VERTICAL), SOE EOR WILL EVALUATE THE READINGS AND INFORM THE CONTRACTOR IF THEY NEED TO CEASE EXCAVATION AND PROVIDE STABILIZATION OF THE EXCAVATION SUPPORT SYSTEM VIA INSTALLATION OF TEMPORARY EARTHEN BERMS AND/OR ADDITIONAL BRACING.
10. EXCEEDANCE ACTION PLAN:
    A. IF ANY MONITORING MEASUREMENT EXCEEDS ALLOWABLE LIMITS, THE OWNER, CONSTRUCTION MANAGER, AND CONTRACTOR WILL BE NOTIFIED AND THE FOLLOWING ACTIONS SHALL BE TAKEN.
    a. THE CONTRACTOR WILL IMMEDIATELY STOP WORK IN THE VICINITY OF THE EXCEEDANCE.
    b. INSPECT THE BUILDING (OR PORTIONS THEREOF) FOR POTENTIAL DAMAGE. INSPECTIONS SHALL BE MADE BY SPECIAL INSPECTION ENGINEER FOR STRUCTURAL STABILITY, THE CONTRACTOR, HIS ENGINEER, ARCHITECT, THE CONSTRUCTION MANAGER, OWNER'S ENGINEERS, AND THE ADJACENT BUILDING'S ENGINEERS.
    c. IMMEDIATE NOTIFICATION TO DOB IN CASE OF DAMAGE OR UNSAFE CONDITION.
    d. EXCAVATION AND FOUNDATION CONSTRUCTION PROCEDURES SHALL BE RE-ASSESSED AS NECESSARY TO MAINTAIN VIBRATION LEVELS AND MOVEMENTS WITHIN ACCEPTABLE LIMITS.
    e. WORK STOPPAGE TO ASSESS EXCAVATION METHODS AND TO INSPECT THE BUILDINGS IDENTIFIED HEREIN FOR DAMAGE IS AT THE OWNER'S DISCRETION.
    f. DEVELOP ALTERNATE METHODS AND PROCEDURES, SUBJECT TO THE REVIEW AND APPROVAL OF THE OWNER'S ENGINEERS AND THE ADJACENT BUILDING'S ENGINEERS.
    g. RESUME WORK USING THE AGREED UPON ALTERNATIVE METHOD.
    h. DOB WILL BE NOTIFIED OF EVENTS THAT EXCEED ALLOWABLE LIMITS AND OF CORRECTIVE MEASURES IMPLEMENTED TO MAINTAIN ACCEPTABLE LIMITS.
    i. MONITORING SHALL REMAIN IN PLACE AND WILL BE INSPECTED DURING ALL PHASES OF CONSTRUCTION.



1 BUILDING OPTICAL MONITORING
Scale: N.T.S.



A MONITORING PLAN
Scale: 1/16" = 1'-0"

Sol On Park

3728 Park Avenue
Bronx, NY 10456

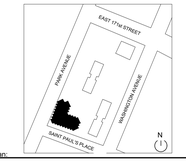
Owner:

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Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB # : X01091719-S2



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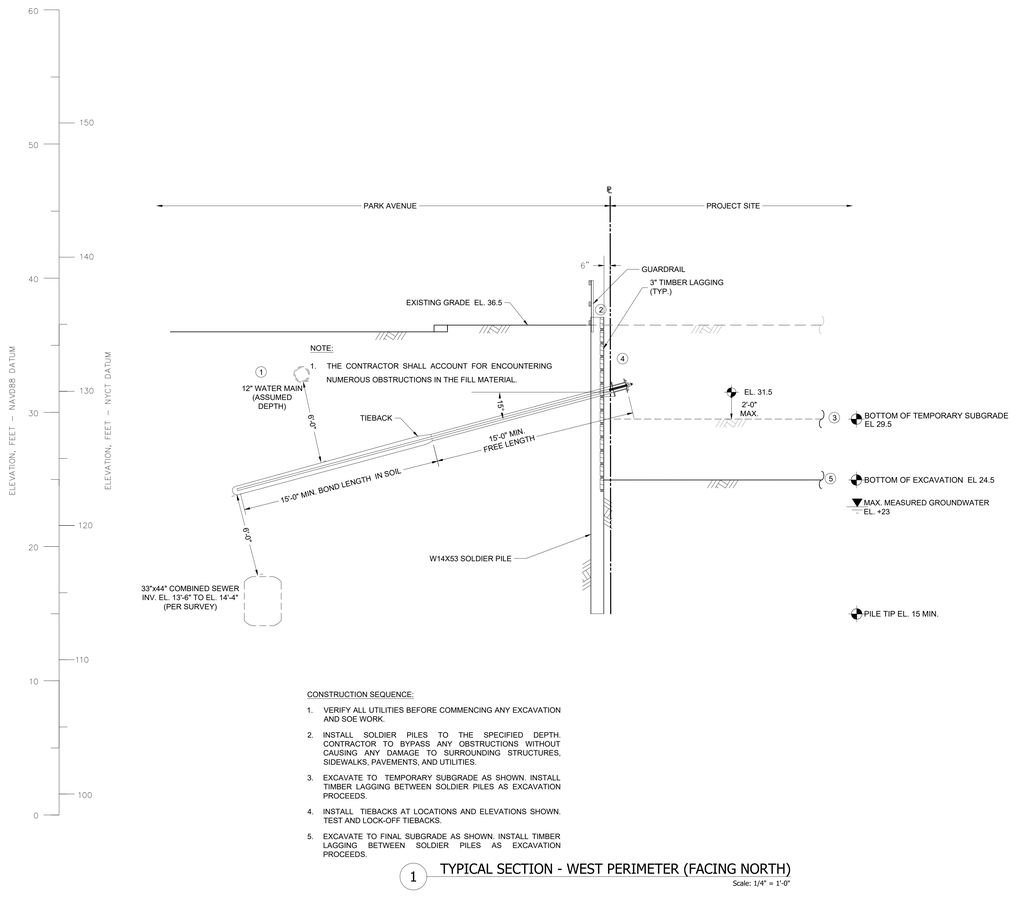
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SUPPORT OF EXCAVATION MONITORING PLAN

DOB SEAL:

SEAL & SIGNATURE:

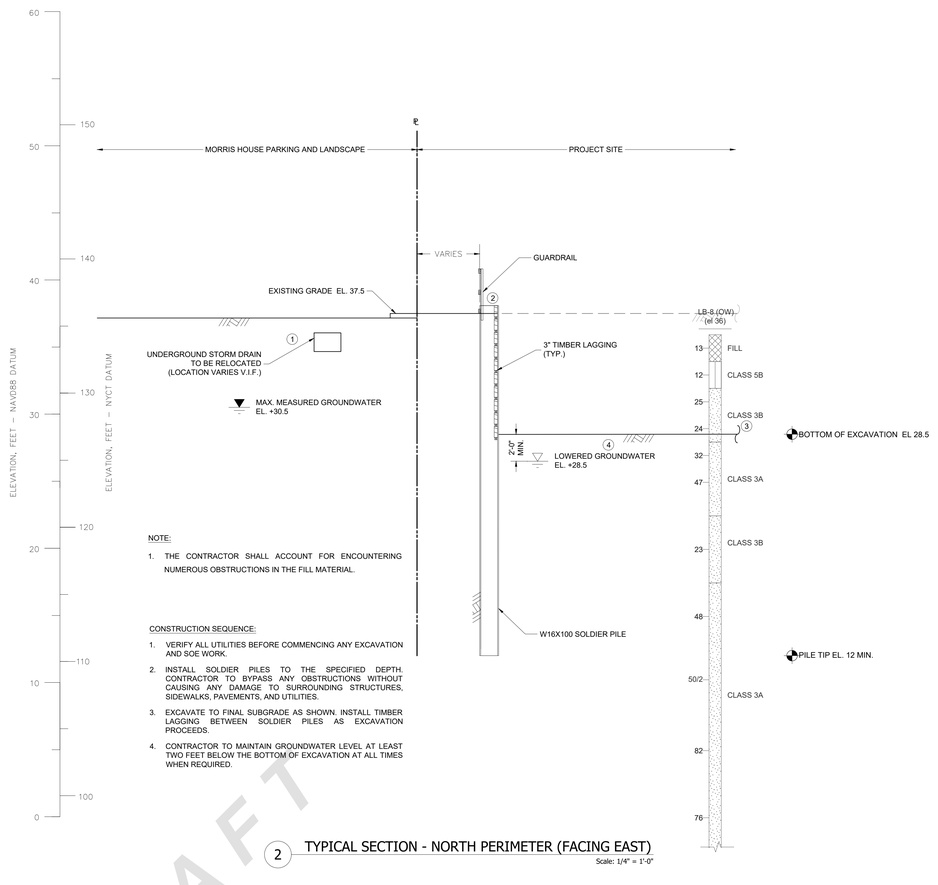
PROJECT No:	C1238.00
DRAWING BY:	LFP/CT
CHK BY:	HF
DWG No:	SOE-110
SCALE: 1/16" = 1'-0"	3 OF 5



CONSTRUCTION SEQUENCE:

1. VERIFY ALL UTILITIES BEFORE COMMENCING ANY EXCAVATION AND SOE WORK.
2. INSTALL SOLDIER PILES TO THE SPECIFIED DEPTH. CONTRACTOR TO BYPASS ANY OBSTRUCTIONS WITHOUT CAUSING ANY DAMAGE TO SURROUNDING STRUCTURES, SIDEWALKS, PAVEMENTS, AND UTILITIES.
3. EXCAVATE TO TEMPORARY SUBGRADE AS SHOWN. INSTALL TIMBER LAGGING BETWEEN SOLDIER PILES AS EXCAVATION PROCEEDS.
4. INSTALL TIEBACKS AT LOCATIONS AND ELEVATIONS SHOWN. TEST AND LOCK-OFF TIEBACKS.
5. EXCAVATE TO FINAL SUBGRADE AS SHOWN. INSTALL TIMBER LAGGING BETWEEN SOLDIER PILES AS EXCAVATION PROCEEDS.

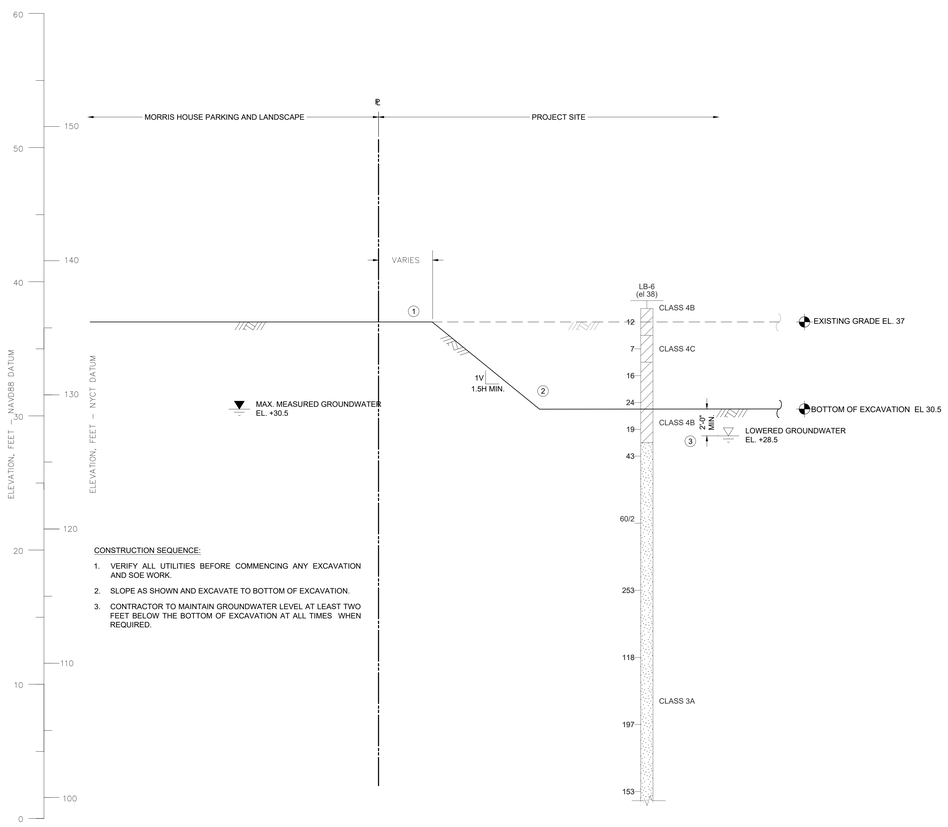
1 TYPICAL SECTION - WEST PERIMETER (FACING NORTH)
Scale: 1/4" = 1'-0"



CONSTRUCTION SEQUENCE:

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3. EXCAVATE TO FINAL SUBGRADE AS SHOWN. INSTALL TIMBER LAGGING BETWEEN SOLDIER PILES AS EXCAVATION PROCEEDS.
4. CONTRACTOR TO MAINTAIN GROUNDWATER LEVEL AT LEAST TWO FEET BELOW THE BOTTOM OF EXCAVATION AT ALL TIMES WHEN REQUIRED.

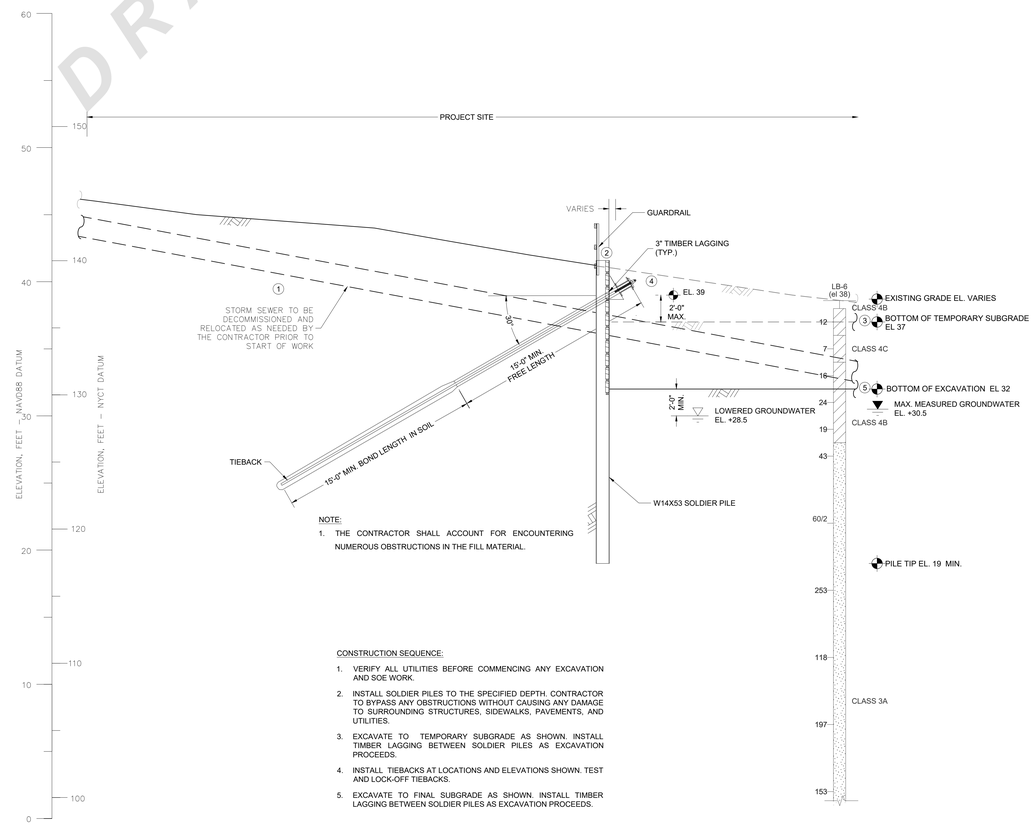
2 TYPICAL SECTION - NORTH PERIMETER (FACING EAST)
Scale: 1/4" = 1'-0"



CONSTRUCTION SEQUENCE:

1. VERIFY ALL UTILITIES BEFORE COMMENCING ANY EXCAVATION AND SOE WORK.
2. SLOPE AS SHOWN AND EXCAVATE TO BOTTOM OF EXCAVATION.
3. CONTRACTOR TO MAINTAIN GROUNDWATER LEVEL AT LEAST TWO FEET BELOW THE BOTTOM OF EXCAVATION AT ALL TIMES WHEN REQUIRED.

3 TYPICAL SECTION - NORTH PERIMETER (FACING EAST)
Scale: 1/4" = 1'-0"



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4 TYPICAL SECTION - NORTH PERIMETER (FACING EAST)
Scale: 1/4" = 1'-0"

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Sol On Park

3728 Park Avenue
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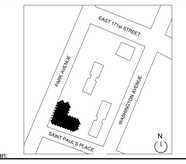
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NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB # : X01091719-S2



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SUPPORT OF EXCAVATION SECTIONS

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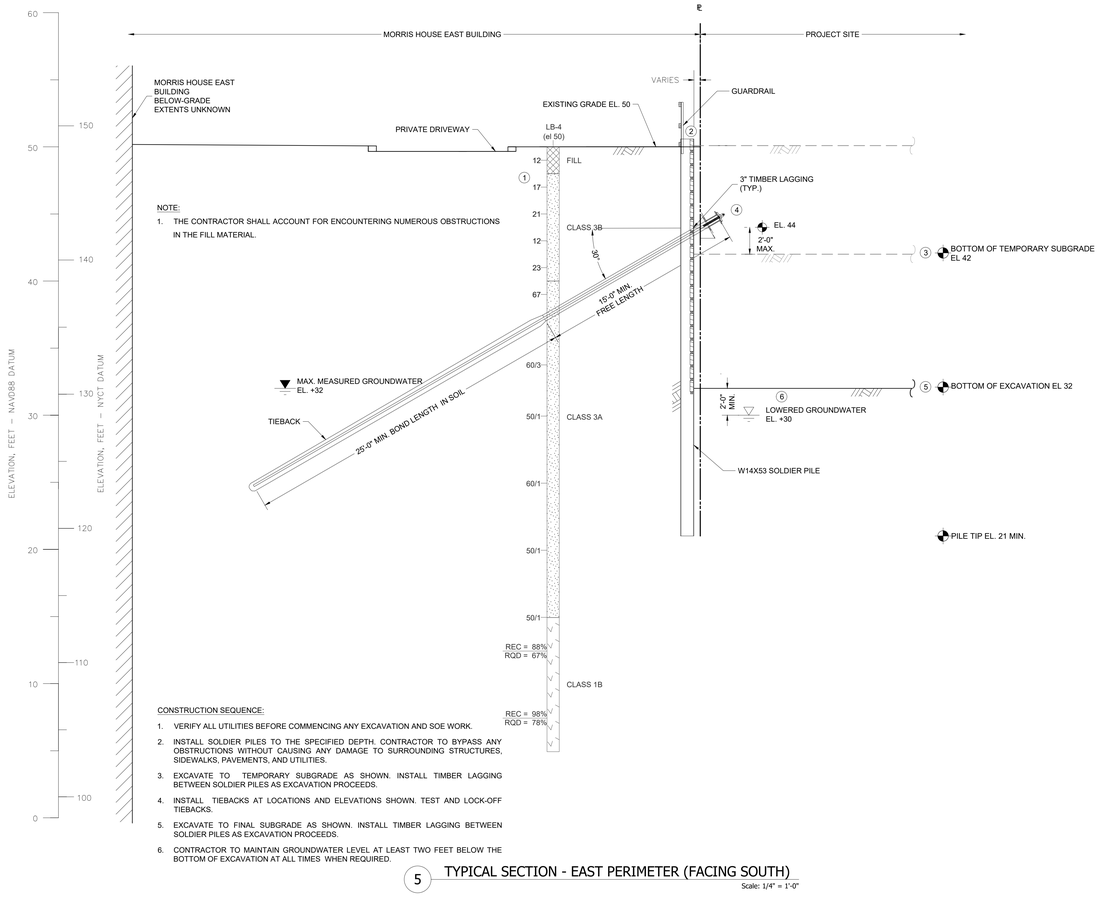
DOB SEAL:

PROJECT No:	C1238.00
DRAWING BY:	LFP/CT
CHK BY:	HF

DWG No:

SOE-301.00

SCALE: 1/4" = 1'-0"



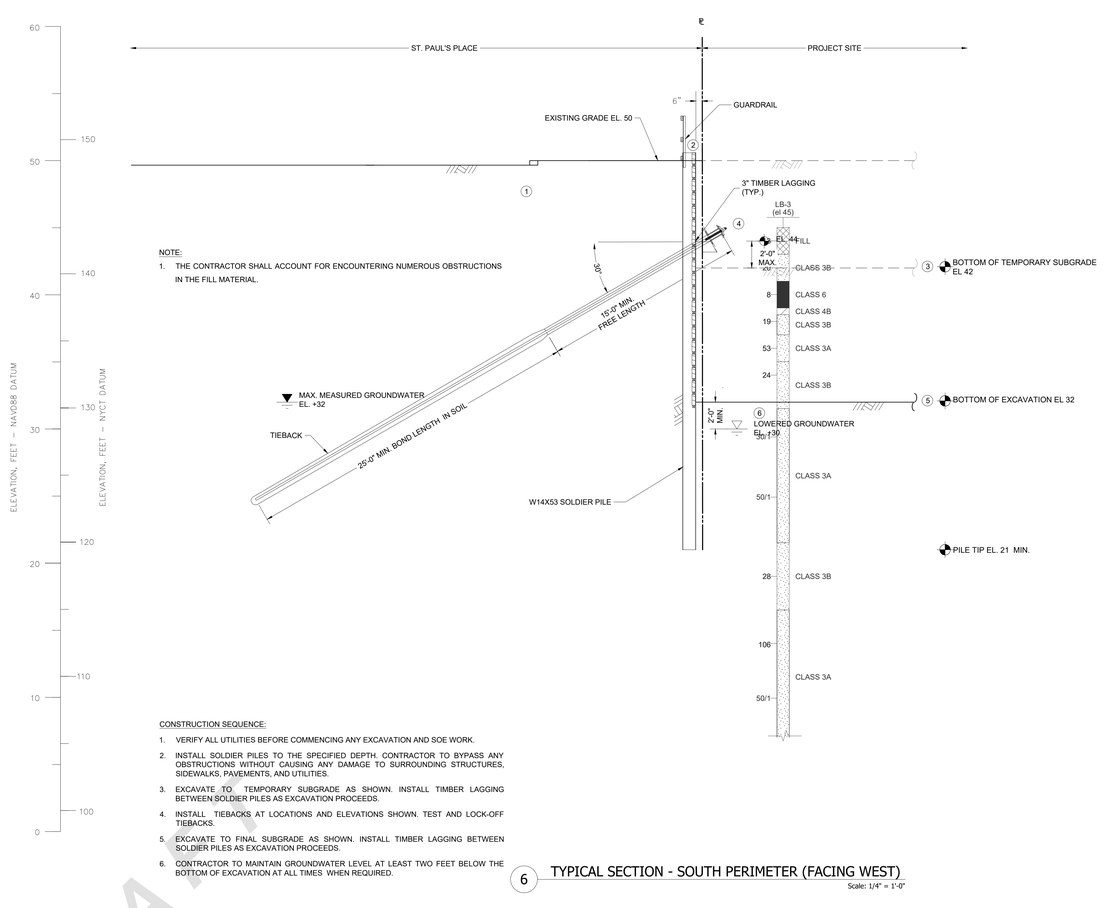
NOTE:

1. THE CONTRACTOR SHALL ACCOUNT FOR ENCOUNTERING NUMEROUS OBSTRUCTIONS IN THE FILL MATERIAL.

CONSTRUCTION SEQUENCE:

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5 TYPICAL SECTION - EAST PERIMETER (FACING SOUTH)
Scale: 1/4" = 1'-0"



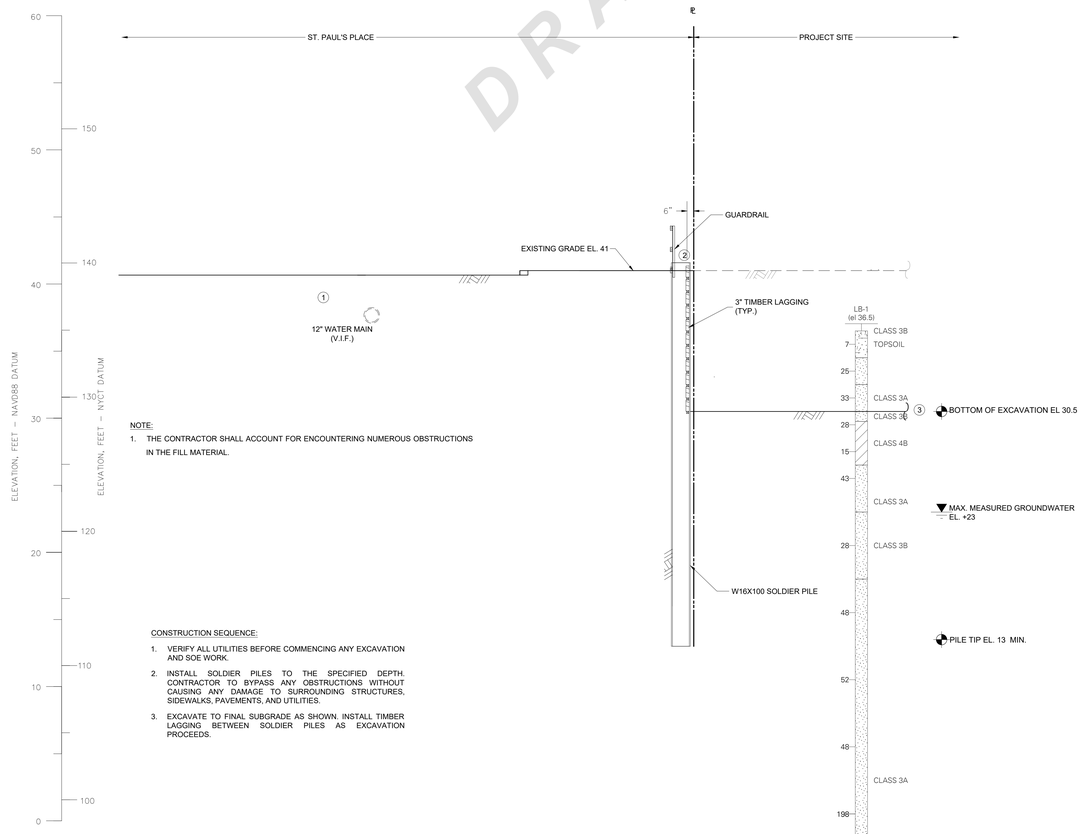
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6 TYPICAL SECTION - SOUTH PERIMETER (FACING WEST)
Scale: 1/4" = 1'-0"



NOTE:

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7 TYPICAL SECTION - SOUTH PERIMETER (FACING WEST)
Scale: 1/4" = 1'-0"

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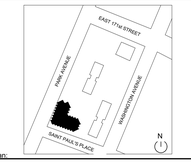
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SUPPORT OF EXCAVATION SECTIONS

DOB SEAL:

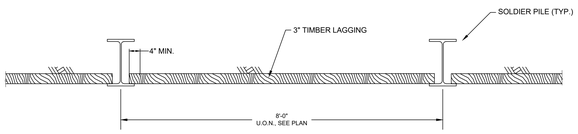
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DRAWING BY:	LFP/CT
CHK BY:	HF

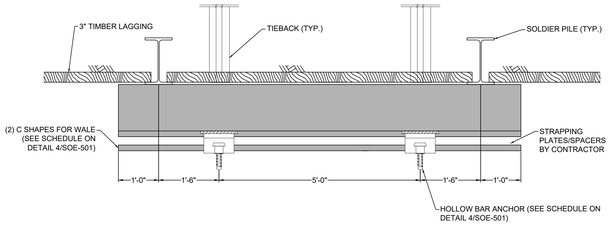
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SOE-302.00

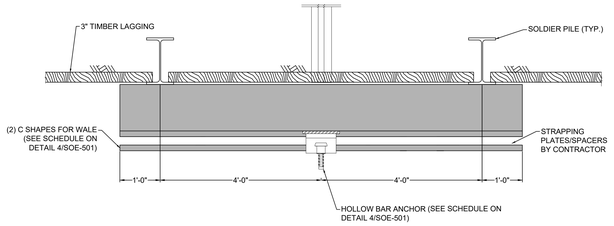
SCALE: 1/4" = 1'-0"



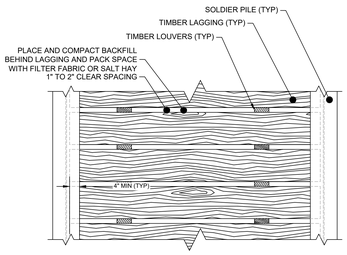
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SCALE: NTS



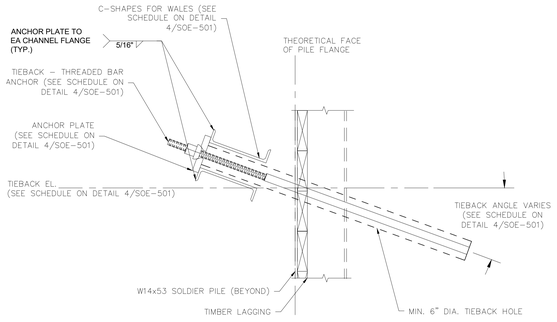
1A SOE-501 TYPICAL TIEBACK DETAIL - PLAN
SCALE: NTS

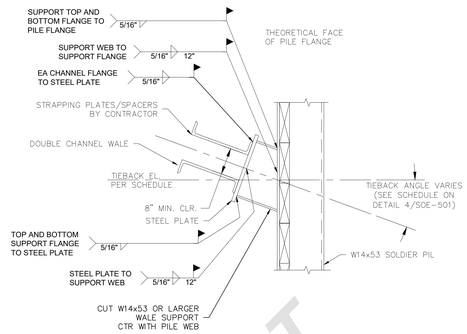


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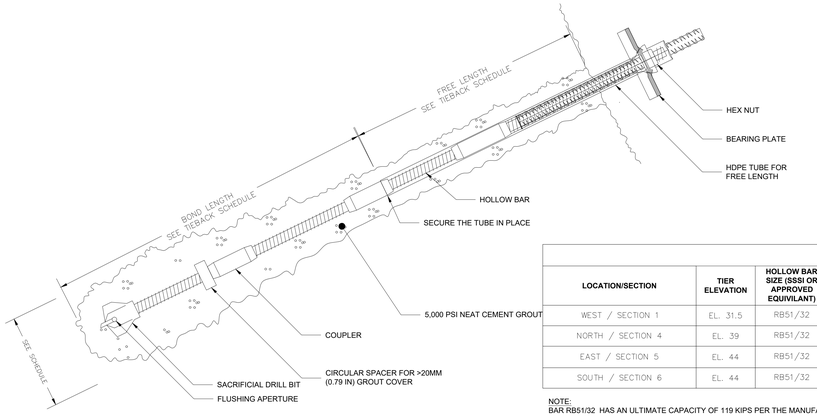


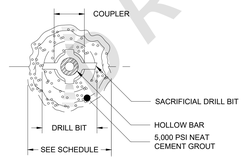
2 SOE-501 TYPICAL LAGGING INSTALLATION BETWEEN SOLDIER PILES
SCALE: NTS





3 SOE-501 SECTIONS - TIEBACK SUPPORT ON W-SHAPE SOLDIER PILES
SCALE: 3/4" = 1'-0"

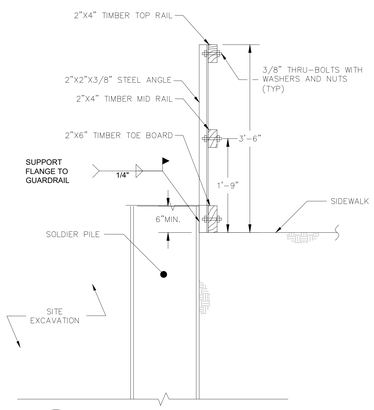




TIEBACK SCHEDULE											
LOCATION/SECTION	TIER ELEVATION	HOLLOW BAR SIZE (SSSI OR APPROVED EQUIVILANT)	WALER	BEARING PLATE	ANGLE DEGREES	FREE LENGTH FEET	SOIL BOND LENGTH FEET	MIN. DRILL HOLE DIAMETER INCHES	DESIGN LOAD KIPS	TEST LOAD KIPS	LOCK-OFF LOAD KIPS
WEST / SECTION 1	EL. 31.5	RB51/32	(2)C12X30	9"x9"x1.75"	15	15	15	6	45	60	35
NORTH / SECTION 4	EL. 39	RB51/32	(2)C12X30	9"x9"x1.75"	30	15	15	6	30	45	25
EAST / SECTION 5	EL. 44	RB51/32	(2)C12X30	10"x10"x2"	30	15	25	6	70	95	55
SOUTH / SECTION 6	EL. 44	RB51/32	(2)C12X30	10"x10"x2"	30	15	25	6	70	95	55

NOTE:
BAR RB51/32 HAS AN ULTIMATE CAPACITY OF 119 KIPS PER THE MANUFACTURE SSSI

4 SOE-501 HOLLOW BAR TIEBACK DETAIL
SCALE: N.T.S.



5 SOE-501 TYPICAL GUARD RAIL DETAIL
SCALE: 1" = 1'-0"

DRAFT

Sol On Park

3728 Park Avenue
Bronx, NY 10456

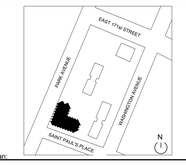
Owner:

Sol on Park, LLC.
1228 Euclid Avenue, 4th floor
Cleveland, OH 44115

NOT FOR CONSTRUCTION

BLOCK: 2902 LOT: 36

NYC DOB # : X01091719-S2



Key Plan:

NUMBER	DATE	DESCRIPTION
1	04/25/2025	ISSUED FOR PRICING

Revisions:

Architect:

Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:

GACE Consulting Engineers
148 Madison Avenue 4th Floor
New York NY 10016
Tel (212) 545 7878

MEP Engineer:

Ettinger Engineering Associates
505 8th Avenue #2400
New York NY 10018
Tel (212) 244 2410

Landscape Architect:

W Architecture & Landscape Architecture
374 Fulton Street 3rd Floor
Brooklyn NY 11201
Tel (212) 981 3933

Civil Engineer:

AKRF, Inc.
440 Park Avenue South, 7th Floor
New York, NY 10016
Tel (212) 696 0670

Filing Representative:

JM Zoning LLC
225 Broadway #1300
New York NY 10007
Tel (212) 964 4464

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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SUPPORT OF EXCAVATION DETAILS

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	C1238.00
DRAWING BY:	LFP/CT
CHK BY:	HF
DWG No:	SOE-501
SCALE: NTS	5 OF 5

APPENDIX C

Historic Environmental Reports

DRAFT

APPENDIX D

Sanborn Maps

DRAFT

1451 Washington Ave

1451 Washington Ave

Bronx, NY 10456

Inquiry Number: 7218915.1

January 06, 2023

DRAFT

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

01/06/23

Site Name:

1451 Washington Ave
1451 Washington Ave
Bronx, NY 10456
EDR Inquiry # 7218915.1

Client Name:

Roux Associates
209 Shafter Street
Islandia, NY 11749
Contact: Ronald Lombino

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Roux Associates were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # BA24-43EA-8238

PO # 2908.0011Y000

Project NRP - Sol On Park

Maps Provided:

2007	1996	1984	1915
2006	1995	1981	1909
2005	1993	1980	1901
2004	1992	1979	1891
2003	1991	1978	
2002	1989	1977	
2001	1986	1951	
1998	1985	1950	

Sanborn® Library search results

Certification #: BA24-43EA-8238

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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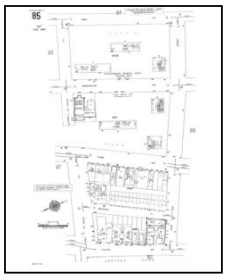
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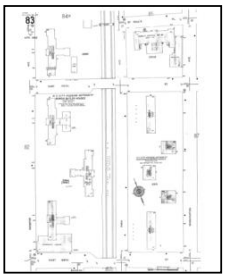
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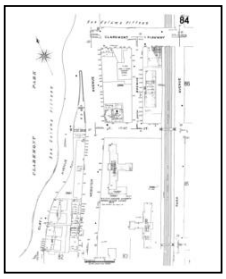
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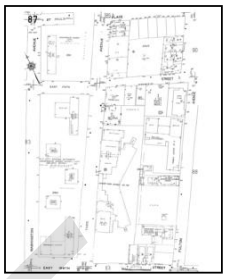
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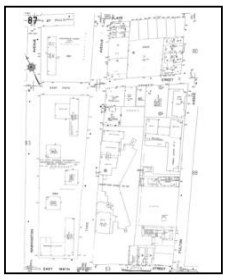

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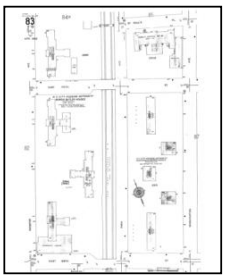

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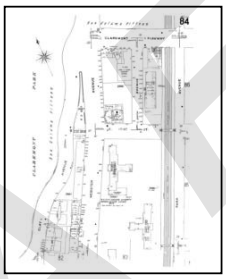

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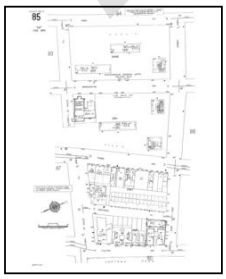

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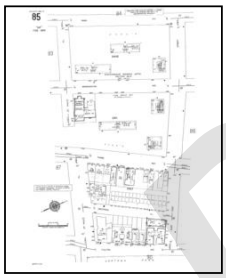

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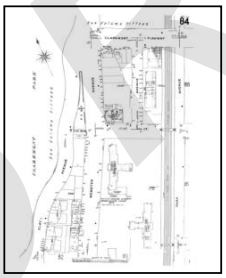

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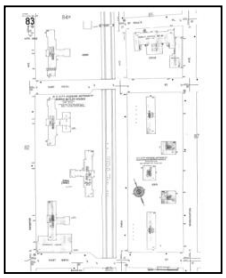

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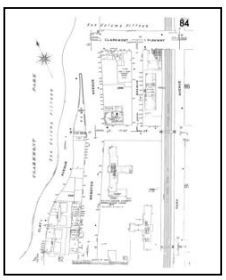

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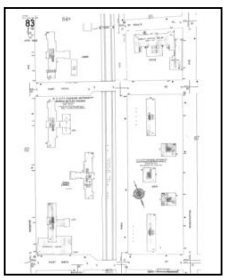

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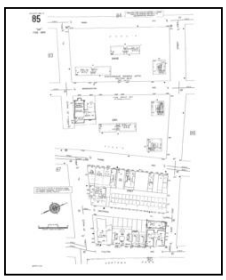

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2004 Source Sheets


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Volume 10N, Sheet 83
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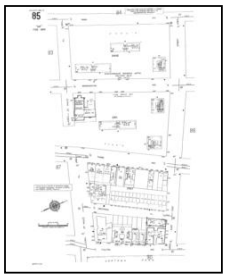

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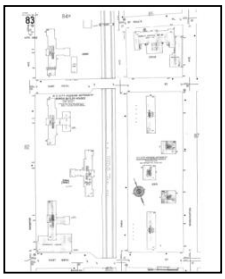
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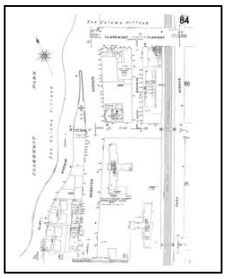
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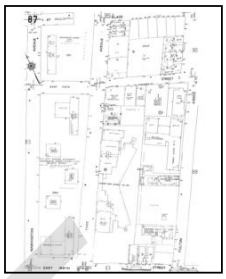
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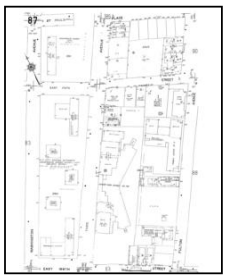

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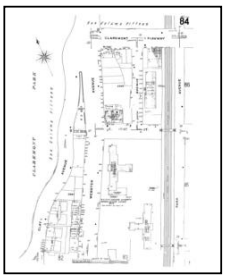

Volume 10N, Sheet 83
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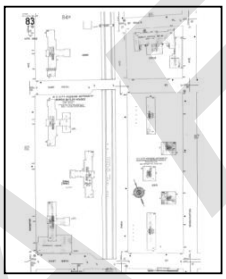

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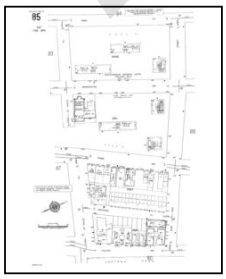

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2002 Source Sheets

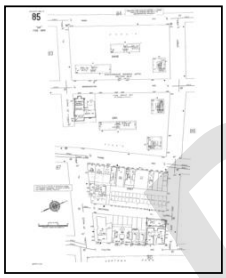

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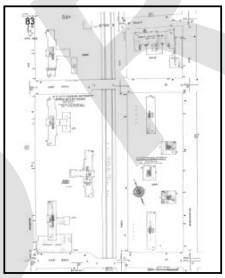

Volume 10N, Sheet 84
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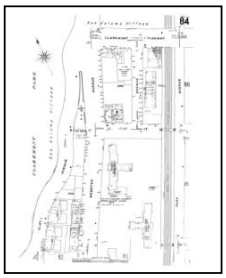

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Volume 10N, Sheet 85
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2001 Source Sheets

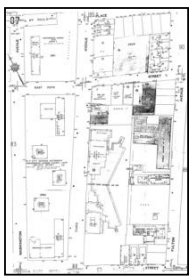

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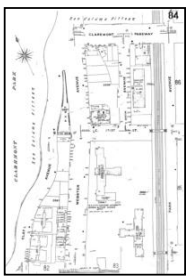

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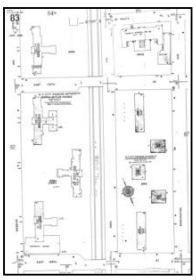

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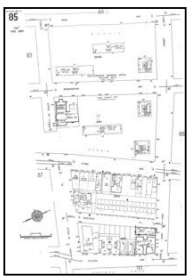

Volume 10N, Sheet 87
2001

1998 Source Sheets


Volume 10N, Sheet 87
1998


Volume 10N, Sheet 84
1998


Volume 10N, Sheet 83
1998

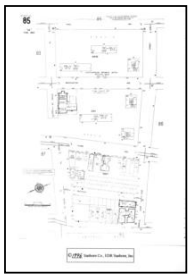

Volume 10N, Sheet 85
1998

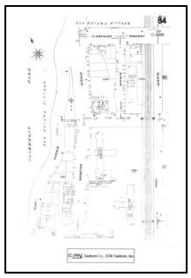
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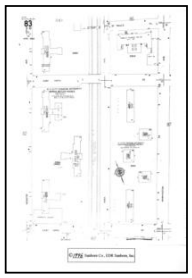
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1996 Source Sheets


Volume 10N, Sheet 85
1996

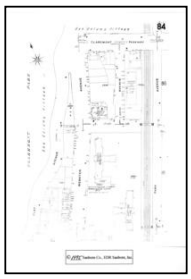

Volume 10N, Sheet 84
1996

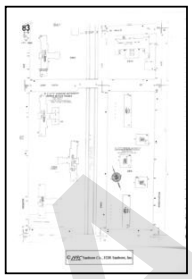

Volume 10N, Sheet 83
1996

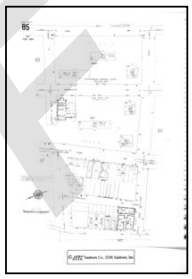

Volume 10N, Sheet 87
1996

1995 Source Sheets

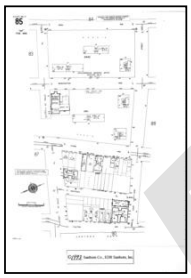

Volume 10N, Sheet 87
1995

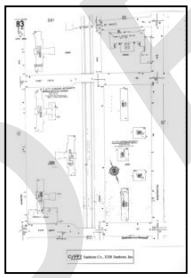

Volume 10N, Sheet 84
1995

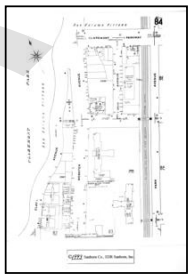

Volume 10N, Sheet 83
1995


Volume 10N, Sheet 85
1995

1993 Source Sheets

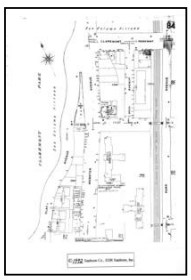

Volume 10N, Sheet 85
1993

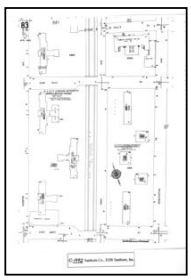

Volume 10N, Sheet 83
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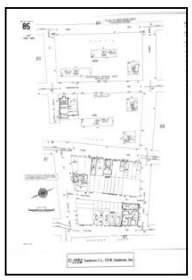

Volume 10N, Sheet 84
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Volume 10N, Sheet 87
1993

1992 Source Sheets


Volume 10N, Sheet 84
1992


Volume 10N, Sheet 83
1992


Volume 10N, Sheet 85
1992

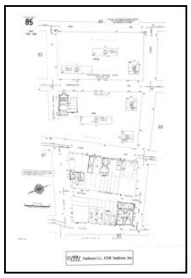

Volume 10N, Sheet 87
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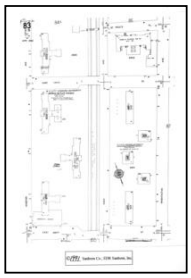
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Sanborn Sheet Key

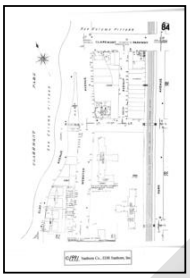
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1991 Source Sheets


Volume 10N, Sheet 85
1991

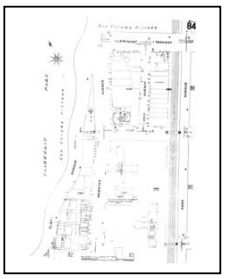

Volume 10N, Sheet 83
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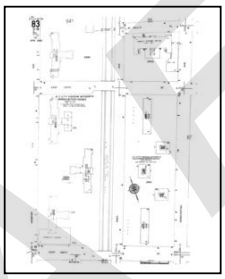

Volume 10N, Sheet 87
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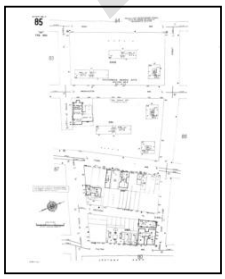

Volume 10N, Sheet 84
1991

1989 Source Sheets

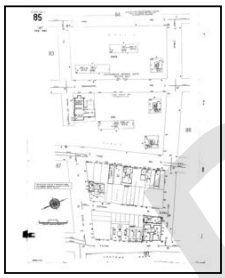

Volume 10N, Sheet 87
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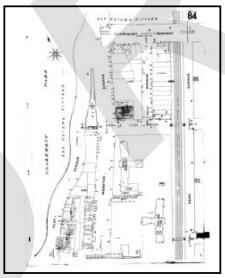

Volume 10N, Sheet 84
1989

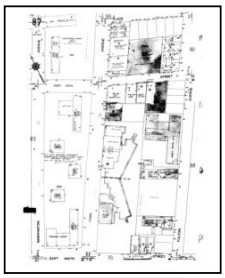

Volume 10N, Sheet 83
1989

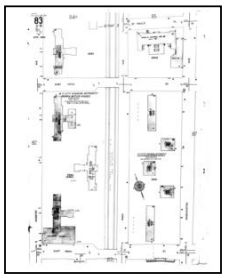

Volume 10N, Sheet 85
1989

1986 Source Sheets

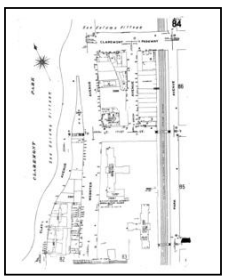

Volume 10N, Sheet 85
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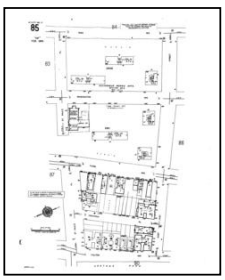

Volume 10N, Sheet 84
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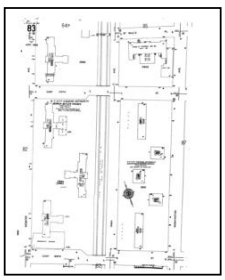

Volume 10N, Sheet 87
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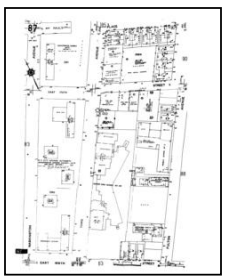

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1986

1984 Source Sheets


Volume 10N, Sheet 84
1984


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1984


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1984


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1984

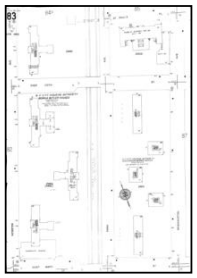
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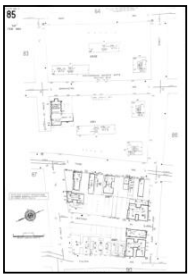
Sanborn Sheet Key

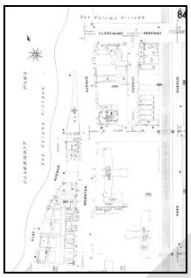
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1981 Source Sheets

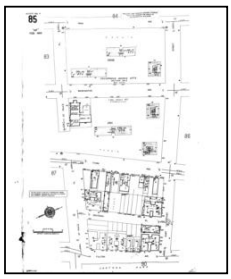

Volume 10N, Sheet 87
1981

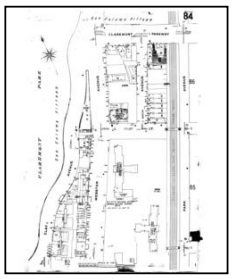

Volume 10N, Sheet 83
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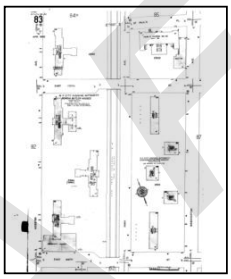

Volume 10N, Sheet 85
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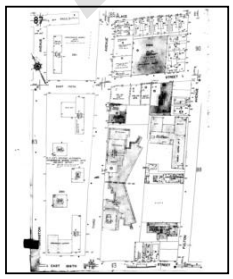

Volume 10N, Sheet 84
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1980 Source Sheets


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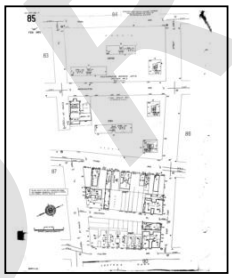

Volume 10N, Sheet 84
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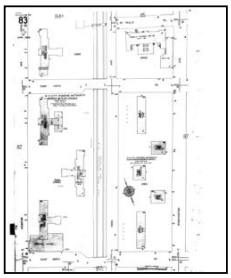

Volume 10N, Sheet 83
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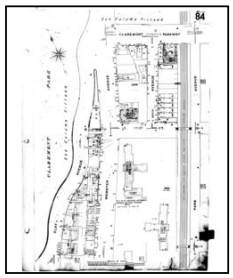

Volume 10N, Sheet 87
1980

1979 Source Sheets

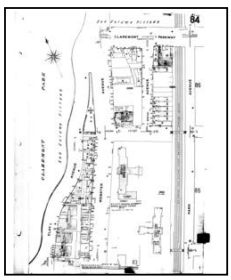

Volume 10N, Sheet 87
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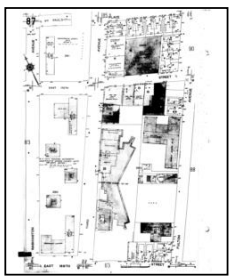

Volume 10N, Sheet 85
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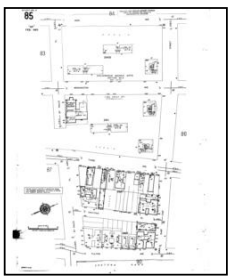

Volume 10N, Sheet 83
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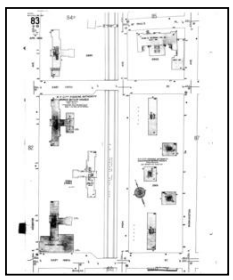

Volume 10N, Sheet 84
1979

1978 Source Sheets


Volume 10N, Sheet 84
1978


Volume 10N, Sheet 87
1978


Volume 10N, Sheet 85
1978

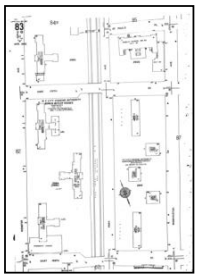

Volume 10N, Sheet 83
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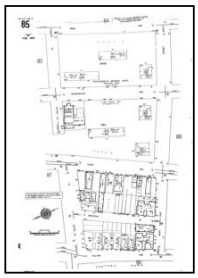
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1977 Source Sheets



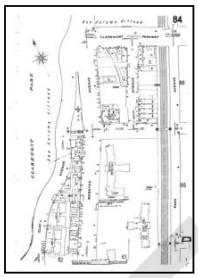
Volume 10N, Sheet 83
1977



Volume 10N, Sheet 85
1977

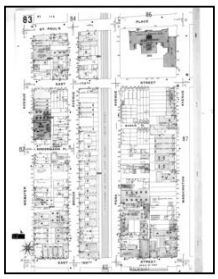


Volume 10N, Sheet 87
1977

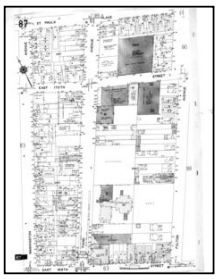


Volume 10N, Sheet 84
1977

1951 Source Sheets



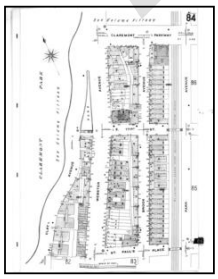
Volume 10N, Sheet 83
1951



Volume 10N, Sheet 87
1951



Volume 10N, Sheet 85
1951



Volume 10N, Sheet 84
1951

1909 Source Sheets

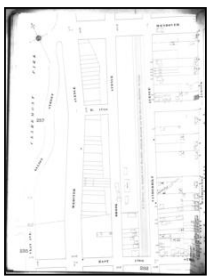


Volume 10, Sheet 85
1909



Volume 10, Sheet 87
1909

1891 Source Sheets

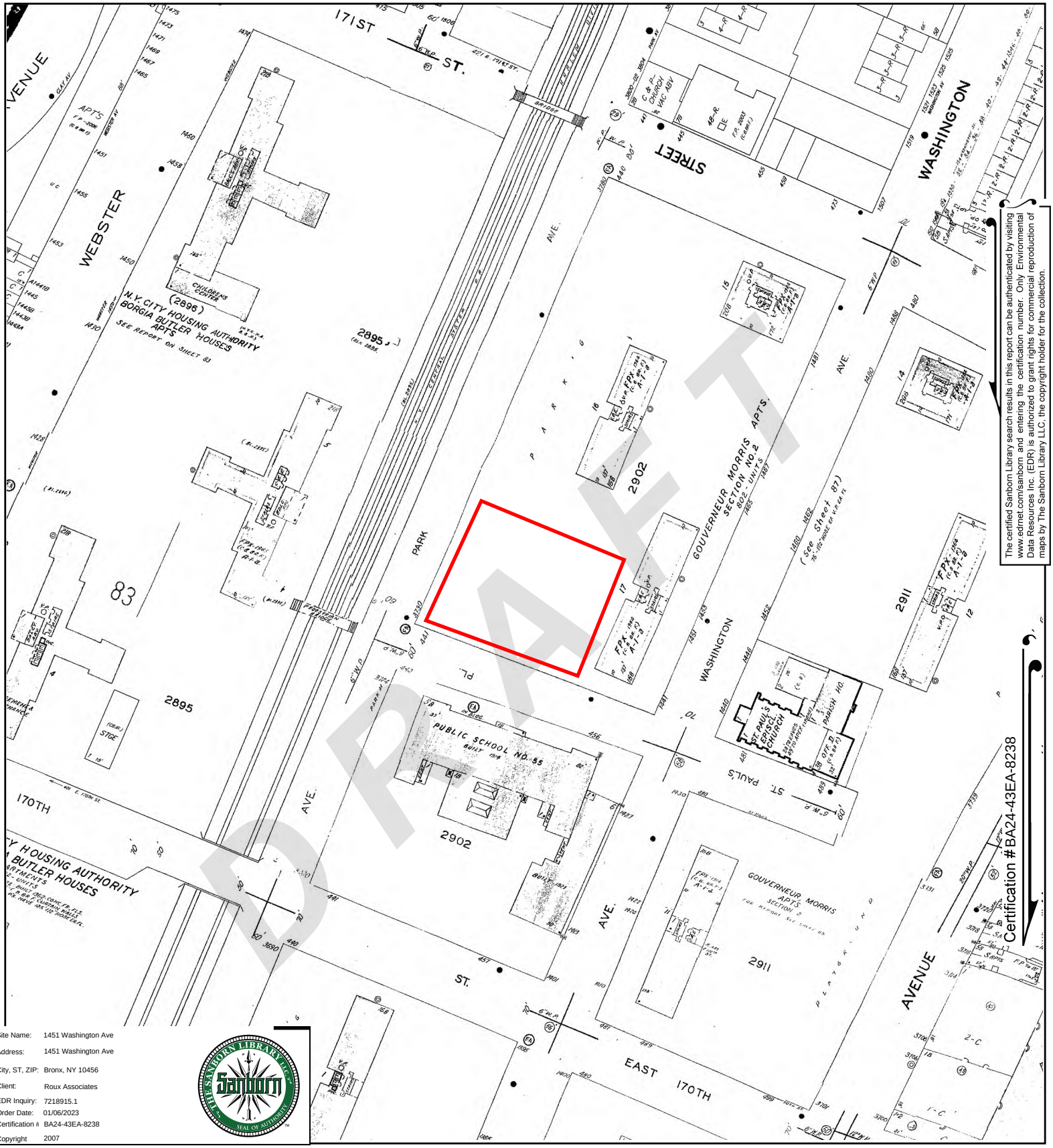


Volume 10, Sheet 234
1891



Volume 10, Sheet xxxx
1891

DRAFT

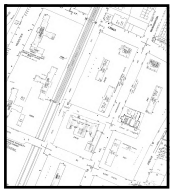


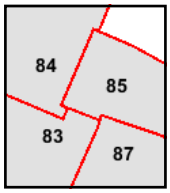
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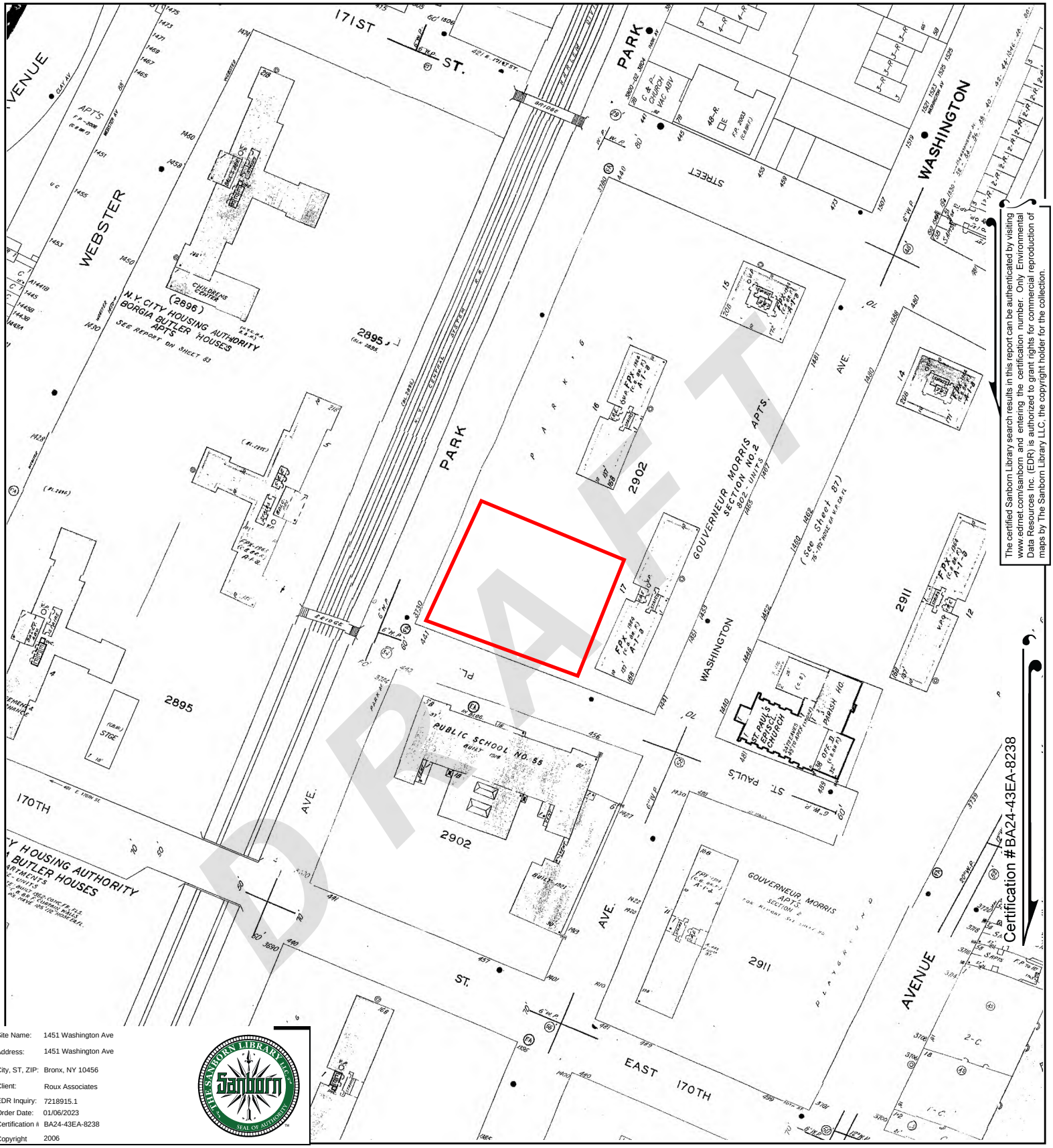




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Volume 10N, Sheet 84
Volume 10N, Sheet 83
Volume 10N, Sheet 85

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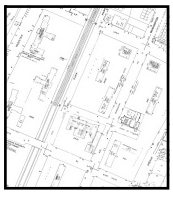
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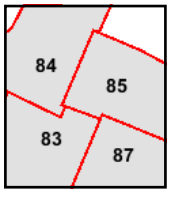


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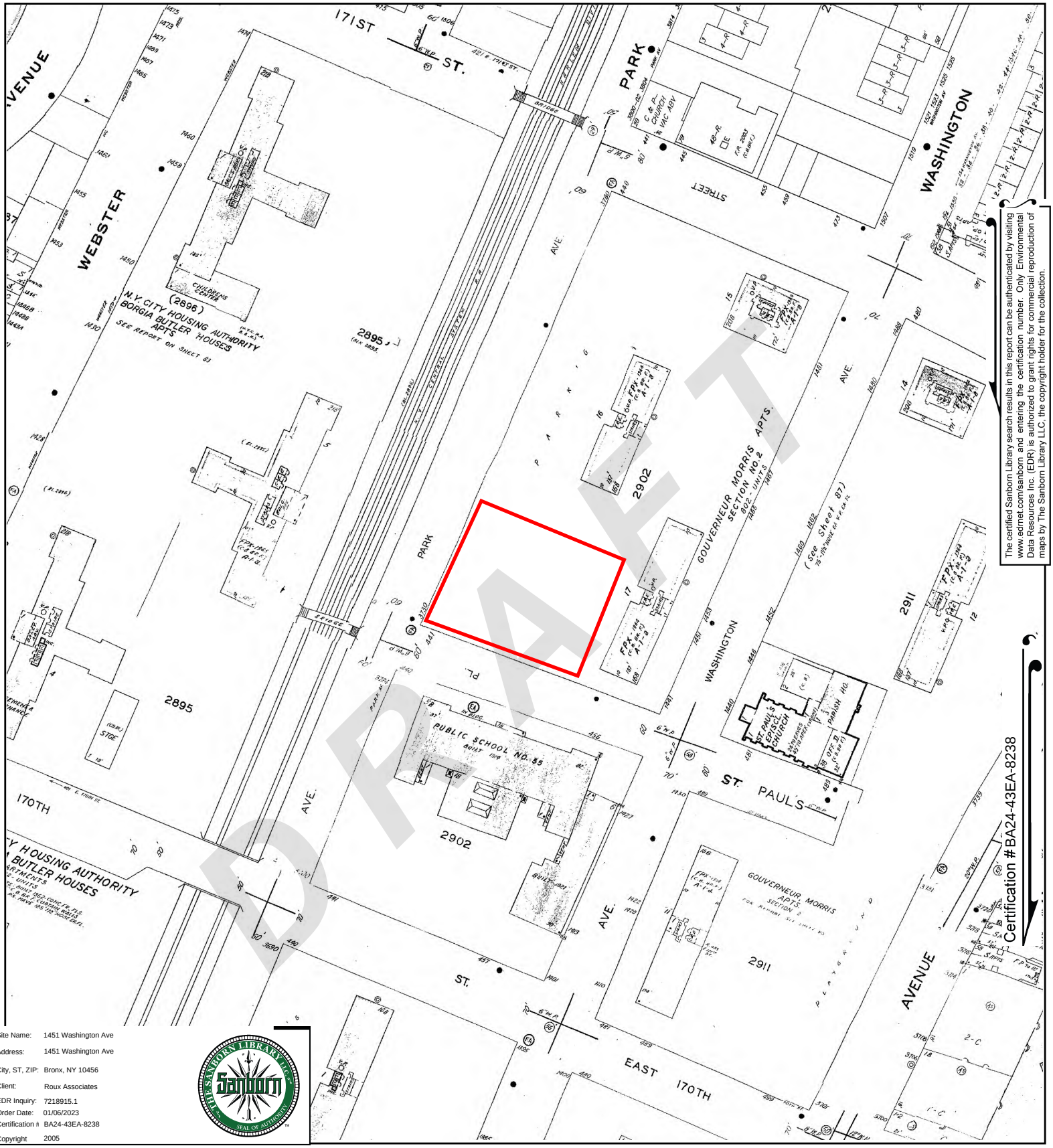




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Volume 10N, Sheet 87

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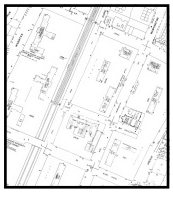
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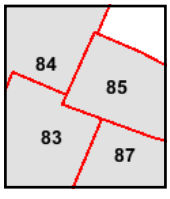


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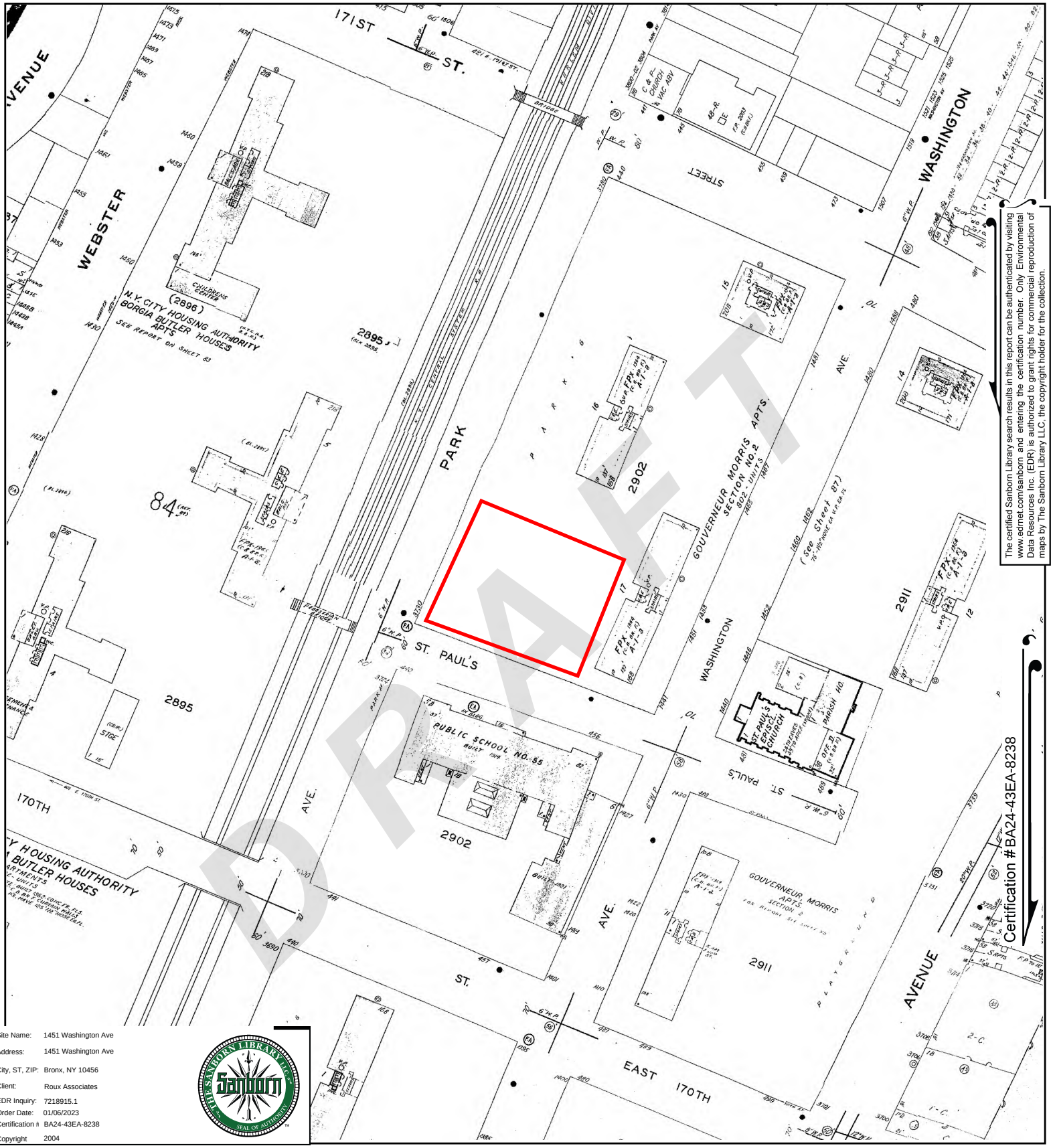




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Volume 10N, Sheet 85

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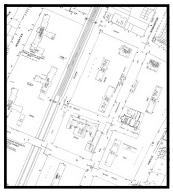
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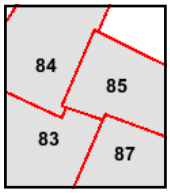


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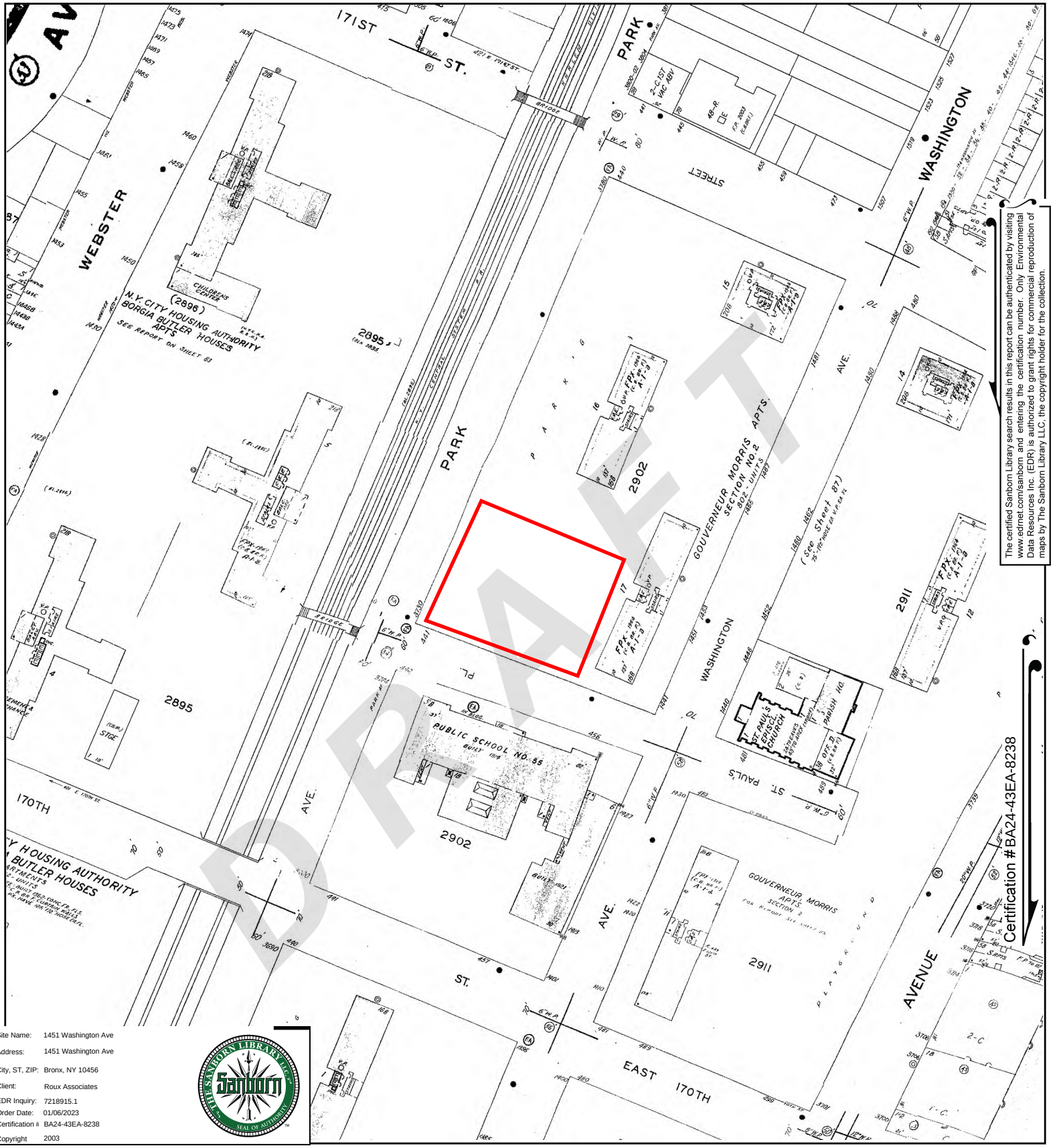




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Volume 10N, Sheet 87

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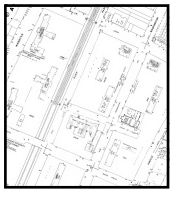


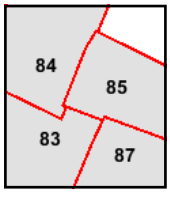
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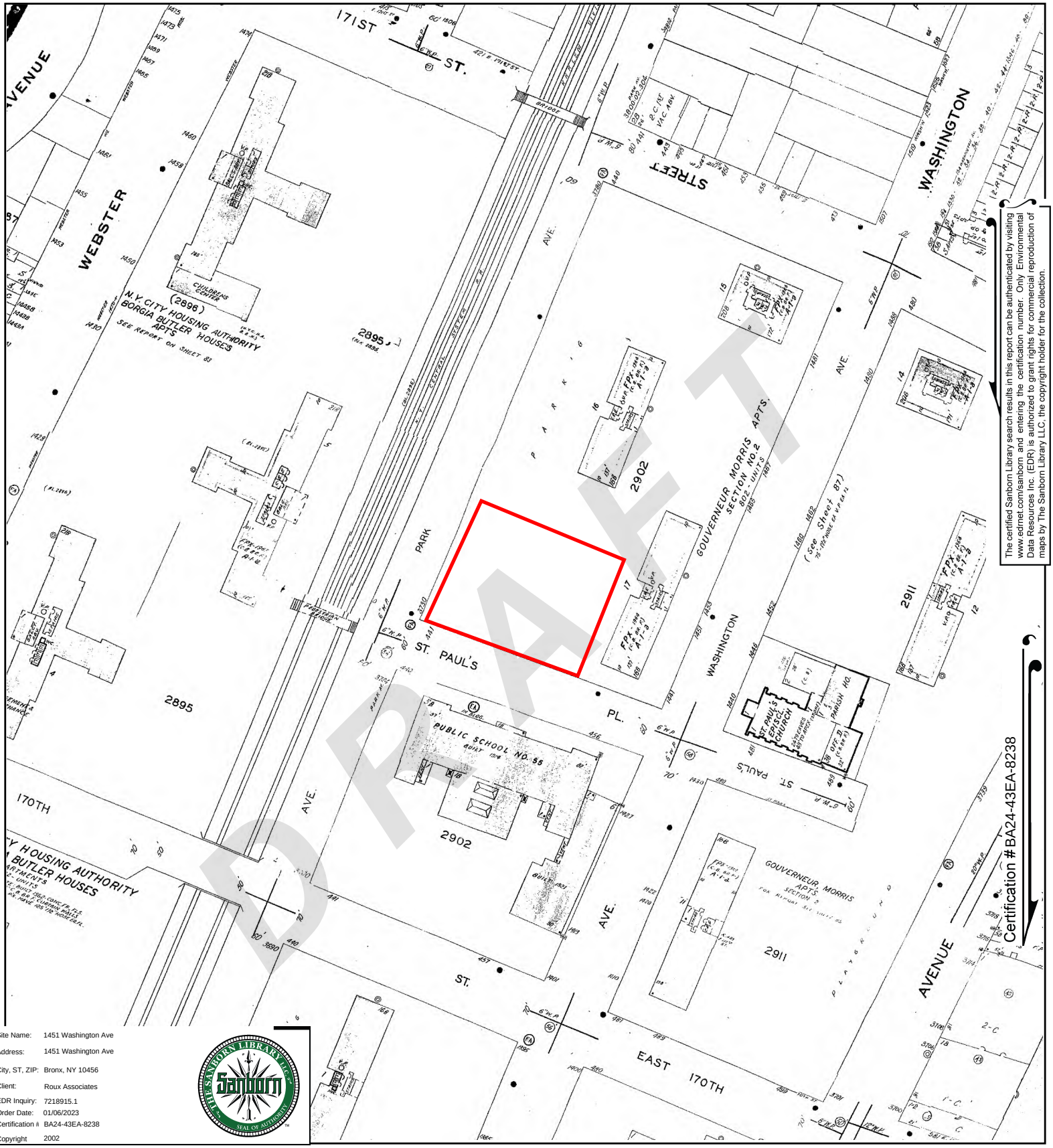




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Volume 10N, Sheet 85

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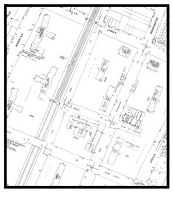
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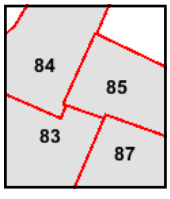


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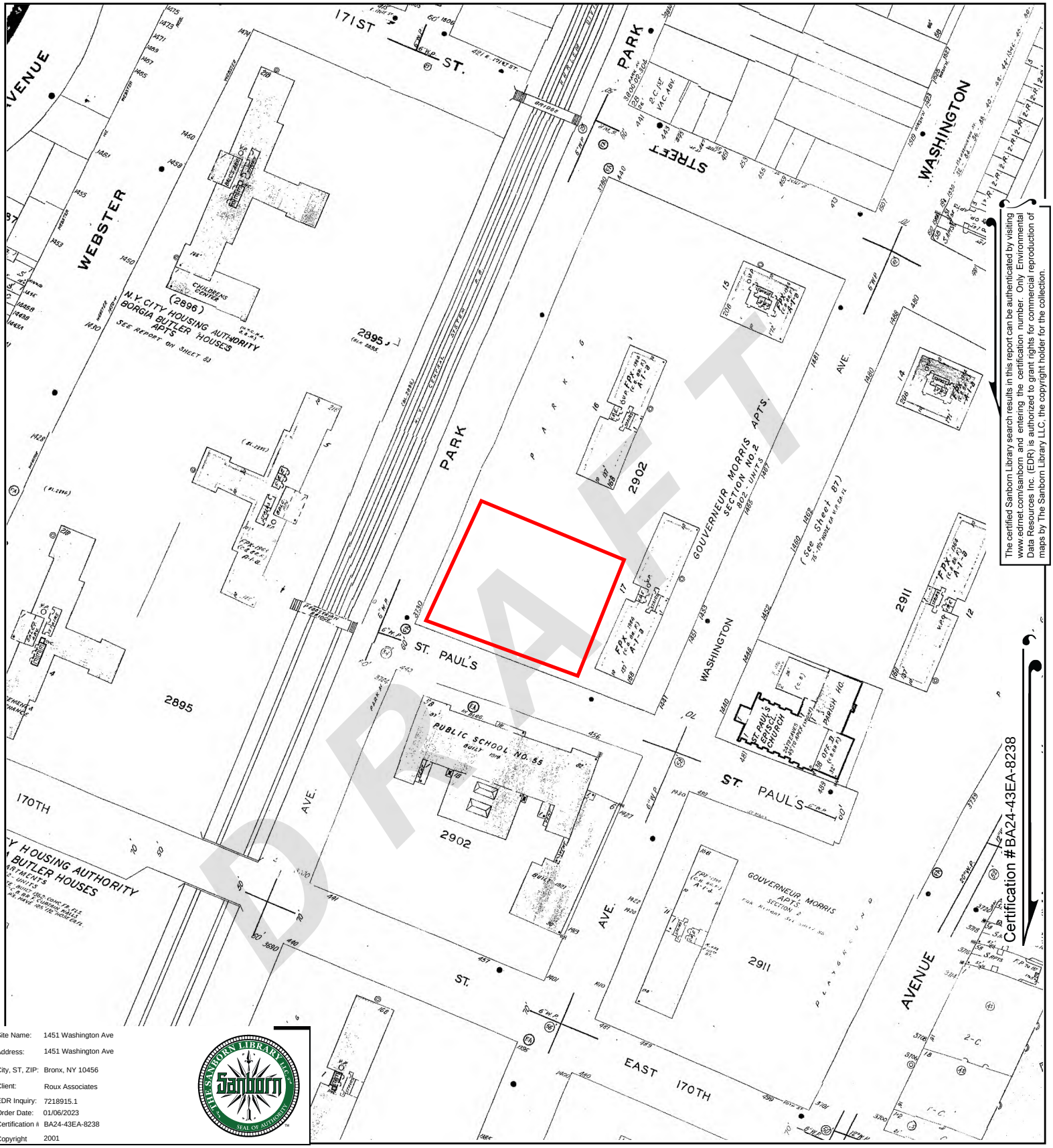




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Volume 10N, Sheet 87

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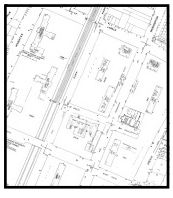


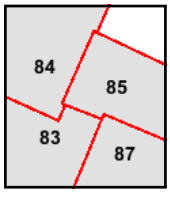
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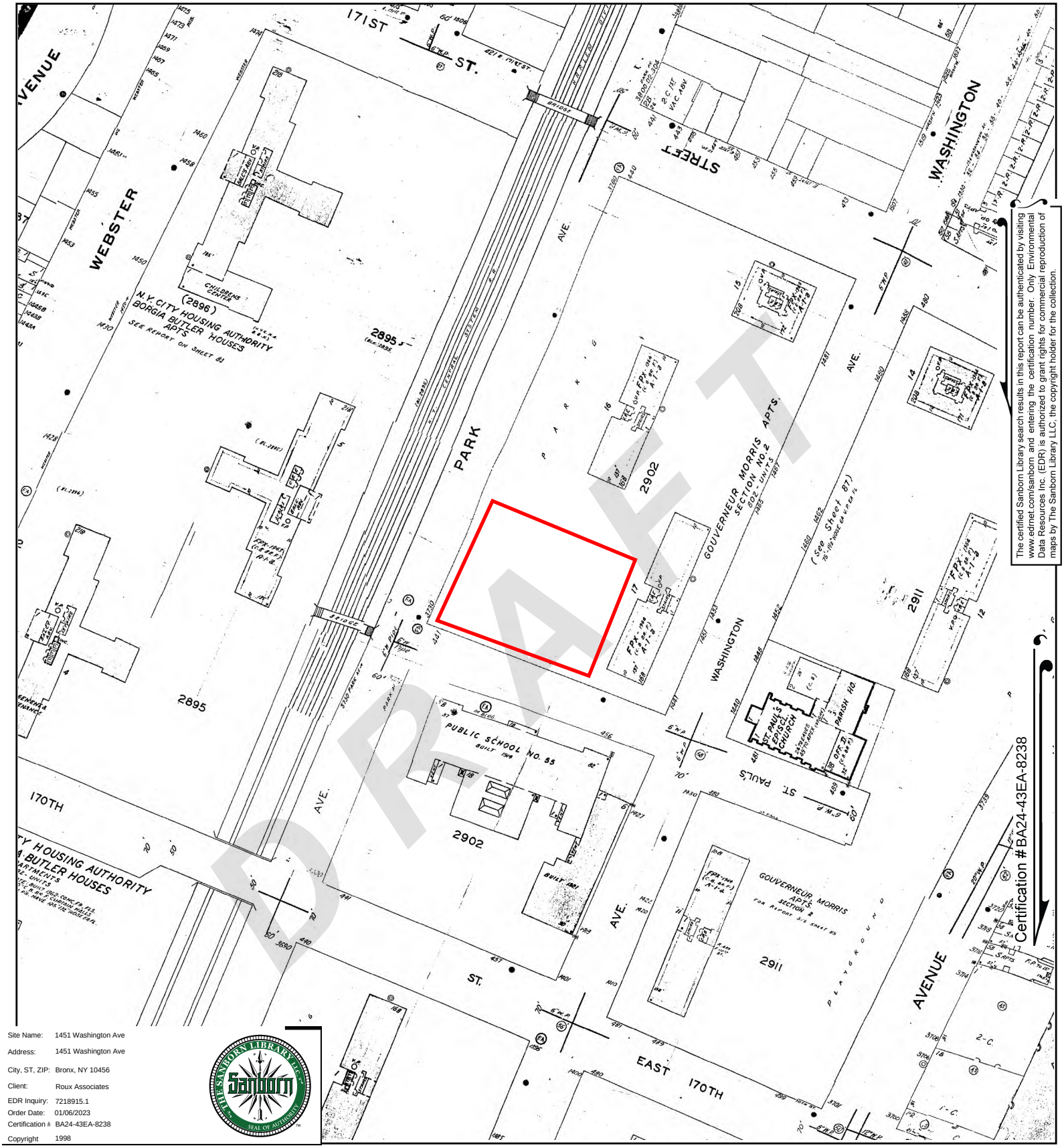




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Volume 10N, Sheet 85

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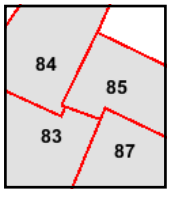
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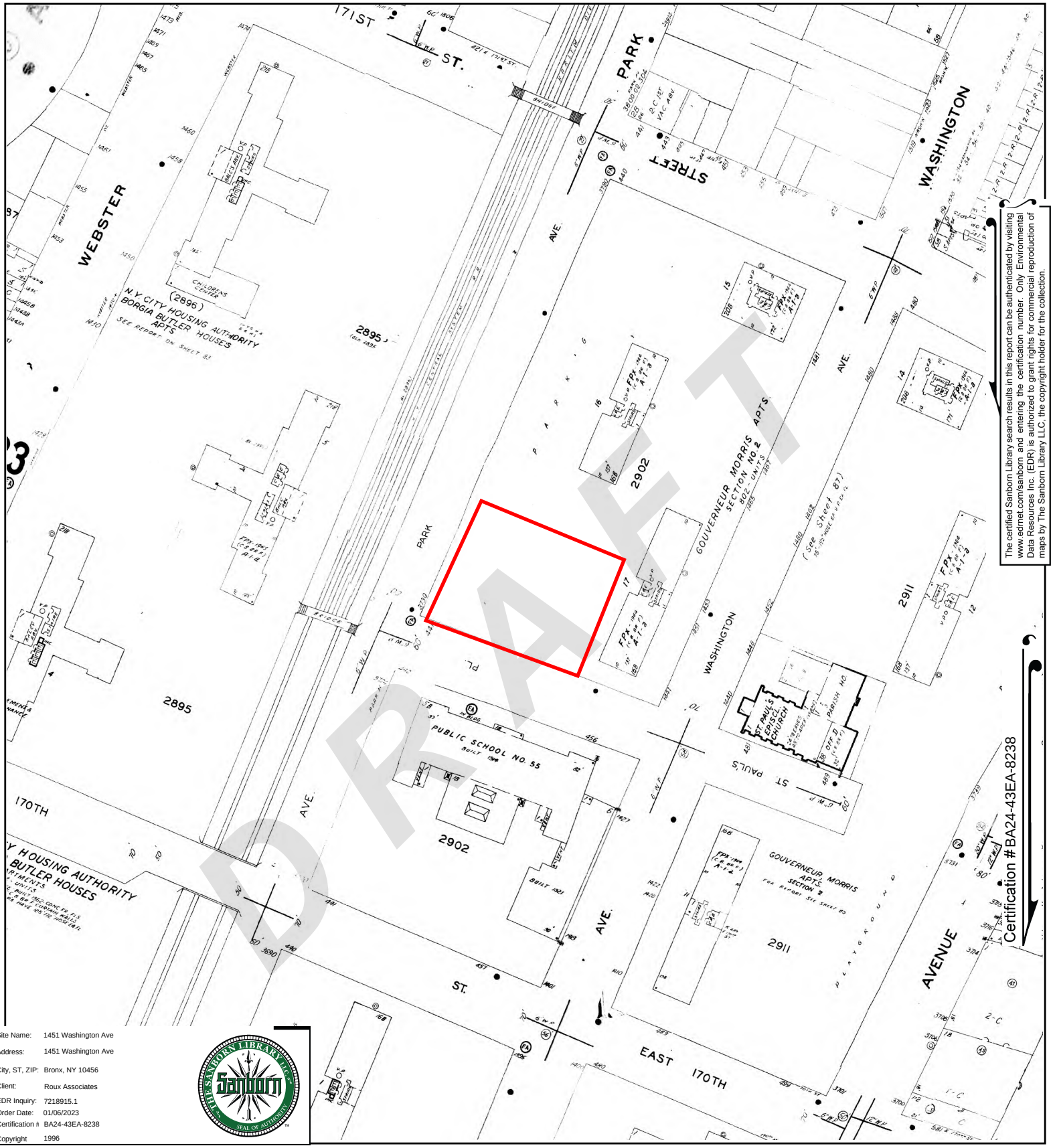




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Volume 10N, Sheet 87

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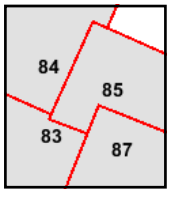


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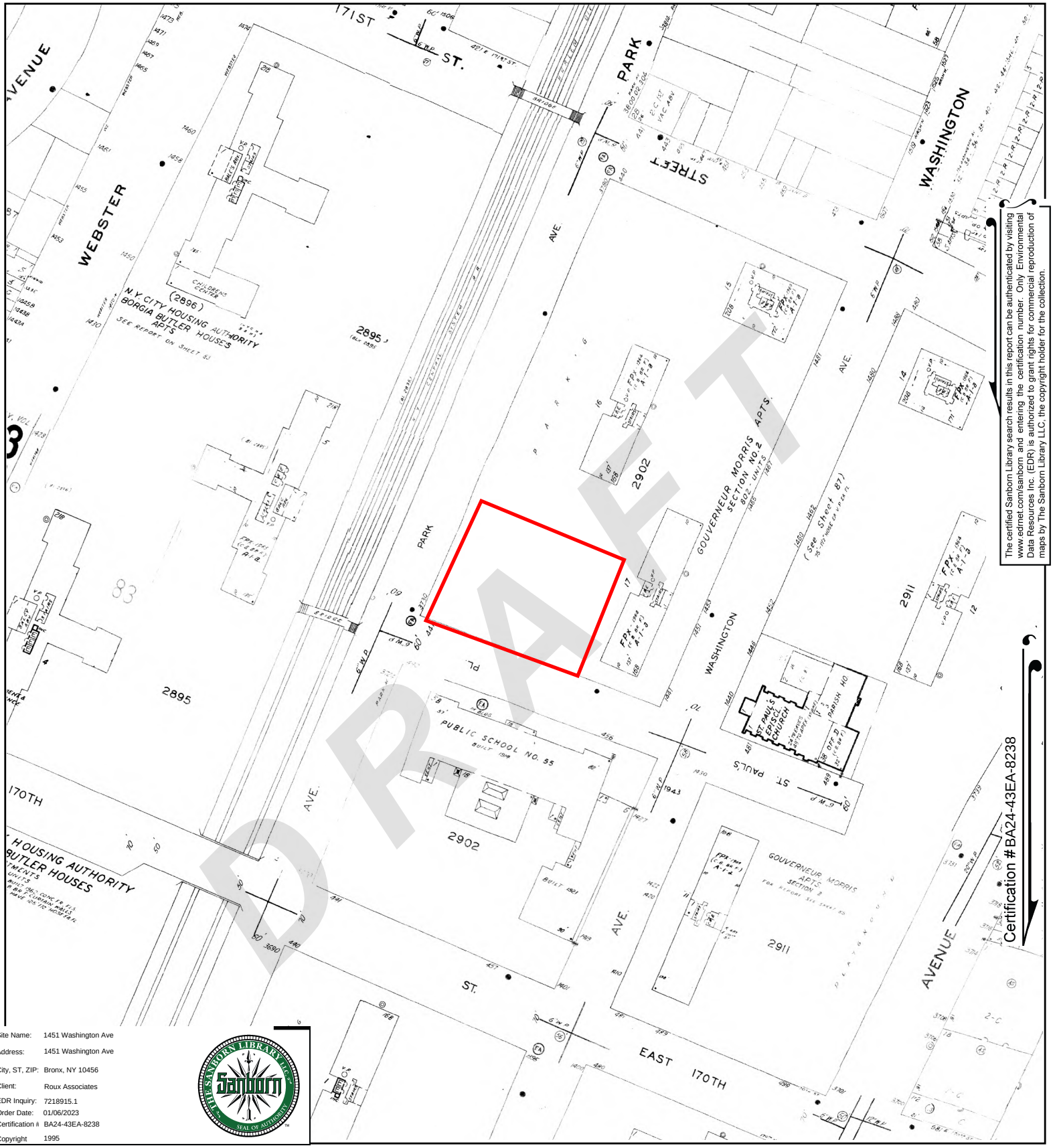




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Volume 10N, Sheet 83
Volume 10N, Sheet 84
Volume 10N, Sheet 85

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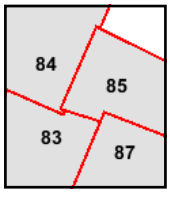
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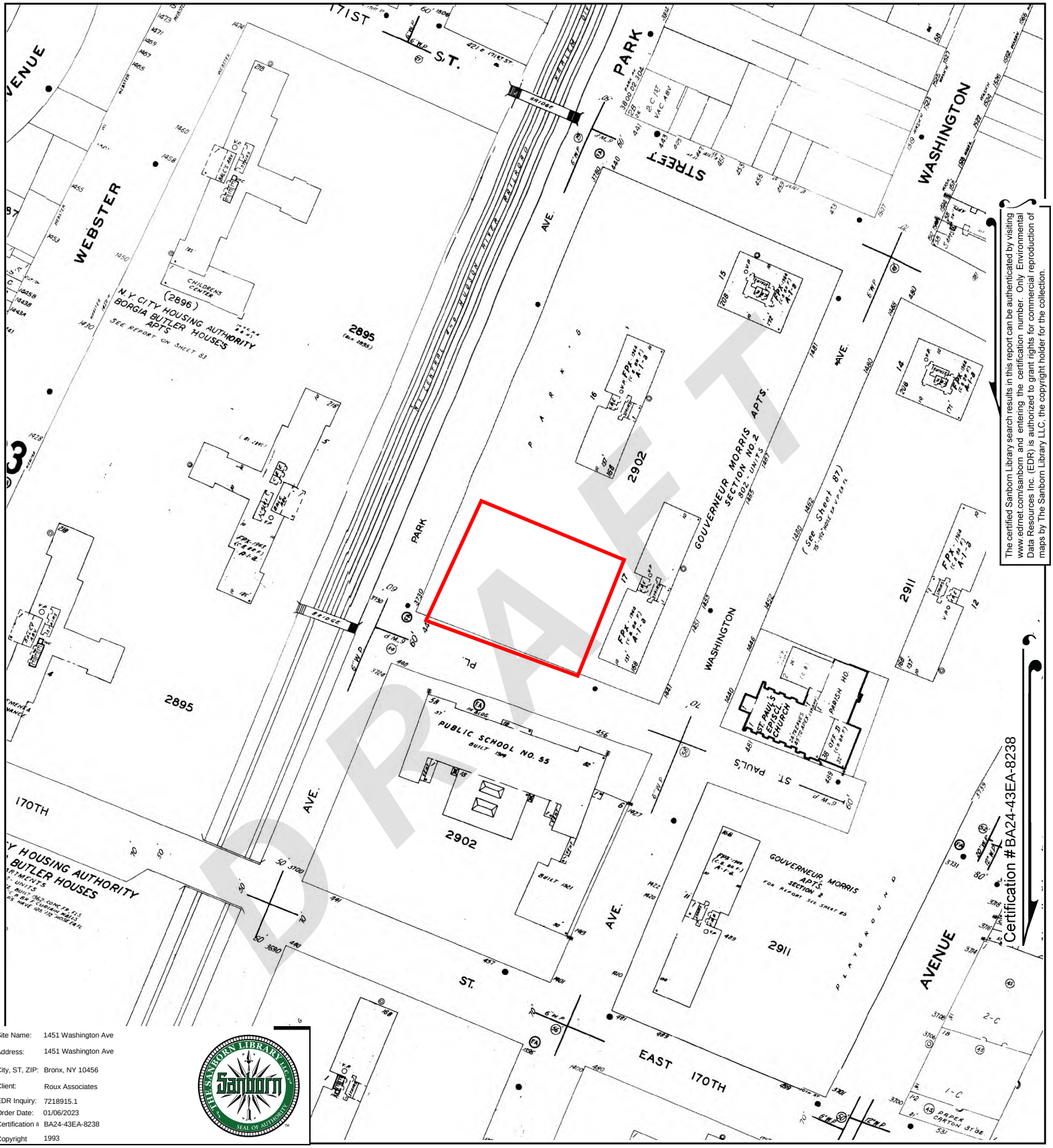




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Volume 10N, Sheet 84
Volume 10N, Sheet 87

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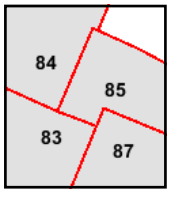


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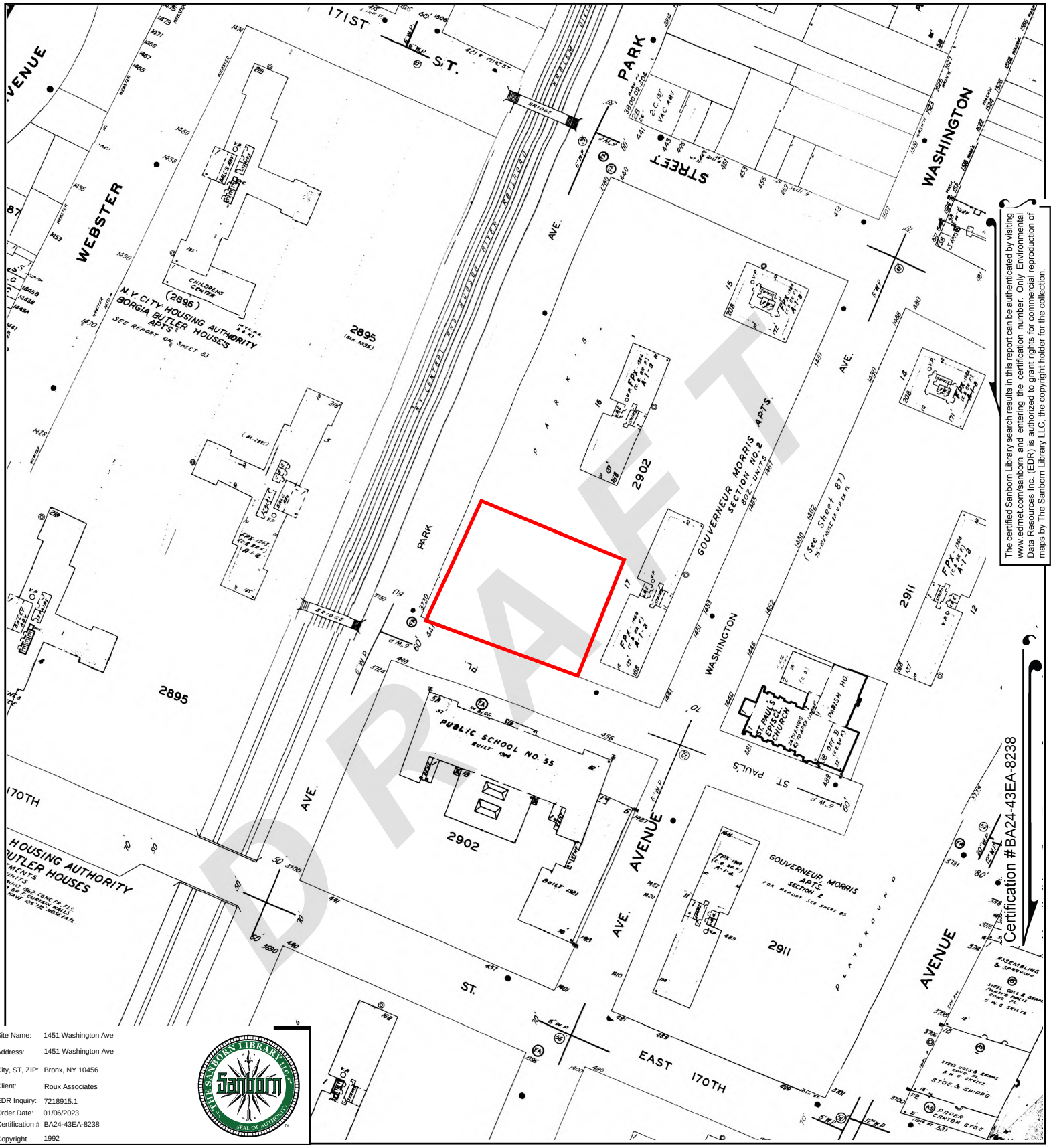




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Volume 10N, Sheet 84
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Volume 10N, Sheet 85

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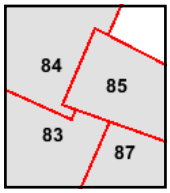
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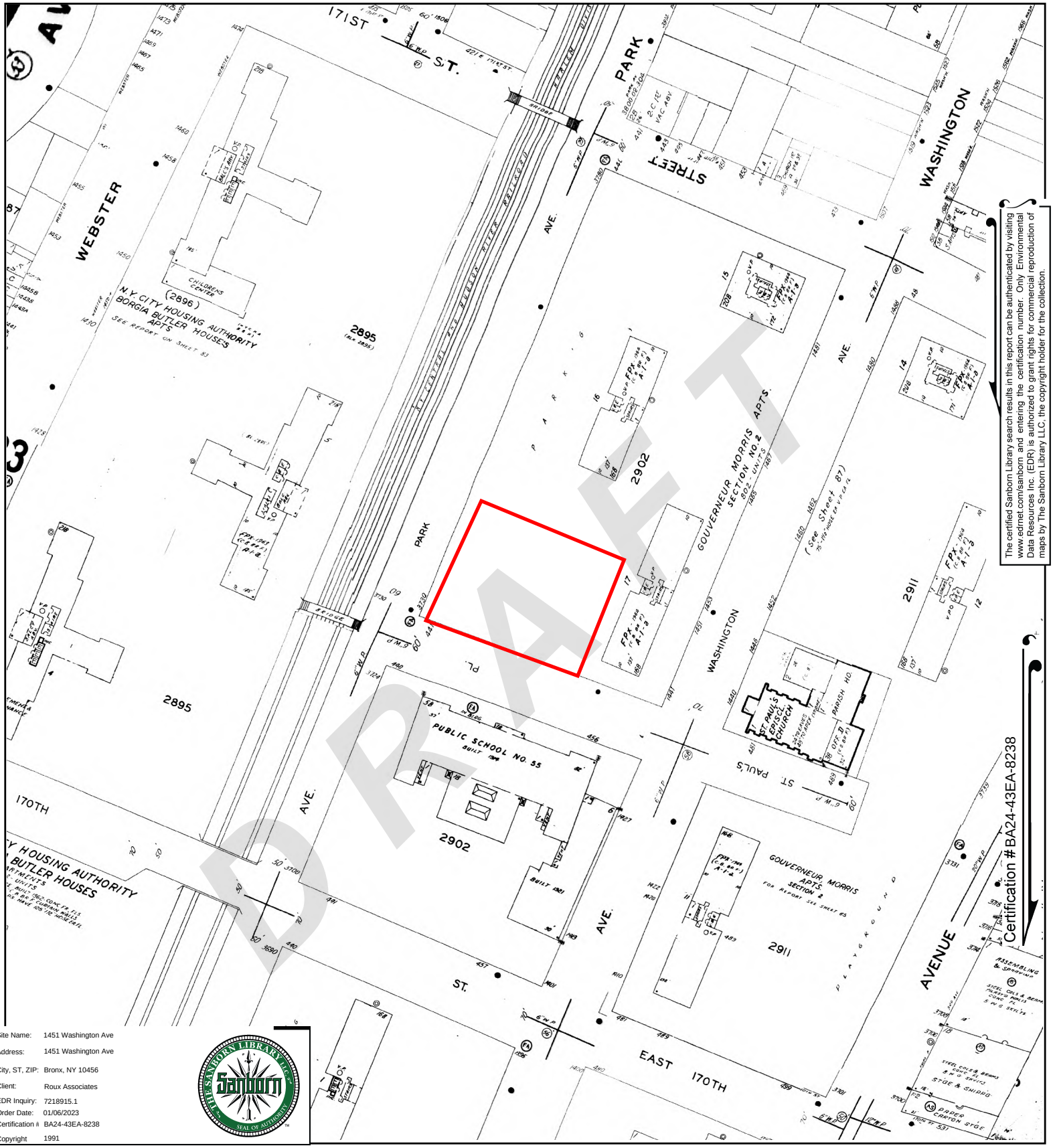




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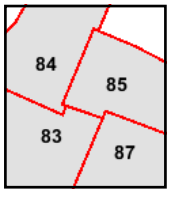


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Copyright	1991

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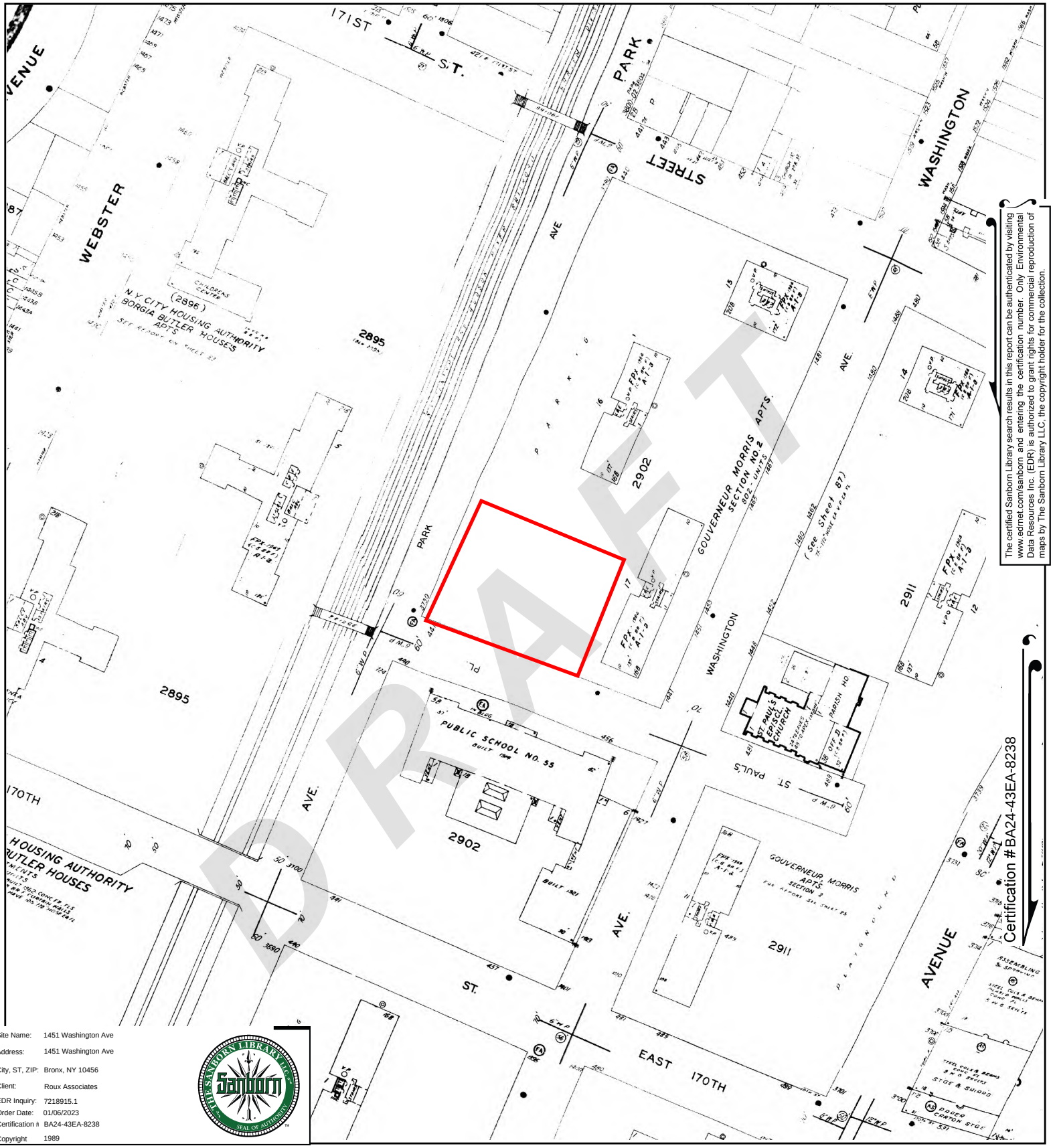




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Volume 10N, Sheet 87
Volume 10N, Sheet 83
Volume 10N, Sheet 85

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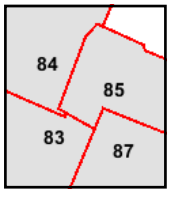
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Copyright	1989

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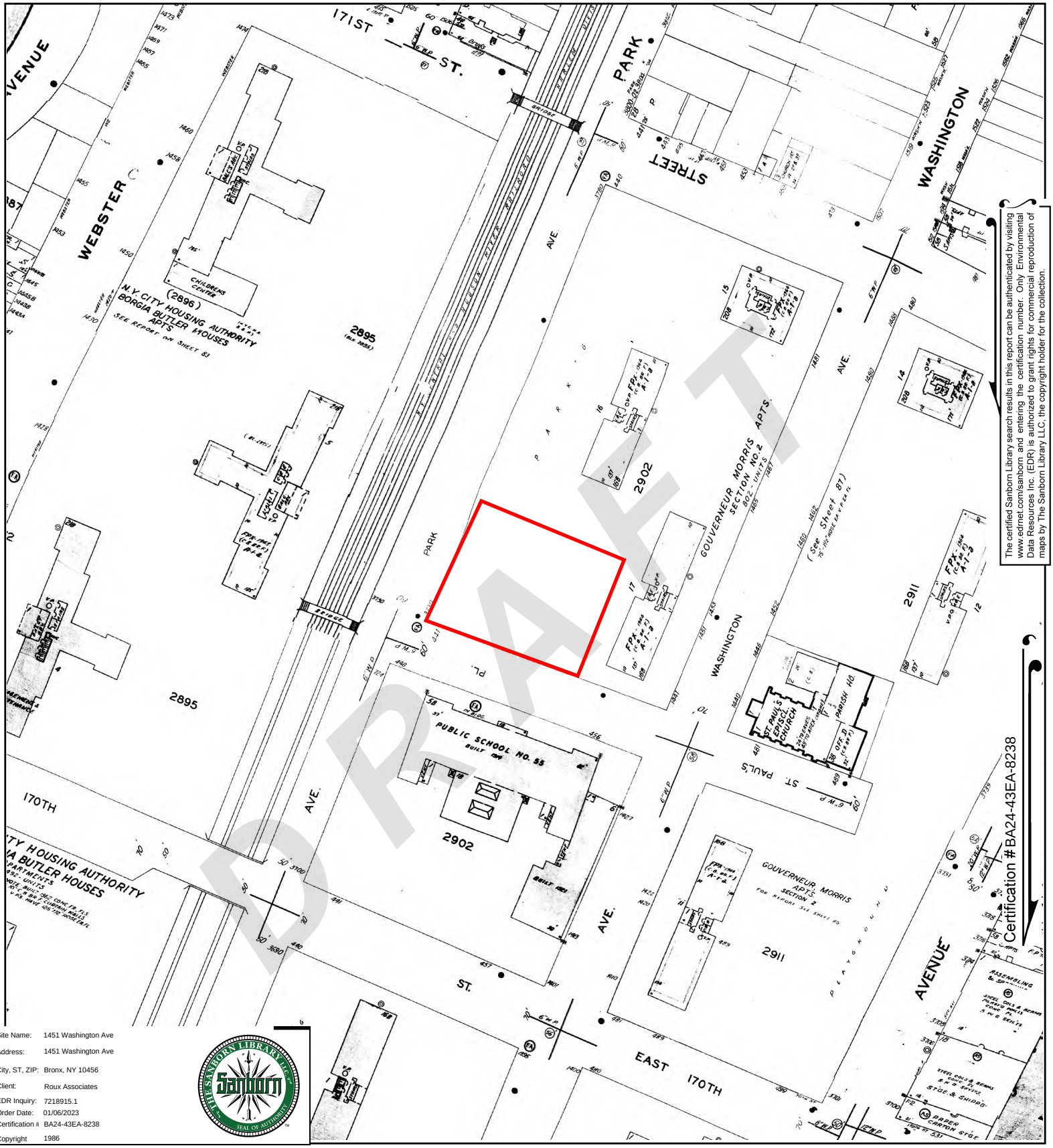




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Volume 10N, Sheet 83
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Volume 10N, Sheet 87

0 Feet 150 300 600

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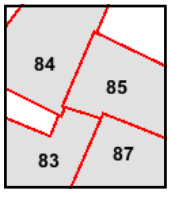
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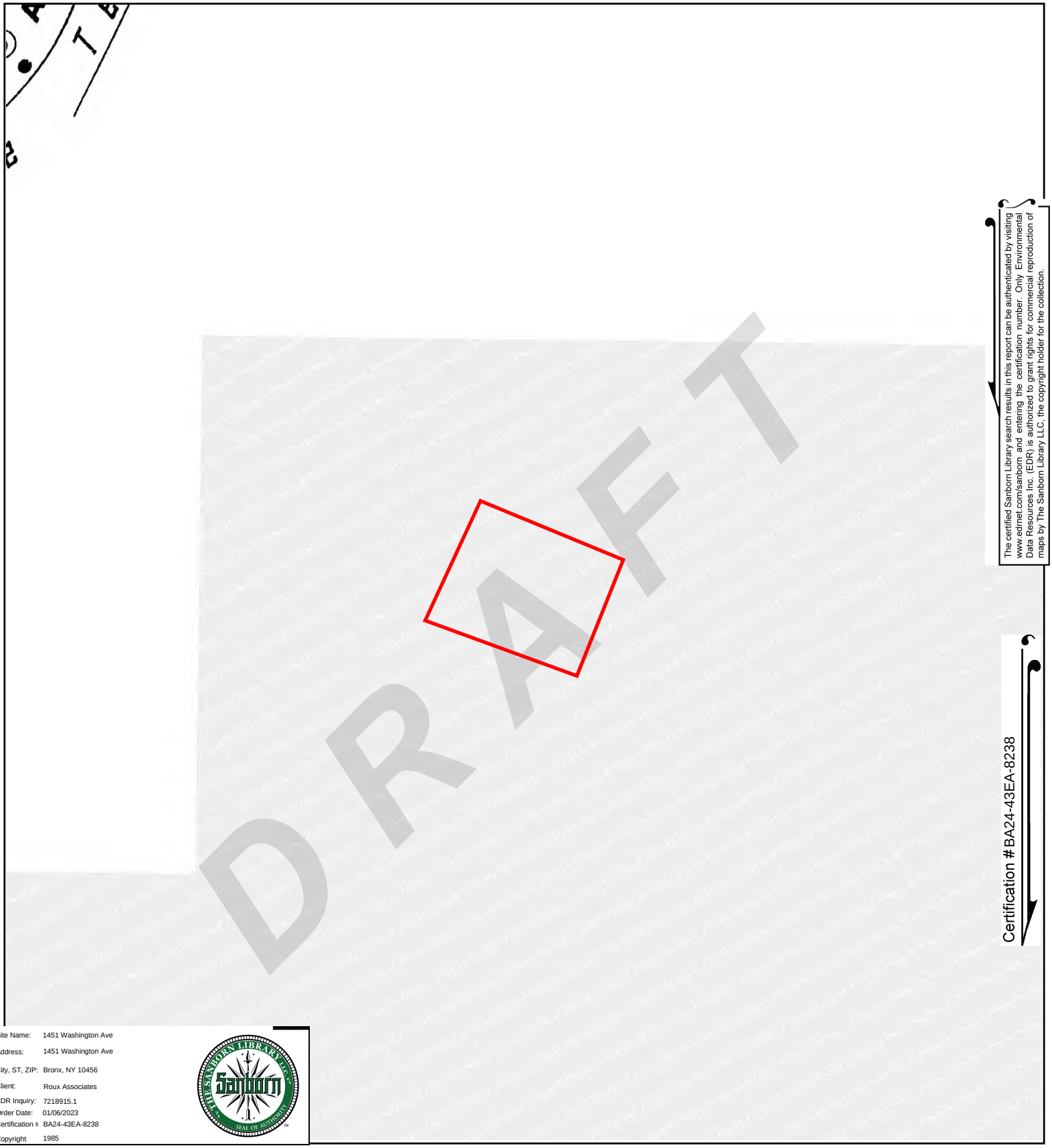




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Volume 10N, Sheet 85

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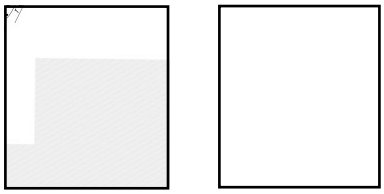


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Address: 1451 Washington Ave
City, ST, ZIP: Bronx, NY 10456
Client: Roux Associates
EDR Inquiry: 7218915.1
Order Date: 01/06/2023
Certification #: BA24-43EA-8238
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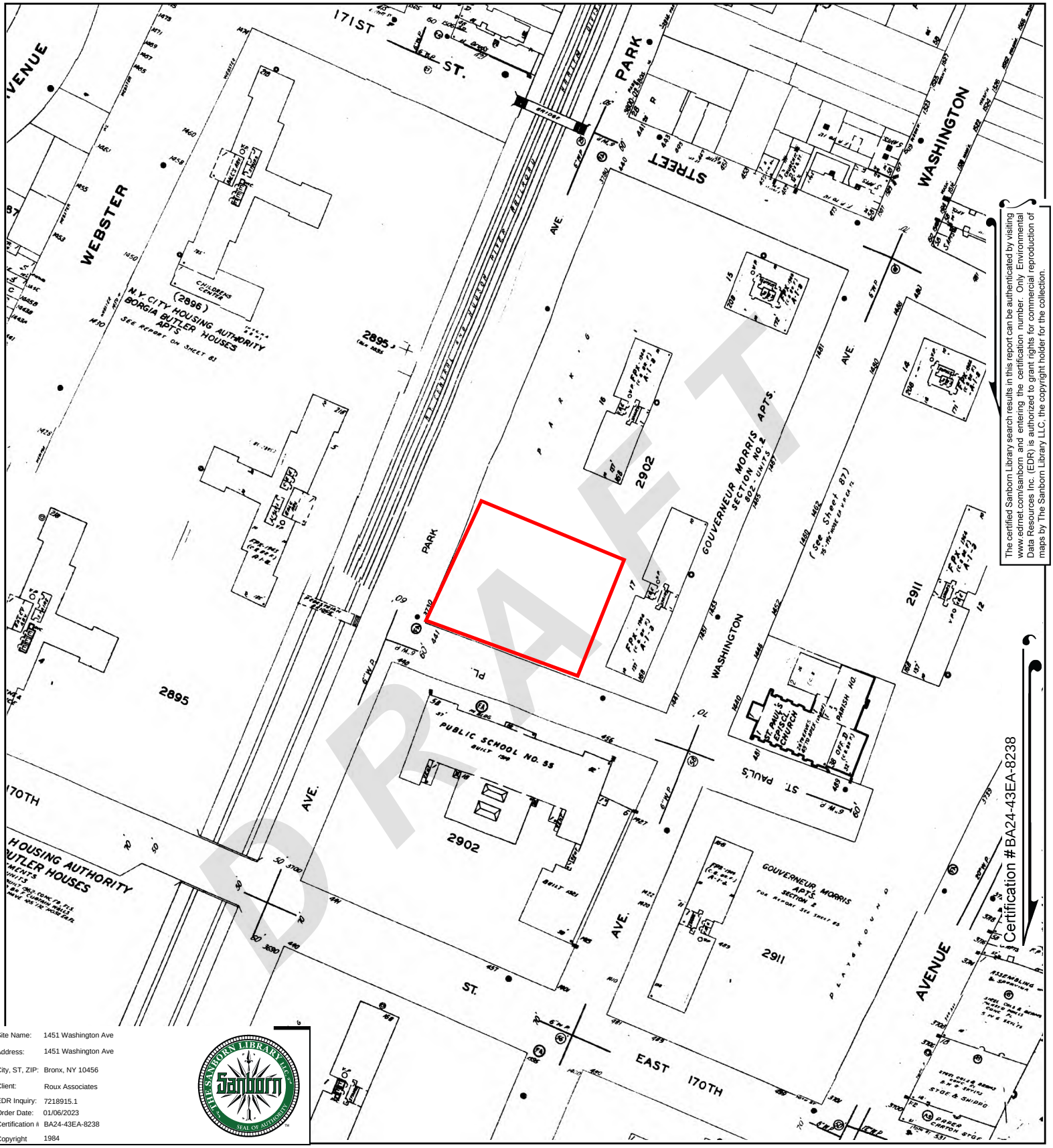


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Certified Sanborn® Map

1984



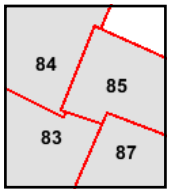
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Certification #:	BA24-43EA-8238
Copyright	1984

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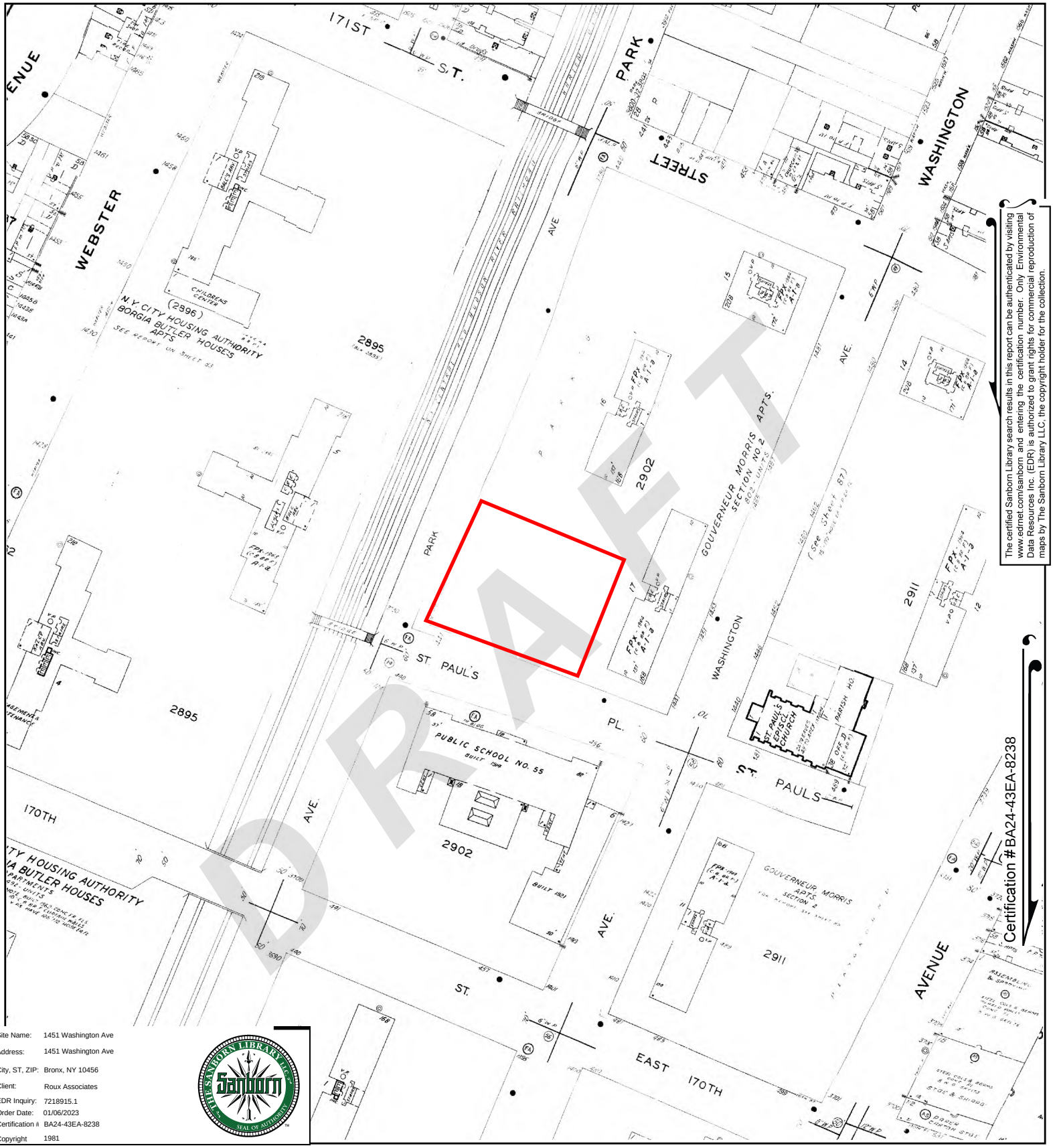




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Volume 10N, Sheet 83
Volume 10N, Sheet 85
Volume 10N, Sheet 84

0 Feet 150 300 600

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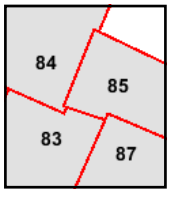
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City, ST, ZIP:	Bronx, NY 10456
Client:	Roux Associates
EDR Inquiry:	7218915.1
Order Date:	01/06/2023
Certification #:	BA24-43EA-8238
Copyright	1981

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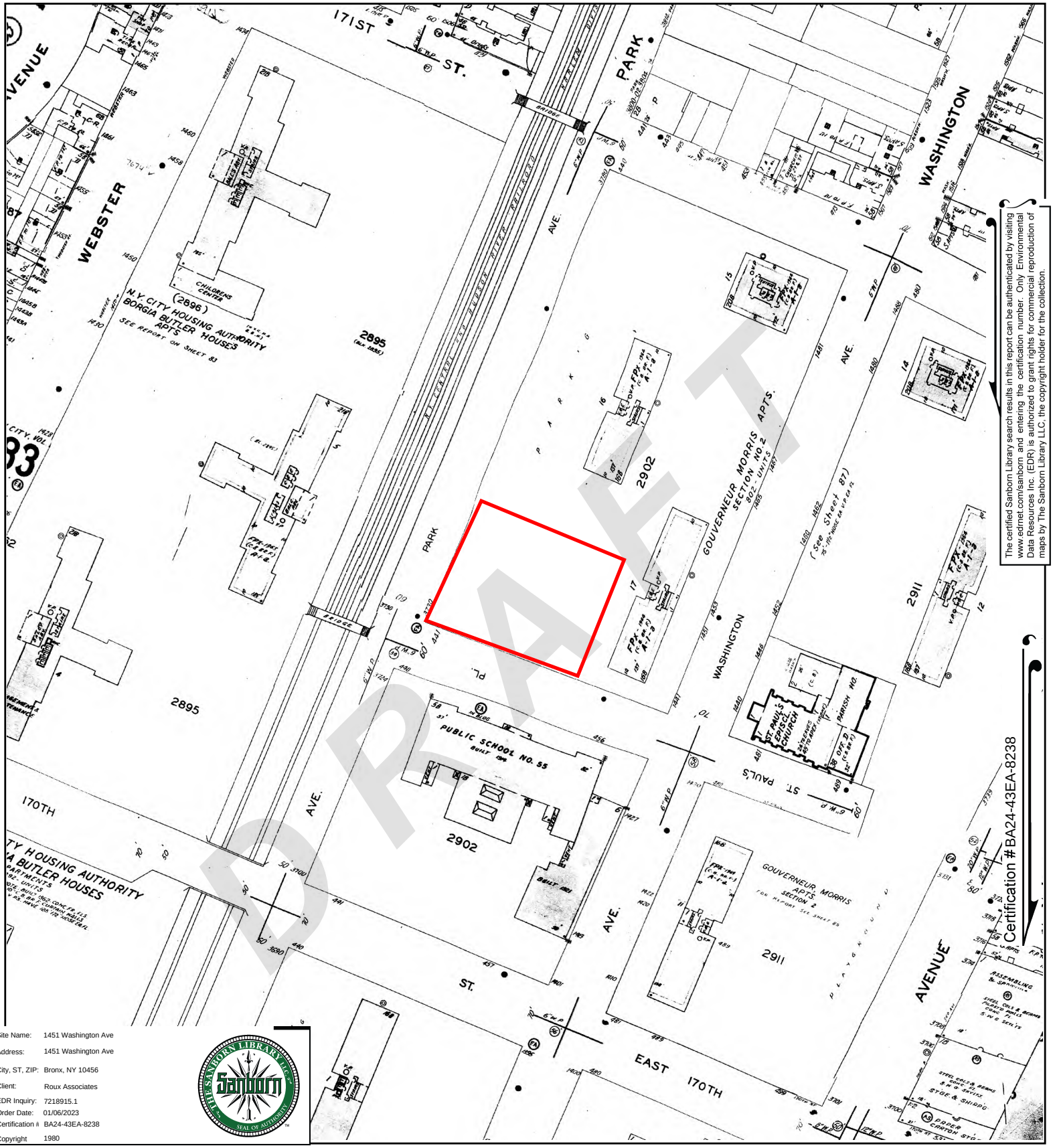




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Volume 10N, Sheet 85
Volume 10N, Sheet 83
Volume 10N, Sheet 87

0 Feet 150 300 600

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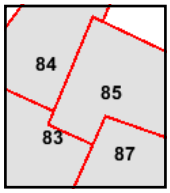
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Client:	Roux Associates
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Certification #:	BA24-43EA-8238
Copyright	1980

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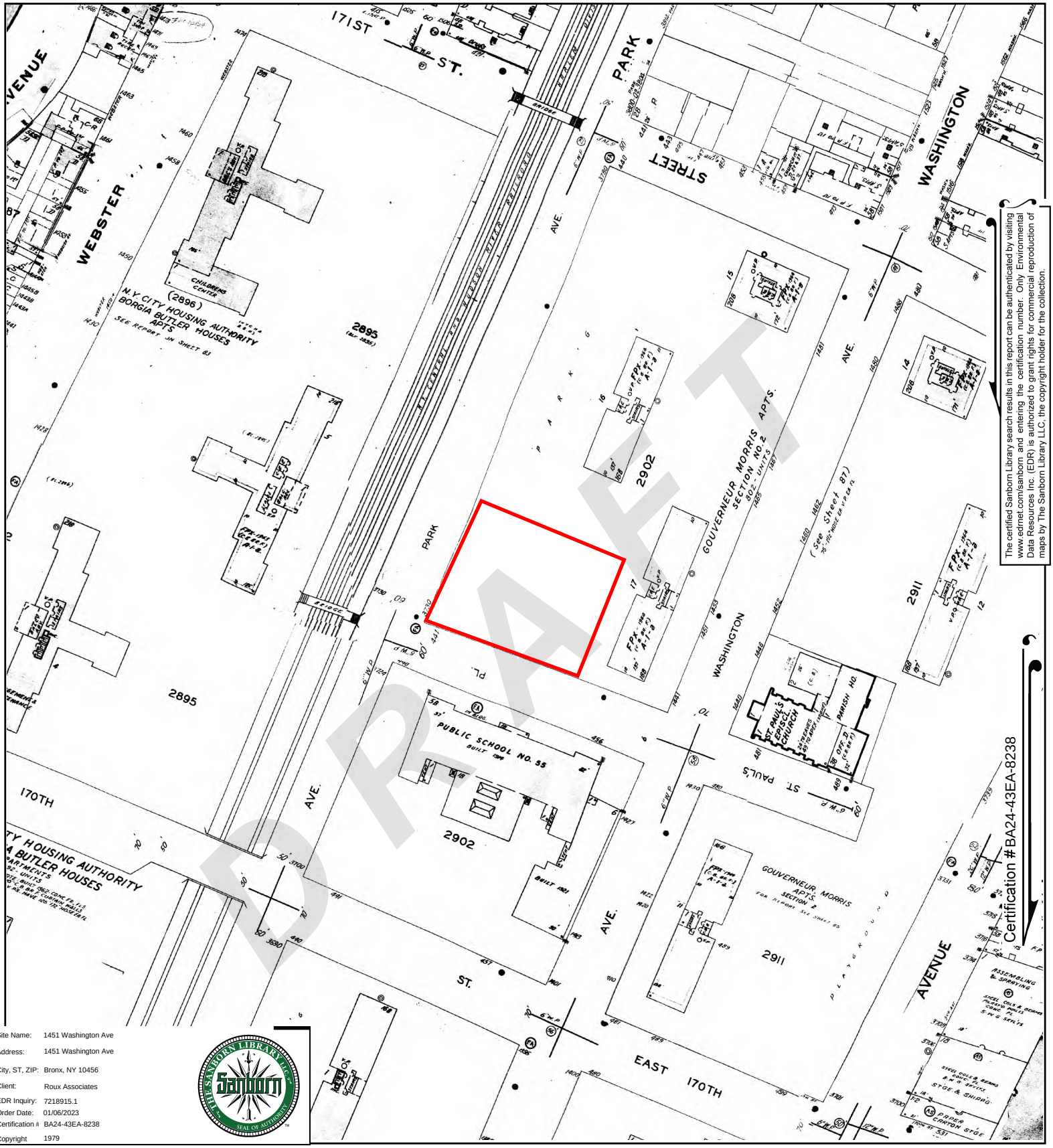
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Volume 10N, Sheet 83
Volume 10N, Sheet 84
Volume 10N, Sheet 85

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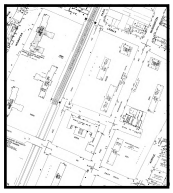
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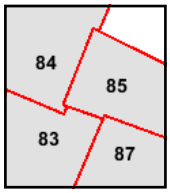
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Address:	1451 Washington Ave
City, ST, ZIP:	Bronx, NY 10456
Client:	Roux Associates
EDR Inquiry:	7218915.1
Order Date:	01/06/2023
Certification #:	BA24-43EA-8238
Copyright	1979

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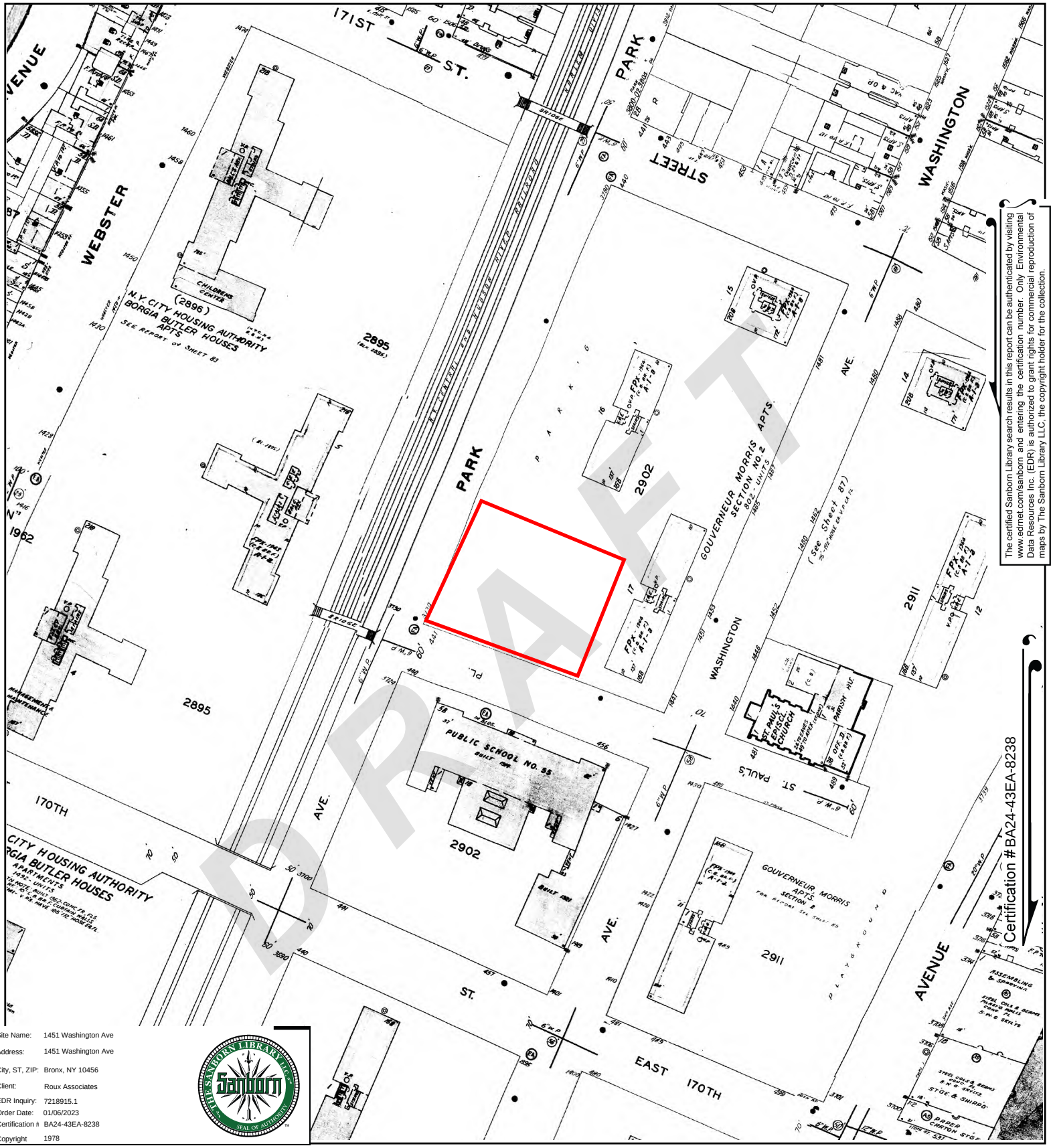
Volume 10N, Sheet 84
Volume 10N, Sheet 83
Volume 10N, Sheet 85
Volume 10N, Sheet 87

0 Feet 150 300 600

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Certified Sanborn® Map

1978



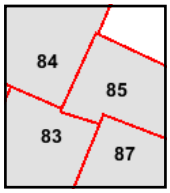
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Address:	1451 Washington Ave
City, ST, ZIP:	Bronx, NY 10456
Client:	Roux Associates
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Order Date:	01/06/2023
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Copyright	1978

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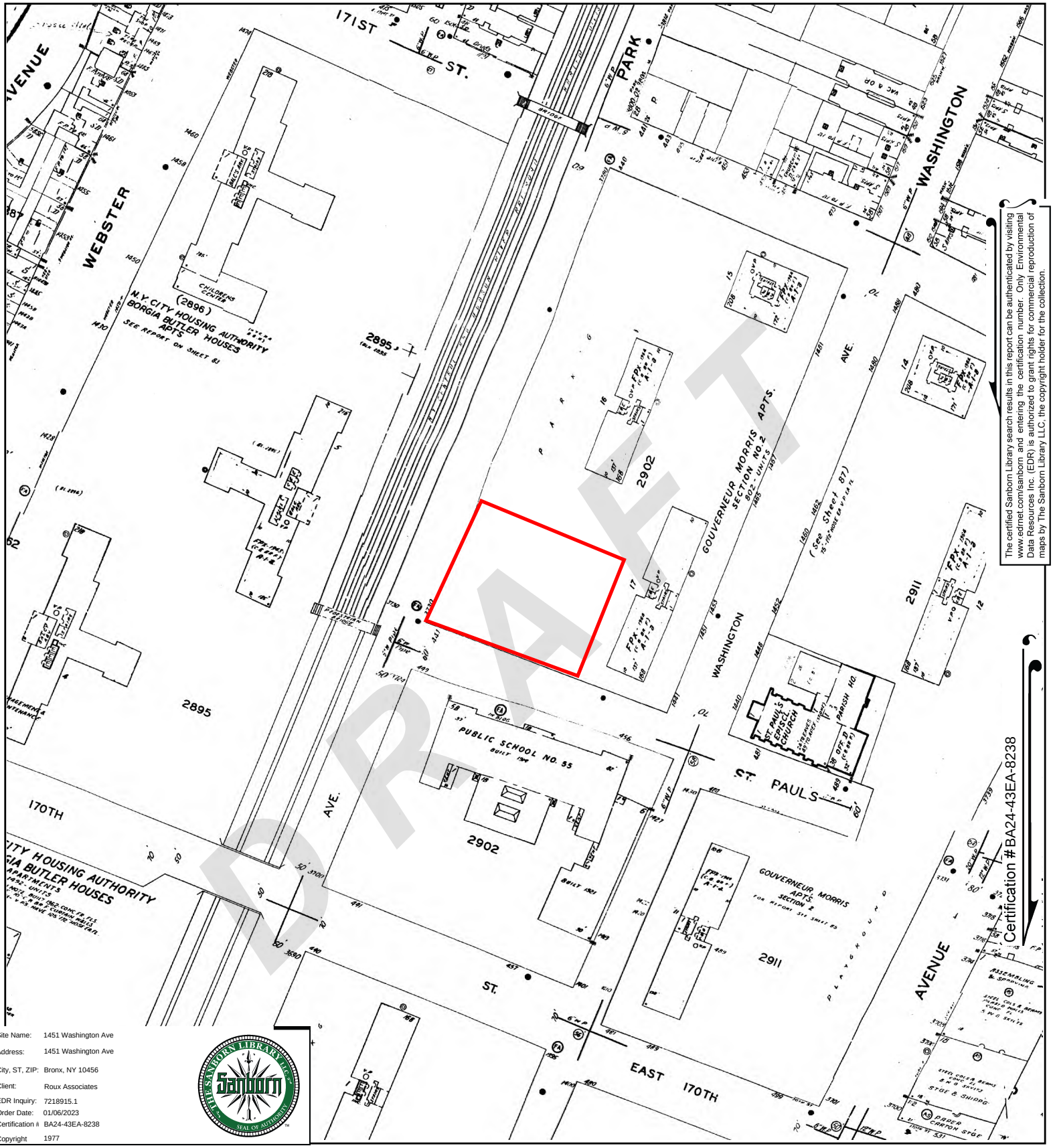




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Volume 10N, Sheet 85
Volume 10N, Sheet 87
Volume 10N, Sheet 84

0 Feet 150 300 600

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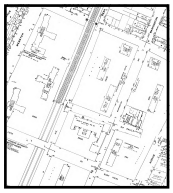


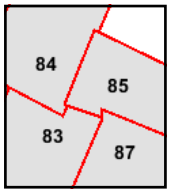
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Copyright	1977

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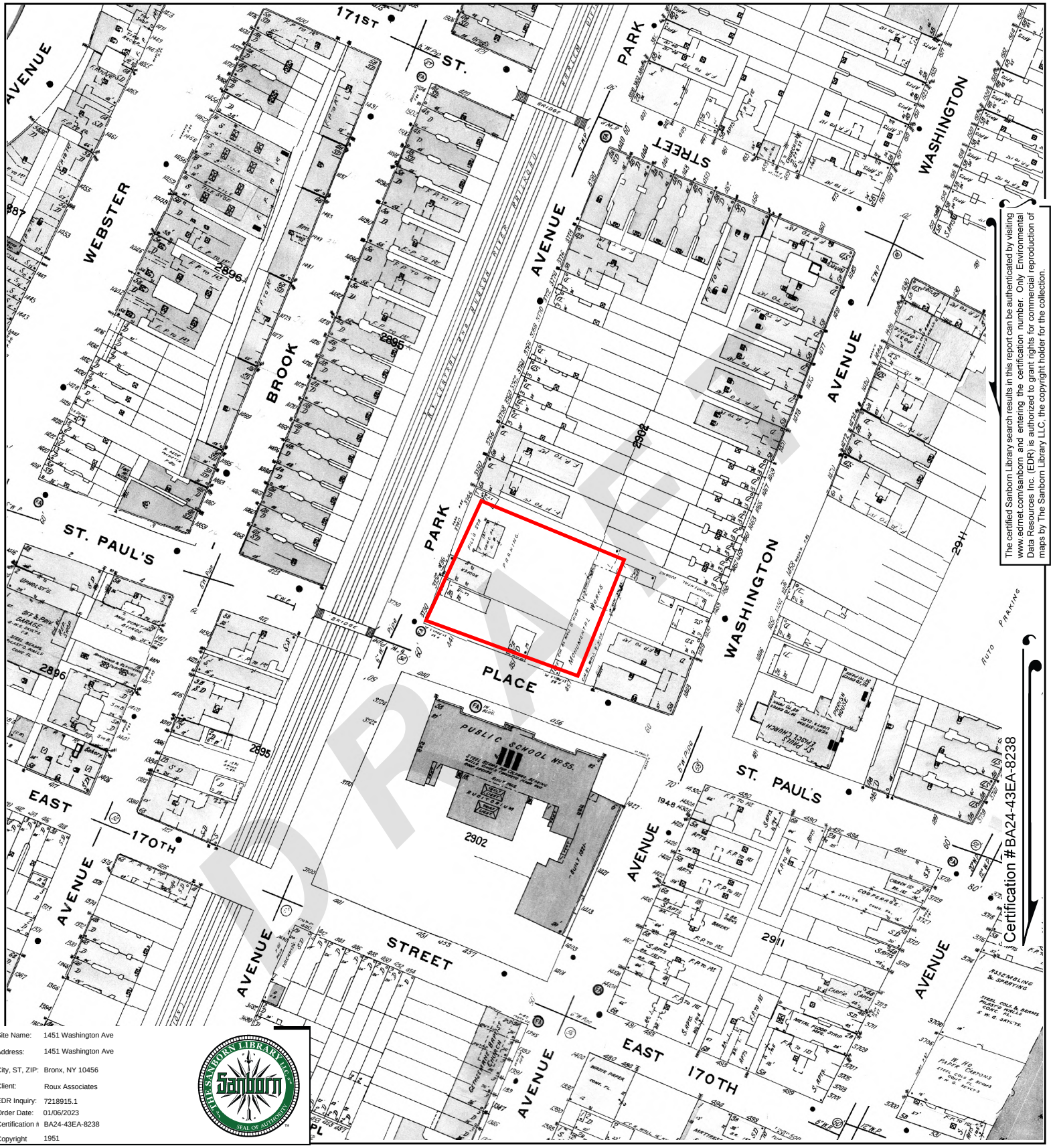




Volume 10N, Sheet 84
Volume 10N, Sheet 87
Volume 10N, Sheet 85
Volume 10N, Sheet 83

0 Feet 150 300 600

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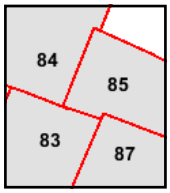


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Copyright	1951

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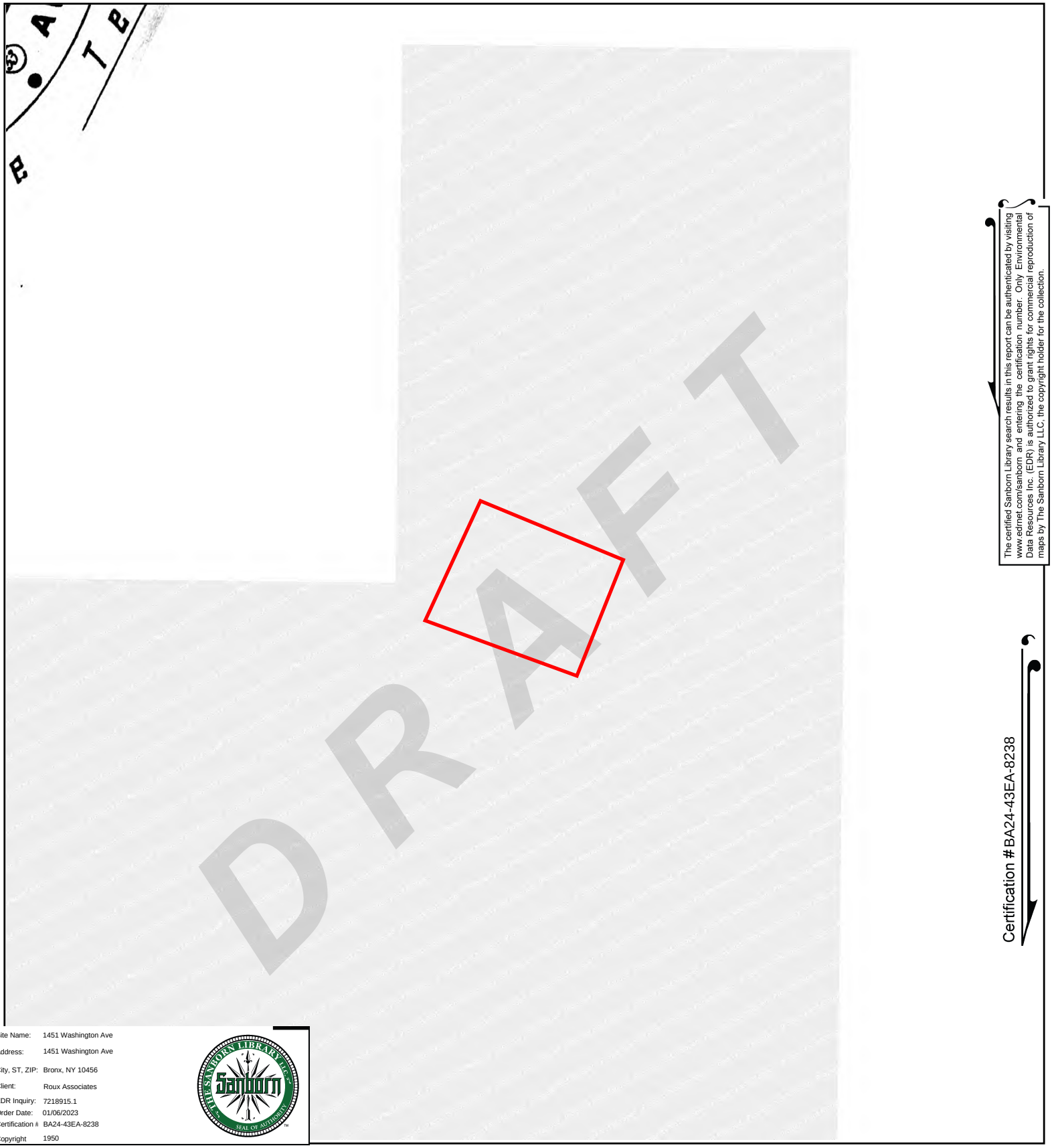




Volume 10N, Sheet 84
Volume 10N, Sheet 85
Volume 10N, Sheet 87
Volume 10N, Sheet 83

0 Feet 150 300 600

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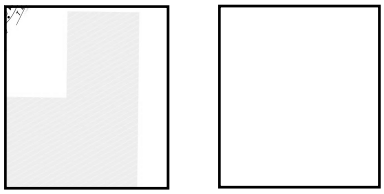


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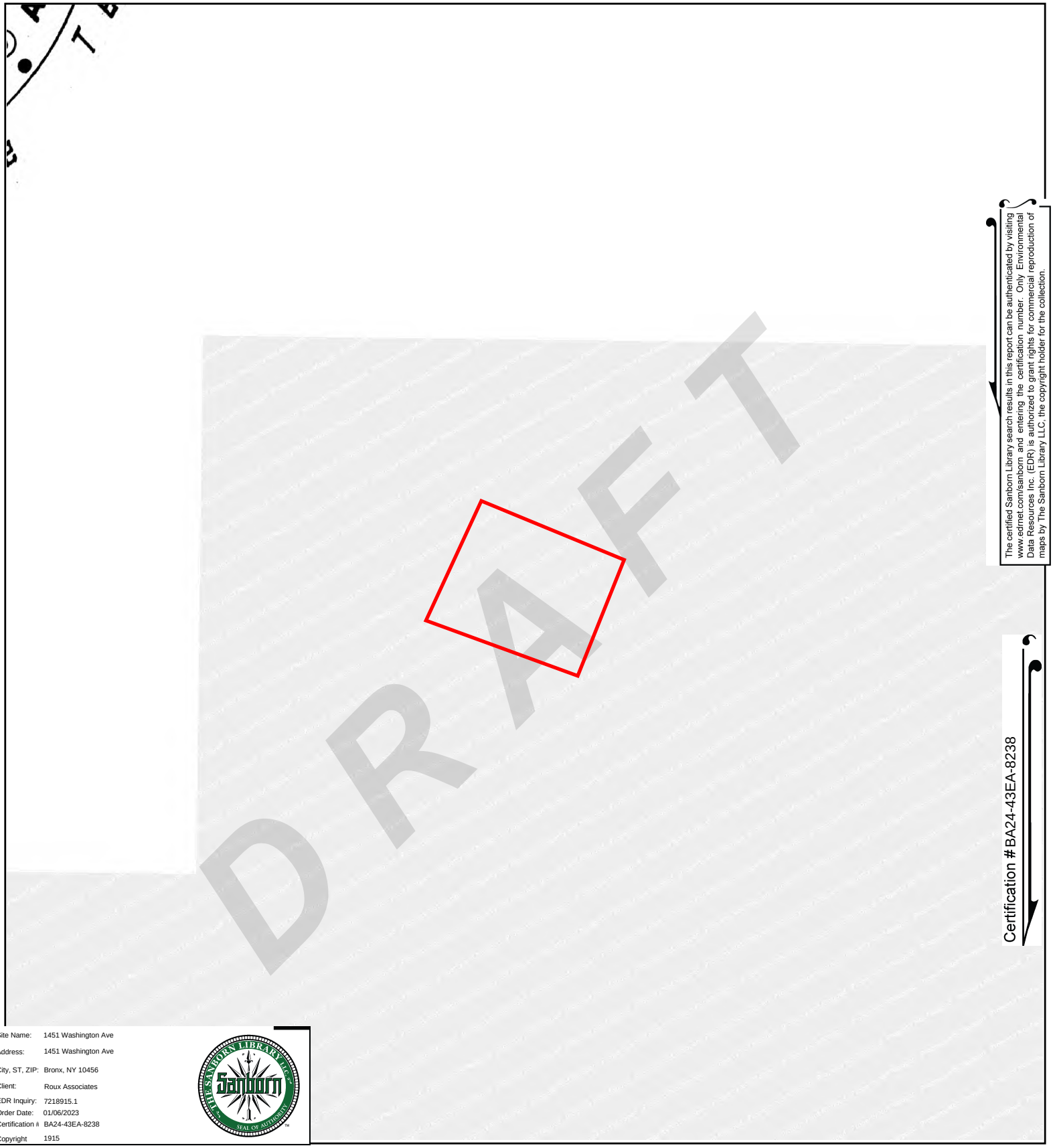
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Copyright 1950

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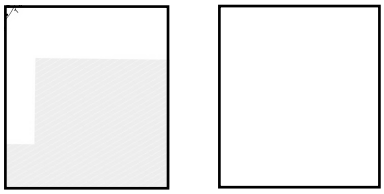


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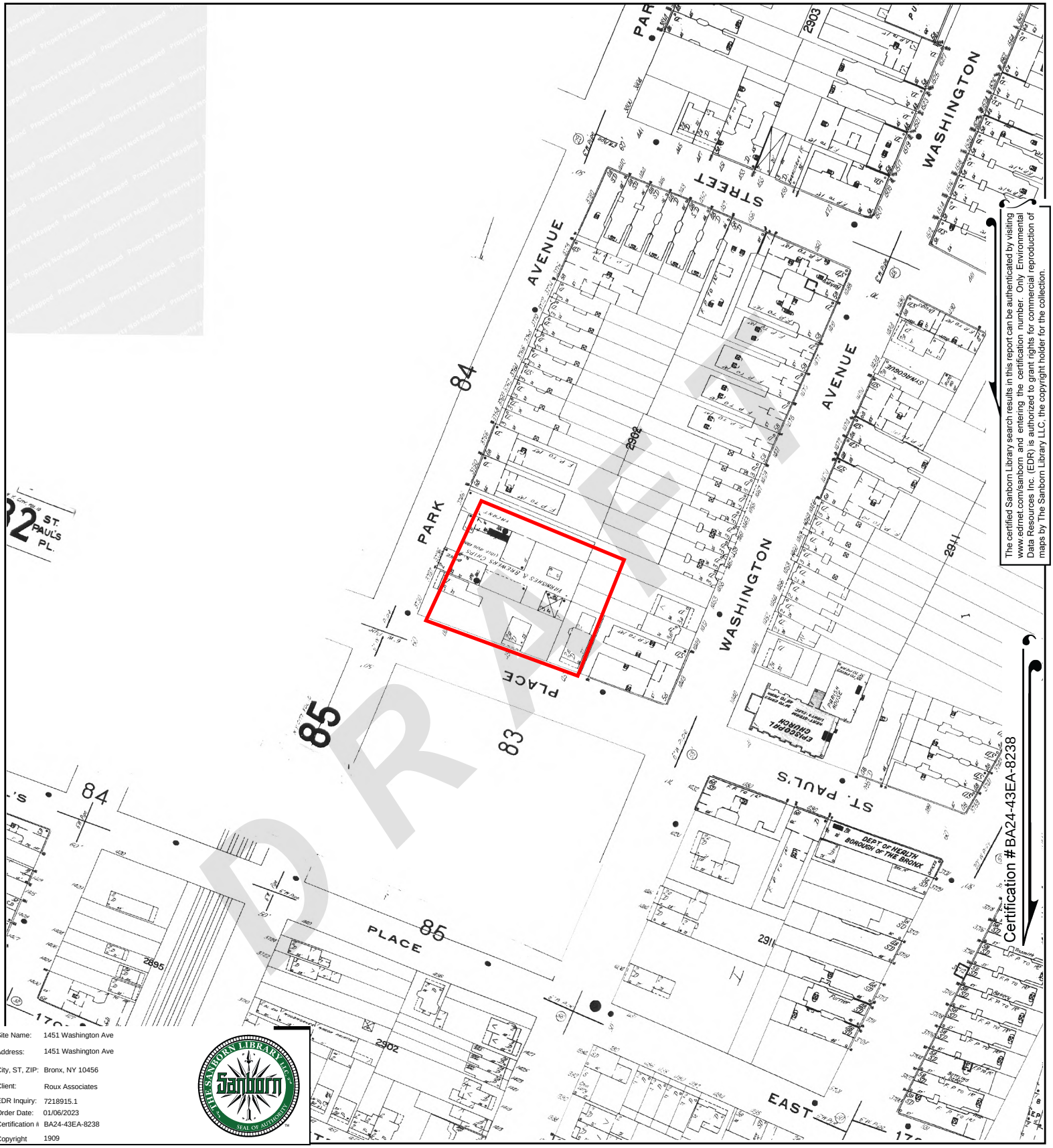
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Order Date: 01/06/2023
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Copyright 1915

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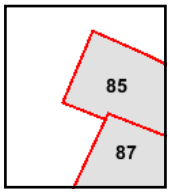
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Client:	Roux Associates
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Certification #:	BA24-43EA-8238
Copyright	1909

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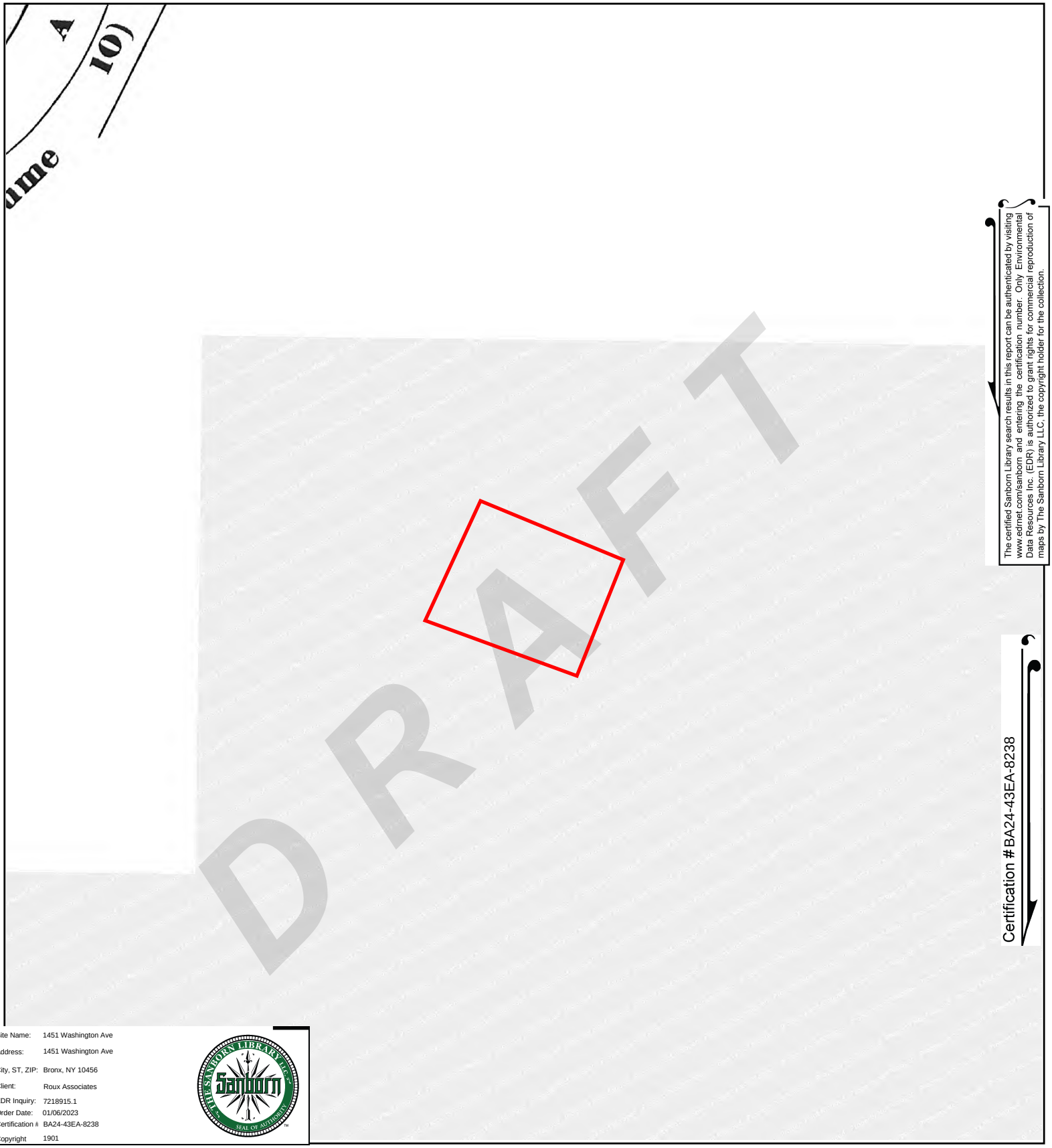
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Volume 10, Sheet 85

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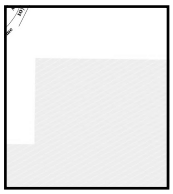


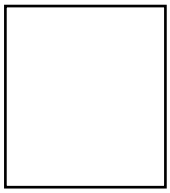
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Address: 1451 Washington Ave
City, ST, ZIP: Bronx, NY 10456
Client: Roux Associates
EDR Inquiry: 7218915.1
Order Date: 01/06/2023
Certification #: BA24-43EA-8238
Copyright: 1901

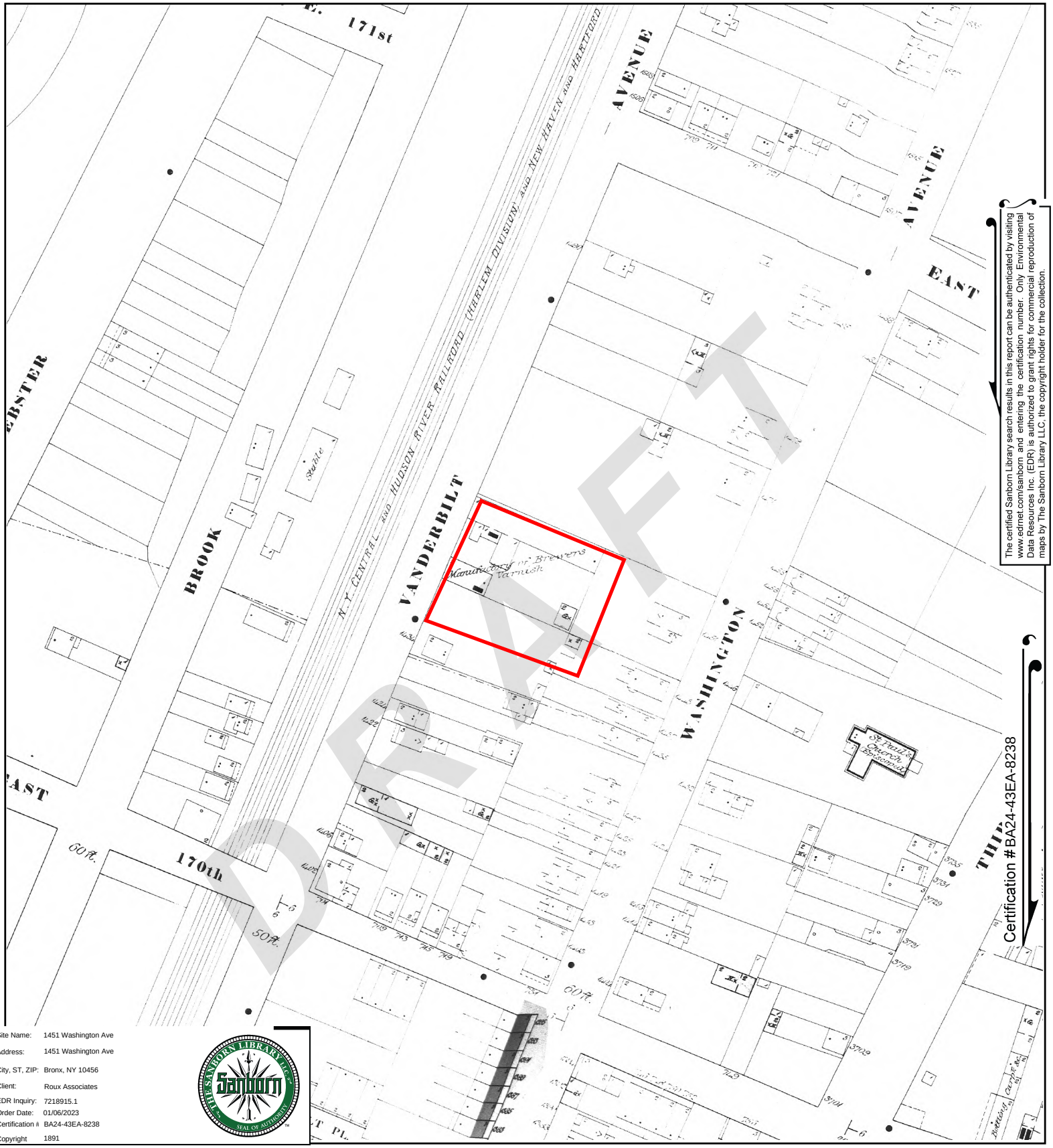
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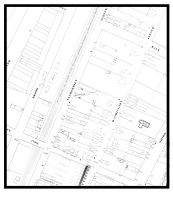
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Client:	Roux Associates
EDR Inquiry:	7218915.1
Order Date:	01/06/2023
Certification #:	BA24-43EA-8238
Copyright	1891

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Volume 10, Sheet 234

N

APPENDIX E

RI Soil Boring and Monitoring Well Logs

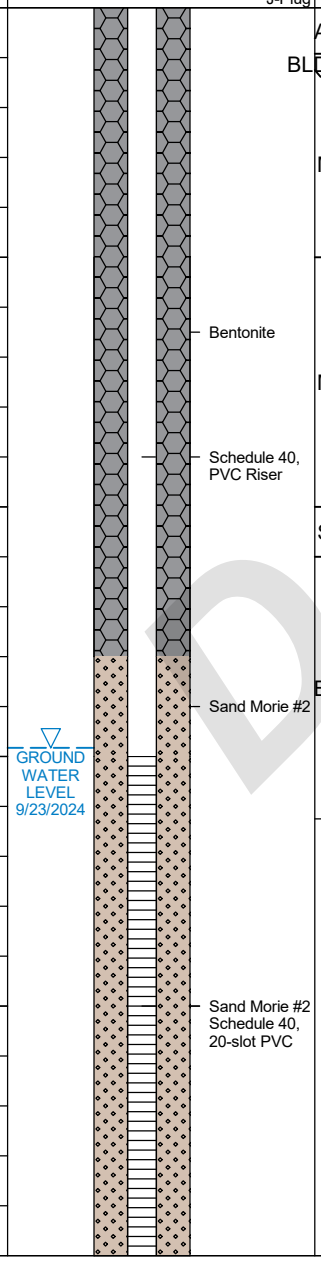
DRAFT

RISB-1/RIMW-1/RISV-1

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/6/2024 - 9/18/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 25 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 14.83 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Well Depth: 25 feet	Well Dia./Materials: 2-inch PVC	Screen Interval: 15-25 feet	Screen Slot Size: 20-Slot	Sand/Filter Pack Size: Morie #2	Annular Seal: Bentonite



Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
0	ASPH		Asphalt				
	BLDRCBBL		Grey, COBBLE, little fine to coarse Gravel, Brick, trace asphalt (FILL); moist	G	5	0.0	Sample RISB-1_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, Brick, trace cobble, asphalt (FILL); moist				
5	MIXD		Greyish-Brown, fine to coarse SAND, some fine to coarse Gravel, trace cobble, ceramic tile, glass, brick (FILL); moist		2.5	0.0	RISV-1 installed from 4.5-5' bls Sample RISB-1_5-7 collected from 5-7' bls and analyzed for TCL+30/TAL
10	SWG		Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace silt; moist		5	0.0	Sample RISB-1_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL
	BEDR		Decomposed bedrock; moist			0.0	
15					1.25	0.0	Groundwater table encountered at 14.83' bls Geoprobe refusal encountered at 16.25' bls
20							

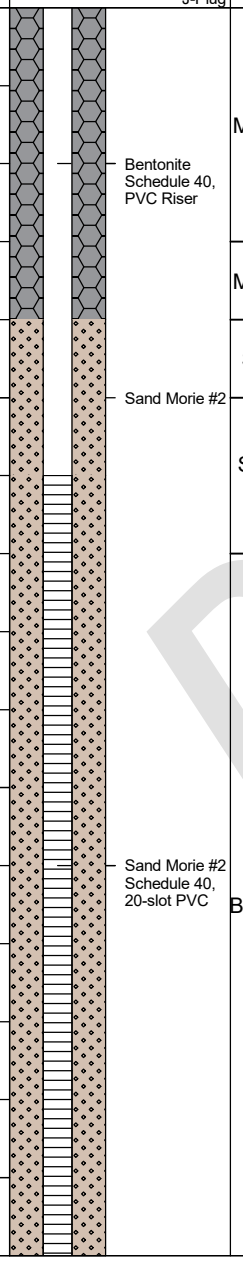
DRAFT

RISB-2/RIMW-2/RISV-2

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/9/2024 - 9/17/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 16 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Well Depth: 16 feet	Well Dia./Materials: 2-inch PVC	Screen Interval: 6-16 feet	Screen Slot Size: 20-Slot	Sand/Filter Pack Size: Morie #2	Annular Seal: Bentonite



Depth (ft)	USCS	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD	Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (wood & roots), glass, brick (FILL); moist	G	5	0.0	Samples RISB-2_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL Sample RISB-2_0-2_P collected from 0-2' bls and analyzed for PFAS
	MIXD	Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (roots), brick (FILL); moist			0.0	
	SW	Brown, fine to coarse SAND, trace fine to coarse gravel; moist			0.0	
5	SW-SM	Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel; moist			0.0	RISV-2 installed from 6.5-7' bls
	BEDR	Decomposed bedrock; moist		5	0.0	Sample RISB-2_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL Sample RISB-2_7-9_P collected from 7-9' bls and analyzed for PFAS
10					0.0	Sample RISB-2_9-11 collected from 9-11' bls and analyzed for TCL+30/TAL
				3		
15				1	0.0	Geoprobe refusal encountered at 16' bls

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RISB-3/RIMW-3/RISV-3

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/9/2024 - 9/17/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
18 feet	Soil Cuttings	2-inches	
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Well Depth:	Well Dia./Materials:	Screen Interval:	Screen Slot Size:	Sand/Filter Pack Size:	Annular Seal:
18 feet	2-inch PVC	8-18 feet	20-Slot	Morie #2	Bentonite

Depth (ft)	Well Diagram	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	J-Plug	MIXD		Brown to Dark Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, organics (roots), glass, brick (FILL); moist	G	5	0.0	Sample RISB-3_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL Sample RISB-3 _0-2_P collected from 0-2' bls and analyzed for PFAS
	Bentonite Schedule 40, PVC Riser	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace silt, brick (FILL); moist			0.0	
5		SW-SM		Reddish-Brown, fine to coarse SAND, little Silt; moist			0.0	Sample RISB-3_5-7 collected from 5-7' bls and analyzed for TCL+30/TAL Sample RISB-3 _5-7_P collected from 5-7' bls and analyzed for PFAS RISV-3 installed from 6.5-7' bls
	Sand Morie #2					4		
		SWG		Brown, fine to coarse SAND, little fine to coarse Gravel, trace silt, organic (wood); moist			0.0	Sample RISB-3_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL
10							0.0	
		SW		Brown, fine to coarse SAND, trace fine to coarse gravel; moist		3		
	Sand Morie #2 Schedule 40, 20-slot PVC							
15							0.0	
						2		Geoprobe refusal encountered at 17' bls

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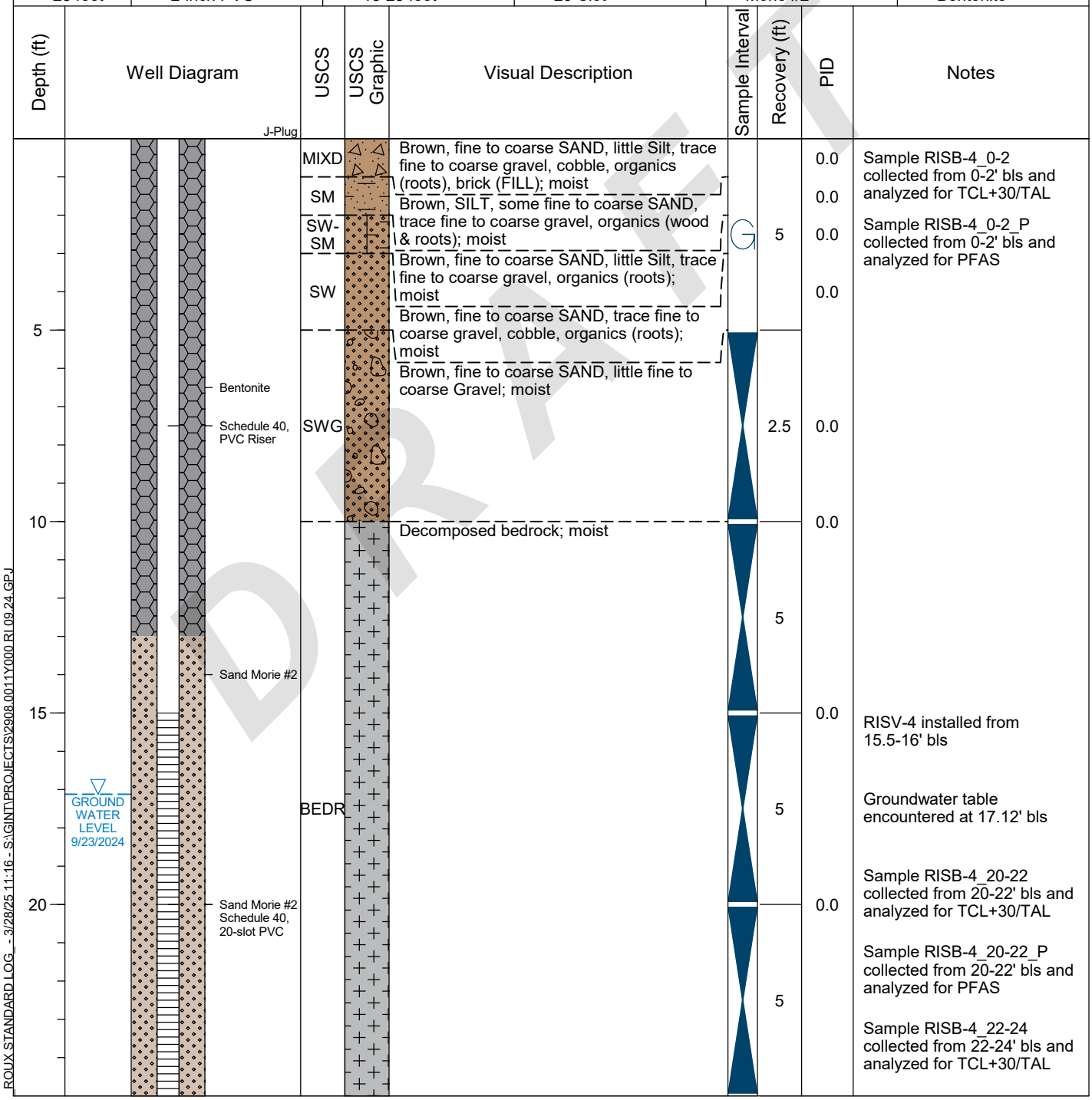
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RISB-4/RIMW-4/RISV-4

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/4/2024 - 9/13/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
25 feet	Soil Cuttings	2-inches	17.12 feet
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Well Depth:	Well Dia./Materials:	Screen Interval:	Screen Slot Size:	Sand/Filter Pack Size:	Annular Seal:
25 feet	2-inch PVC	15-25 feet	20-Slot	Morie #2	Bentonite



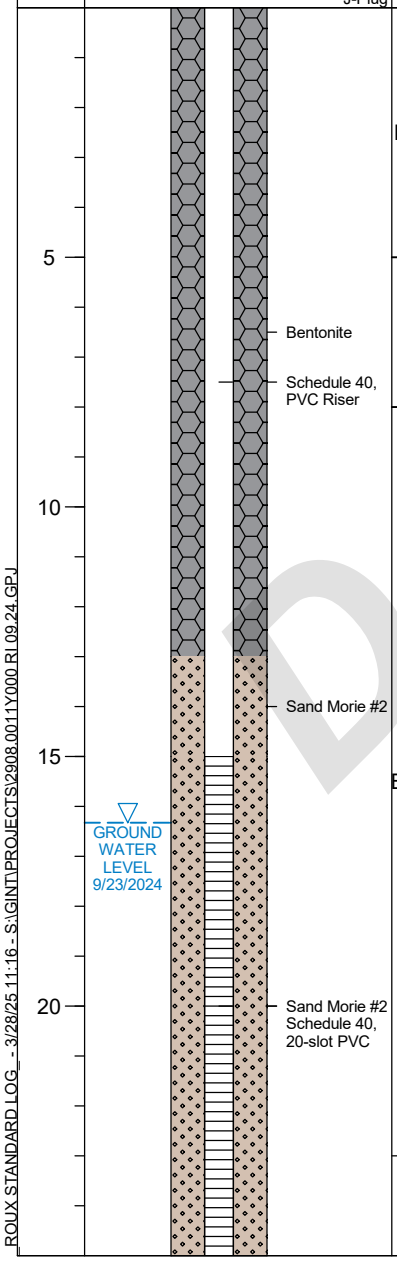
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RISB-5/RIMW-5/RISV-5

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/5/2024 - 9/17/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 25 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 16.33 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Well Depth: 25 feet	Well Dia./Materials: 2-inch PVC	Screen Interval: 15-25 feet	Screen Slot Size: 20-Slot	Sand/Filter Pack Size: Morie #2	Annular Seal: Bentonite



Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (wood & roots), brick, glass, metal (FILL); moist	G	5	0.0 0.0	Sample RISB-5_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
5	SW-SM		Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, organics (wood); moist		3.17	0.0 0.0	
			Decomposed bedrock; moist			0.0	
10					5	0.0	
15	BEDR				5	0.0	Groundwater table encountered at 16.33' bls Sample RISB-5_17-19 collected from 17-19' bls and analyzed for TCL+30/TAL
20					3	0.0	Sample RISB-5_19-21 collected from 19-21' bls and analyzed for TCL+30/TAL RISV-5 installed from 20.5-21' bls Geoprobe refusal encountered at 23' bls

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RISB-6/RIMW-6/RISV-6

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/5/2024 - 9/13/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 25 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 16.42 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Well Depth: 25 feet	Well Dia./Materials: 2-inch PVC	Screen Interval: 15-25 feet	Screen Slot Size: 20-Slot	Sand/Filter Pack Size: Morie #2	Annular Seal: Bentonite

Depth (ft)	Well Diagram	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	J-Plug	MIXD		Dark Brown, fine to coarse SAND, little fine to coarse gravel, trace cobble, organics (roots), metal, brick (FILL); moist			0.0	Sample RISB-6_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
		MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (roots), cobble, brick (FILL); moist	G	5	0.0	
		SM		Light brown, SAND and SILT, trace fine to coarse gravel; moist.			0.0	
5		SM		Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel; moist		5	0.0	
	Bentonite / Schedule 40, PVC Riser			Decomposed bedrock; moist				
10		BEDR				5	0.0	Sample RISB-6_15-17 collected from 15-17' bls and analyzed for TCL+30/TAL Sample RISB-6_15-17_P collected from 15-17' bls and analyzed for PFAS
15	Sand Morie #2					4	0.0	Groundwater table encountered at 16.42' bls Sample RISB-6_17-19 collected from 17-19' bls and analyzed for TCL+30/TAL
	GROUND WATER LEVEL 9/23/2024	BEDR		Decomposed bedrock; wet				RISV-6 installed from 18.5-19' bls
20	Sand Morie #2 Schedule 40, 20-slot PVC							Geoprobe refusal encountered at 19' bls

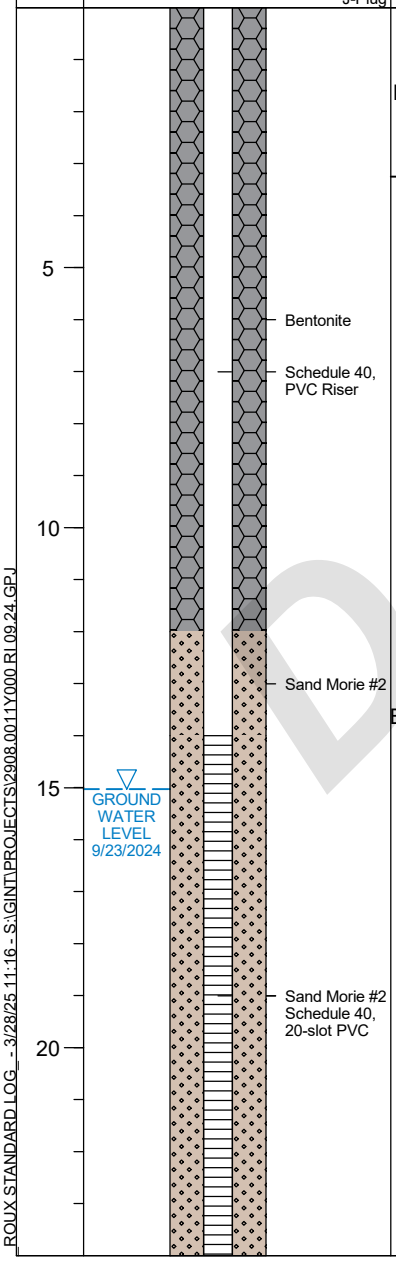
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RISB-7/RIMW-7

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/5/2024 - 9/13/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 24 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 15.03 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Well Depth: 24 feet	Well Dia./Materials: 2-inch PVC	Screen Interval: 14-24 feet	Screen Slot Size: 20-Slot	Sand/Filter Pack Size: Morie #2	Annular Seal: Bentonite



USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
MIXD		Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (wood & roots), brick (FILL); moist	G	5	0.0	Sample RISB-7_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
		Decomposed bedrock; moist			0.0	
				5	0.0	
				5	0.0	
BEDR				5	0.0	Groundwater table encountered at 15.03' bls
				5		Sample RISB-7_19-21 collected from 19-21' bls and analyzed for TCL+30/TAL
					0.0	Sample RISB-7_19-21_P collected from 19-21' bls and analyzed for PFAS
				4		Sample RISB-7_21-23 collected from 21-23' bls and analyzed for TCL+30/TAL
						Geoprobe refusal encountered at 24' bls

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RISB-8/RIMW-8

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/6/2024 - 9/17/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
25 feet	Soil Cuttings	2-inches	21.83 feet
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Well Depth:	Well Dia./Materials:	Screen Interval:	Screen Slot Size:	Sand/Filter Pack Size:	Annular Seal:
25 feet	2-inch PVC	15-25 feet	20-Slot	Morie #2	Bentonite

Depth (ft)	Well Diagram	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
0	J-Plug	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (wood), brick (FILL); moist	G	6	0.0	Sample RISB-8_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
							0.0	Sample RISB-8_2-4 collected from 2-4' bls and analyzed for TCL+30/TAL
5							0.0	Sample RISB-8_4-6 collected from 4-6' bls and analyzed for TCL+30/TAL
	Bentonite	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace brick (FILL); moist		2		
	Schedule 40, PVC Riser			Decomposed bedrock; moist			0.0	
10							0.0	
						5		
	Sand Morie #2	BEDR						
15							0.0	
						5		Sample RISB-8_16.5-18.5 collected from 16.5-18.5' bls and analyzed for TCL+30/TAL
20	Sand Morie #2 Schedule 40, 20-slot PVC							Geoprobe refusal encountered at 20' bls
	GROUND WATER LEVEL 9/23/2024							Groundwater table encountered at 21.83' bls

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RISB-9/RISV-9

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/5/2024 - 9/5/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 7 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	SW		Brown, fine to coarse SAND, trace fine to coarse gravel, organics (roots); moist	G	6	0.0	Sample RISB-9_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
							Sample RISB-9_2-4 collected from 2-4' bls and analyzed for TCL+30/TAL
5							Sample RISB-9_4-6 collected from 4-6' bls and analyzed for TCL+30/TAL
							RISV-9 installed from 6.5-7' bls

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RISB-10

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/5/2024 - 9/9/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 21 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark Brown, fine to coarse SAND, trace cobble, fine to coarse gravel, organics (roots), brick, asphalt (FILL); moist	G	5	0.0 0.0	Sample RISB-10_0-2 collected from 0-2' bls and analzyed for TCL+30/TAL
			Brown to Dark Brown, fine to coarse SAND, little Silt, trace cobble, fine to coarse gravel, brick, glass, organics (roots) (FILL); moist			0.0 0.0	
5	MIXD				2.5	0.0	
	MLS		Brown, SILT, some fine to coarse Sand; moist			0.0	Sample RISB-10_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL
			Decomposed bedrock; moist			0.0	
10					5	0.0	
15	BEDR				4.25	0.0	Sample RISB-10_17-19 collected from 17-19' bls analyzed for TCL+30/TAL
20					0.75	0.0	

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RISB-11

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/4/2024 - 9/9/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 21 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Light Brown to Brown, fine to coarse SAND, little fine to coarse Gravel, trace cobble, organics (roots), brick, plastic (FILL); moist	G	5	0.0 0.0	Sample RISB-11_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	SW-SM		Light Brown, fine to coarse SAND, little Silt, trace organics (roots); moist			0.0	
	SW		Light Brown, fine to coarse SAND, trace organics (roots); moist				
5	SWG		Brown, fine to coarse SAND, some fine to coarse Gravel, trace silt; moist		2.5	0.0	
			Brown, fine to coarse SAND, little fine to coarse Gravel; moist			0.0	
10	SWG				1.5	0.0	
			Greyish-Brown, fine to coarse SAND, little Silt; moist			0.0	Sample RISB-11_13-15 collected from 13-15' bls and analyzed for TCL+30/TAL
15	SW-SM					0.0	
			Decomposed bedrock; moist		4.5	0.0	Sample RISB-11_15-17 collected from 15-17' bls and analyzed for TCL+30/TAL
	BEDR					0.0	
20					1	0.0	

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RISB-12

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/4/2024 - 9/9/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
6 feet	Soil Cuttings	2-inches	
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace cobble, organics (roots), brick (FILL); moist				Sample RISB-12_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
			Light Brown, fine to coarse SAND, trace fine to coarse gravel, brick (FILL); moist	G	4	0.0	
	MIXD					0.0	Sample RISB-12_2-4 collected from 2-4' bls and analyzed for TCL+30/TAL
			Grey, COBBLE				
	BLDRCBBL					0.0	
5			Brown, fine to coarse SAND, trace fine to coarse gravel; moist		2		Sample RISB-12_4-6 collected from 4-6' bls and analyzed for TCL+30/TAL
	SW					0.0	

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RISB-13

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/4/2024 - 9/9/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 21 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 17 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Light Brown to Brown, fine to coarse SAND, trace fine to coarse gravel, organics (roots), brick (FILL); moist	G	5	0.0 0.0	Sample RISB-13_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Light Brown, fine to coarse SAND, trace fine to coarse gravel, brick (FILL); moist			0.0	
5	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace cobble, organics (roots), brick (FILL); moist		4.75	0.5 0.7	
	SW		Dark Brown, fine to coarse SAND, little fine to coarse Gravel; moist			1.7	
	SW		Light Brown, fine to coarse SAND, trace fine to coarse gravel; moist				
10	SW-SM		Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel; moist		2	0.1	
15	SW-SM		Dark Grey, fine to coarse SAND, little Silt; wet		3	0.1	Sample RISB-13_17-19 collected from 17-19' bls and analyzed for TCL+30/TAL Sample RISB-13_17-19_P collected from 17-19' bls and analyzed for PFAS Water table encountered at 17' bls
	SM		Light Brown, SILT and SAND; wet			0.1	
	SW-SM		Greyish Brown, fine to coarse SAND, little Silt; wet				Sample RISB-13_19-21 collected from 19-21' bls and analyzed for TCL+30/TAL
20	BEDR		Decomposed bedrock; wet		1	478.5	Odor and Staining observed from 19-20.5' bls

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RISB-14

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/4/2024 - 9/9/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 20 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW: 14 feet
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (roots & wood), brick (FILL); moist			0.0	Sample RISB-14_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, brick (FILL); moist	G	5	0.0	Sample RISB-14_0-2_P collected from 0-2' bls and analyzed for PFAS
	MIXD		Dark Brown, SILT, little fine to coarse Sand, trace fine to coarse gravel, brick (FILL); moist			0.0	
5	MIXD		Dark Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, brick (FILL); moist			0.3	
	SW-SM		Greyish-Brown, fine to coarse SAND, little SIlt; moist		3.5	0.4	Sample RISB-14_9-11 collected from 9-11' bls and analyzed for TCL+30/TAL
10						0.1	Sample RISB-14_9-11_P collected from 9-11' bls and analyzed for PFAS
	SW-SM		Greyish-Brown, fine to coarse SAND, little SIlt, fine to coarse Gravel; moist		4.25	0.1	Sample RISB-14_13-15 collected from 13-15' bls and analyzed for TCL+30/TAL
							Sample RISB-14_13-15_P collected from 13-15' bls and analyzed for PFAS
			Dark Brown, SILT, some fine to coarse Sand; wet			0.1	
15	SM					0.1	Water table encountered at 14' bls
	BEDR		Decomposed bedrock; moist		5		Sample RISB-14_15-17 collected from 15-17' bls and analyzed for TCL+30/TAL

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RISB-15

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/6/2024 - 9/12/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
9 feet	Soil Cuttings	2-inches	
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	CONC		Concrete				
	MIXD		Brown, fine to coarse SAND, trace fine to coarse gravel, organics (roots), glass, brick (FILL); moist			0.0	Sample RISB-15_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Greyish-Brown, fine to coarse SAND, little fine to coarse Gravel, trace organics (roots), glass, brick (FILL); moist	G	5	0.0	
	MIXD		Greyish-Brown, fine to coarse SAND, some fine to coarse Gravel, trace organics (roots), glass, brick (FILL); moist			0.0	Sample RISB-15_5-7 collected from 5-7' bls and analyzed for TCL+30/TAL
5	MIXD		Greyish-Brown, fine to coarse SAND, some fine to coarse Gravel, trace organics, bricks, (FILL); moist			0.0	Sample RISB-15_5-7_P collected from 5-7' bls and analyzed for PFAS
	MIXD		Fibrous Material		2.83	0.0	
	MIXD		Dark Brown, fine to coarse SAND, little fine to coarse Gravel, Brick (FILL); moist			0.0	Sample RISB-15_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL

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RISB-16/RISV-7

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/6/2024 - 9/12/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
7 feet	Soil Cuttings	2-inches	
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark Brown, fine to coarse SAND, trace fine to coarse gravel, organics (roots), metal, brick (FILL); moist			0.0	
	MIXD		Brown, fine to coarse SAND, trace fine to coarse gravel, organics (roots), metal, brick (FILL); moist			0.0	Sample RISB-16_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	BEDR		Decomposed bedrock; moist	G	5	0.0	Sample RISB-16_3-5 collected from 3-5' bls and analyzed for TCL+30/TAL
5						0.0	Sample RISB-16_5-7 collected from 5-7' bls and analyzed for TCL+30/TAL
					2		RISV-7 installed from 6.5-7' bls

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RISB-17/RISV-8

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/10/2024 - 9/10/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 20 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, organics (roots), glass, brick (FILL); moist			0.0	Sample RISB-17_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Brown, fine to coarse SAND, some fine to coarse Gravel, little Silt, trace organics (roots), brick (FILL); moist	G	5	0.0	Sample RISB-17_0-2_P collected from 0-2' bls and anayzed for PFAS
5			Decomposed bedrock; moist			0.0	
					5		RISV-8 installed from 6.5-7' bls
10						0.0	
	BEDR				5		Sample RISB-17_12-14 collected from 12-14' bls and analyzed for TCL+30/TAL
							Sample RISB-17_12-14_P collected from 12-14' bls and anayzed for PFAS
15						0.0	
					5		Sample RISB-17_15-17 collected from 15-17' bls and analyzed for TCL+30/TAL
							Sample RISB-17_18-20 collected from 18-20' bls and analyzed for TCL+30/TAL

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RISB-18

Page 1 of 1

Client:	Site:	Project Number:
Sol on Park LLC	NRP Sol on Park	2908.0011Y000
Address:	**City/State:**	**Logged By:**
1451 Washington Ave	Bronx, NY	M. Hollis

Start to Finish Date:	Contractor:	Drill Type:	Sampler Type/Method:
9/5/2024 - 9/12/2024	Trinity Environmental Corp.	Geoprobe	2" Macro-Core
Borehole Depth:	**Backfill:**	**Borehole Diameter:**	**DTW:**
12 feet	Soil Cuttings	2-inches	
Area:	**Elevation:**	**Latitude:**	**Longitude:**
NM	NM	NM	NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Brown, fine to coarse SAND, little fine to coarse Gravel, trace cobble, organics (roots), glass, brick (FILL); moist			0.0	Sample RISB-18_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Dark Grey, fine to coarse Gravel, some fine to coarse Sand, little brick (FILL); moist	G	5	0.0	Odor observed from 2-5' bls
5						0.0	
	BEDR		Decomposed bedrock; moist		3.5	0.0	Sample RISB-18_8-10 collected from 8-10' bls and analyzed for TCL+30/TAL
10					2	0.0	Sample RISB-18_10-12 collected from 10-12' bls and analyzed for TCL+30/TAL

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RISB-19

Client: Sol on Park LLC	Site: NRP Sol on Park	Project Number: 2908.0011Y000
Address: 1451 Washington Ave	City/State: Bronx, NY	Logged By: M. Hollis

Start to Finish Date: 9/9/2024 - 9/12/2024	Contractor: Trinity Environmental Corp.	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 10 feet	Backfill: Soil Cuttings	Borehole Diameter: 2-inches	DTW:
Area: NM	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace silt, organics (roots), brick (FILL); moist			0.0	Sample RISB-19_0-2 collected from 0-2' bls and analyzed for TCL+30/TAL
	MIXD		Brown, fine to coarse SAND, little Silt, trace fine to coarse gravel, organics (roots), ceramic tile, brick (FILL); moist	G	5	0.0	
	MIXD		Brown, fine to coarse SAND, trace silt, fine to coarse gravel, brick (FILL); moist			0.0	
5	SWG		Brown fine to coarse SAND, little fine to coarse Gravel, trace organics (roots & wood); moist		4	0.0	Sample RISB-19_5-7 collected from 5-7' bls and analyzed for TCL+30/TAL
	BEDR		Decomposed bedrock; moist				Sample RISB-19_7-9 collected from 7-9' bls and analyzed for TCL+30/TAL

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APPENDIX F

SRI Soil Boring Logs

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RISB-2

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/2/2025 - 12/2/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 6 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (wood, roots), trace fine gravel; moist.			0.0	
	SM		Brown, fine to coarse SAND and SILT, trace organics (roots) and weathered bedrock; moist.	G	6	0.0	Soil sample RISB-2 (2-4) was collected from 2 to 4 ft bls and analyzed for TCL SVOCs+TAL Metals.
5				G		0.0	Soil sample RISB-2 (4-6) was collected from 4 to 6 ft bls and analyzed for TCL SVOCs+TAL Metals.
						0.0	

Bottom of borehole at 6 feet

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RISB-3

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/2/2025 - 12/2/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 5 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (roots), Concrete, and Asphalt (FILL); moist.			0.0	
1	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (roots), trace concrete and asphalt (FILL); moist.			0.0	
2	MIXD		Brown, fine to coarse SAND and SILT, little fine to coarse Gravel; moist.	G	5	0.0	Soil sample RISB-2 (3-5) was collected from 3 to 5 ft bls and analyzed for TCL SVOCs + TAL Metals.
3	MLS		Brown, SILT and fine SAND, trace fine to medium gravel; moist.				
4			Bottom of borehole at 5 feet				

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RISB-5

Client: NRP	Site: 1451 Washington Ave		Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York		Logged By: E. Torres
Start to Finish Date: 12/4/2025 - 12/4/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 15 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace organics (roots), brick, and concrete (FILL); moist.	G	5	0.0	Soil sample RISB-5 (0-2) was taken from 0 to 2 ft bls and analyzed for TCL + 30/TAL. Soil sample RISB-5 (0-2)_PFAS was taken from 0 to 2 ft bls and analyzed for PFAS. Soil samples RISB-5 (2-4) and DUP_120425 were taken from 2 to 4 ft bls and analyzed for TCL + 30/TAL. Soil samples DUP_120425_PFAS and RISB-5 (2-4)_PFAS were taken from 2 to 4 ft bls and analyzed for PFAS. Soil sample RISB-5 (4-6) was taken from 4 to 6 ft bls and analyzed for TCL + 30/TAL. Soil sample RISB-5 (4-6)_PFAS was taken from 4 to 6 ft bls and analyzed for PFAS. Soil sample RISB-5 (6-8) was taken from 6 to 8 ft bls and analyzed for TCL + 30/TAL. Soil sample RISB-5 (6-8)_PFAS was taken from 6 to 8 ft bls and analyzed for PFAS. Soil sample RISB-5 (8-10) was taken from 8 to 10 ft bls and analyzed for TCL + 30/TAL. Soil sample RISB-5 (8-10)_PFAS was taken from 8 to 10 ft bls and analyzed for PFAS.
	MIXD		Brown to dark brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace organics (roots), brick, and concrete (FILL); moist.	G		0.0	
				G		0.0	
5	SM		Brown, fine to coarse SAND and SILT, trace fine to coarse gravel; moist.	G		0.0	
			WEATHERED BEDROCK.	G	2	0.0	
				G		0.0	
10	BEDR				3.5	0.0	
						0.0	

Bottom of borehole at 15 feet

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RISB-6

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/3/2025 - 12/3/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 10 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (roots, wood, grass), trace brick (FILL); moist.			0.0	Soil sample RISB-6 (2-4) was taken from 2 to 4 ft bls and analyzed for TCL SVOCs + TAL Metals.
			Brown, fine to coarse SAND, some Silt, trace organics (roots); moist.	G	5		
	MIXD					0.0	Soil sample RISB-6 (4-6) was taken from 4 to 6 ft bls and analyzed for TCL SVOCs + TAL Metals.
			White to light brown/yellow, WEATHERED BEDROCK.				
5				C			
	BEDR				5	0.0	
			Bottom of borehole at 10 feet				

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RISB-7

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/3/2025 - 12/3/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 10 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (roots), Brick and Concrete (FILL), trace asphalt, tile, glass (FILL), and coarse gravel; moist.			0.0	
				G	5	0.0	Soil sample RISB-7 (2-4) was taken from 2 to 4 ft bls and analyzed for TCL SVOCs + TAL Metals.
			WEATHERED BEDROCK.				
						0.0	Soil sample RISB-7 (4-6) was taken from 4 to 6 ft bls and analyzed for TCL SVOCs + TAL Metals.
5				C		0.0	
	BEDR					0.0	
					2.5		
						0.0	
			Bottom of borehole at 10 feet				

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RISB-8

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/2/2025 - 12/2/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 12 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (wood, roots), trace clay and brick (FILL); moist.			0.0	
			Brown, fine to coarse SAND, some Silt, little Organics (roots, wood), coarse Gravel, Brick, and Concrete (FILL), trace clay; moist.		4	0.0	
						0.0	
	MIXD					0.0	
5			Brown, fine to coarse SAND and SILT, trace fine gravel; moist.				
	SM					0.0	Soil sample RISB-8 (6-8) was collected from 6 to 8 ft bls and analyzed for TCL SVOCs + TAL Metals.
			WEATHERED BEDROCK.	G	3.5		
						0.0	Soil sample RISB-8 (8-10) was collected from 8 to 10 ft bls and analyzed for TCL SVOCs + TAL Metals.
	BEDR			G			
10						0.0	Soil sample RISB-8 (10-12) was collected from 10 to 12 ft bls and analyzed for TCL SVOCs + TAL Metals.
				G	1.5		
			Bottom of borehole at 12 feet				

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RISB-10

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/3/2025 - 12/3/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 15 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (roots), trace fine to coarse gravel and glass (FILL); moist.		2.5	0.0 0.0	
	MIXD		Brown, fine to coarse SAND, little Silt, trace fine to coarse Gravel and concrete (FILL); moist.	G	1.5	0.0	Soil sample RISB-10 (3-5) was taken from 3 to 5 ft bls and analyzed for TCL SVOCs + TAL Metals.
5						0.0	
				G	1	0.0	Soil sample RISB-10 (5-7) was taken from 5 to 7 ft bls and analyzed for TCL SVOCs + TAL Metals.
	SW-SM		Dark brown, fine to coarse SAND, little Silt, trace fine to coarse Gravel; moist.			0.0	
10			WEATHERED BEDROCK.			0.0	
	BEDR				3	0.0	
						0.0	

Bottom of borehole at 15 feet

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RISB-13

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000	
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres	
Start to Finish Date: 12/4/2025 - 12/4/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 20 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (wood, roots), trace brick and concrete (FILL); moist.				
	MIXD		Brown, fine to coarse SAND, some Silt, little Concrete and Brick (FILL); moist.	G	5	0.0	Soil sample RISB-13 (2-4) was taken from 2 to 4 ft bls and analyzed for TCL SVOCs + TAL Metals.
5				G		0.0	Soil sample RISB-13 (4-6) was taken from 4 to 6 ft bls and analyzed for TCL SVOCs +TAL Metals.
				G	2.5	0.3	Soil sample RISB-13 (6-8) was taken from 6 to 8 ft bls and analyzed for TCL SVOCs + TAL Metals.
	CONC		CONCRETE.			0.0	
	SW-SM		Brown, fine to coarse SAND, some Silt, little fine to coarse Gravel; moist.	G			Soil sample RISB-13 (8-10) was taken from 8 to 10 ft bls and analyzed for TCL SVOCs + TAL Metals.
10				G		0.2	Soil sample RISB-13 (10-12) was taken from 10 to 12 ft bls and analyzed for TCL SVOCs + TAL Metals.
	MLS		Grey-green, SILT, some fine to medium SAND; moist.		3.5	4.1	Odor and staining observed from 12.5 ft bls to 15 ft bls.
	MLS		Dark grey, SILT, some fine to medium SAND; moist.			1336	
15						238	
	SM		Greyish, fine to coarse SAND, some Silt; moist.			1040	
						190	
						911	
						833	
	BEDR		WEATHERED BEDROCK.			621	
						38	
			Bottom of borehole at 20 feet				

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RISB-14

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/4/2025 - 12/4/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 10 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark bown, fine to coarse SAND, some Silt, little fine to coarse Gravel and Organics (roots, wood), trace asphalt and brick (FILL); moist.			0.0	
	MIXD		Greyish-Green, fine to medium GRAVEL, some fine to coarse Sand, little Silt, trace glass and asphalt (FILL); moist.		5	0.0 0.0	Soil sample RISB-14 (3-5) was taken from 3 to 5 ft bls and analyzed for TCL SVOCs + TAL Metals.
5	MIXD		Greyish brown, fine to coarse SAND, some fine Gravel, little Silt, trace medium gravel, glass, and asphalt (FILL); moist.	G		0.0	Soil sample RISB-14 (5-7) was taken from 5 to 7 ft bls and analyzed for TCL SVOCs + TAL Metals.
	SW-SM		Greyish brown, fine to coarse SAND, some Silt, little fine to medium Gravel; moist.	G	3.5	0.0 0.0	Soil sample RISB-14 (7-9) was taken from 7 to 9 ft bls and analyzed for TCL SVOCs + TAL Metals.

Bottom of borehole at 10 feet

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RISB-15

Client: NRP	Site: 1451 Washington Ave		Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York		Logged By: E. Torres
Start to Finish Date: 12/4/2025 - 12/4/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 13 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	CONC		CONCRETE.				
	MIXD		Light brown, fine to coarse SAND, little Silt and fine to medium Gravel, trace organics (roots), brick, concrete (FILL); dry.			0.0	
	MIXD		Brown, fine to coarse SAND, little Silt and fine to medium Gravel, trace organics (roots), brick, concrete (FILL); dry.		5	0.0	
5	MIXD		Brown, fine to coarse SAND, little Silt and fine to medium Gravel, trace organics (roots), brick, concrete (FILL); moist.			0.0	
	MIXD				2	0.2	
10				G		0.3	Soil sample RISB-15 (9-11) was taken from 9 to 11 ft bls and analyzed for TCL SVOCs + TAL Metals.
					2.5		Soil sample RISB-15 (11-13) was taken from 11 to 13 ft bls and analyzed for TCL SVOCs + TAL Metals.
	MLS		Greyish, SILT, some fine to coarse SAND; moist.	G			Odor and staining observed from 12 to 13 ft bls.
	SW-SM		Dark grey, fine to coarse SAND, little Silt and fine gravel; moist.			27	

Bottom of borehole at 13 feet

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RISB-17

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/3/2025 - 12/3/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 10 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt and Organics (roots); moist.				
			Brown, fine to coarse SAND, some Silt, trace organics (roots); moist.				
	MIXD			G	5		Soil sample RISB-17 (2-4) was taken from 2 to 4 ft bls and analyzed for TCL SVOCs + TAL Metals.
							Soil sample RISB-17 (4-6) was taken from 4 to 6 ft bls and analyzed for TCL SVOCs + TAL Metals.
5			WEATHERED BEDROCK.	G			
	BEDR			G	2.5		Soil sample RISB-17 (6-8) was taken from 6 to 8 ft bls and analyzed for TCL SVOCs + TAL Metals.
					3		

Bottom of borehole at 10 feet

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RISB-18

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000	
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres	
Start to Finish Date: 12/2/2025 - 12/2/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 8 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Asphalt, Concrete (FILL), and Organics (roots), trace coarse gravel; moist.			0.0	
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Brick, Asphalt, Concrete (FILL), and Organics (roots), trace coarse gravel; moist.			0.0	
5	MIXD		Dark brown, fine to coarse SAND, some Silt, little Brick, Asphalt, Concrete (FILL), Organics (roots), and fine to medium Gravel, trace coarse gravel; moist.	G	5	0.0	Soil sample RISB-18 (2-4) was collected from 2 to 4 ft bls and analyzed for TCL SVOCs + TAL Metals.
						0.0	Soil sample RISB-18 (4-6) was collected from 4 to 6 ft bls and analyzed for TCL SVOCs + TAL Metals.
	BEDR		WEATHERED BEDROCK.	G	2.5	0.0	Soil sample RISB-18 (6-8) was collected from 6 to 8 ft bls and analyzed for TCL SVOCs + TAL Metals.
			Bottom of borehole at 8 feet			0.0	

DRAFT

ROUX STANDARD LOG - 1/16/26 15:55 - S:\GINT\PROJECTS\2908.0001\Y000_SRI.GPJ

RISB-19

Client: NRP	Site: 1451 Washington Ave	Project Number: 2908.0008Y000
Address: 1451 Washington Ave	City/State: Bronx, New York	Logged By: E. Torres

Start to Finish Date: 12/2/2025 - 12/2/2025	Contractor: Trinity	Drill Type: Geoprobe	Sampler Type/Method: 2" Macro-Core
Borehole Depth: 5 feet	Backfill: Cuttings	Borehole Diameter: 4-inches	DTW: NM feet
Area: Bronx, NY	Elevation: NM	Latitude: NM	Longitude: NM

Depth (ft)	USCS	USCS Graphic	Visual Description	Sample Interval	Recovery (ft)	PID	Notes
	MIXD		Dark brown, fine to coarse SAND, some Silt, little Organics (wood, roots), trace asphalt (FILL); moist.			0.0	
1			Dark brown, fine to coarse SAND, some Silt and fine to coarse Gravel, little Brick, Asphalt, Concrete (FILL); moist.			0.0	
2	MIXD				5	0.0	
3			Brown, fine to coarse SAND, some Silt and fine to coarse Gravel, little Asphalt, Concrete (FILL), trace brick (FILL); moist.	G		0.0	Soil sample RISB-19 (3-5) was collected from 3 to 5 ft bls and analyzed for TCL SVOCs + TAL Metals.
4	MIXD						
	BEDR		WEATHERED BEDROCK.			0.0	

Bottom of borehole at 5 feet

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ROUX STANDARD LOG - 1/16/26 15:55 - S:\GINT\PROJECTS\2908.0011Y000_SRI.GPJ

APPENDIX G

Purge Logs

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Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-1 Weather: 40 Degrees, cloudy/rain

Date: 12/2/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.00 Water Column (ft): 10.12

Depth to Water(ft): 14.88 Volume of Water in Well (gal) 1.65

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 14:00 Purge Rate: 200 mL/min

End Purging: Volume of Water Removed (gal): 1.50

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-1, RIMW-1_PFAS

DUP_120225; MS/MSD

Time: RIMW-1 @ 14:50 ; RIMW-1_PFAS @ 14:45 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
14:08	15.51	200	301	1.49	27.8	7.19	16.85	3.30
14:13	15.84	200	301	1.50	1.9	7.18	16.71	2.39
14:18	16.15	200	302	1.50	1.8	7.17	16,78	2.28
14:23	16.47	200	301	1.50	0.6	7.17	16.79	2.18
14:28	16.8	200	302	1.50	0.7	7.15	16.76	2.31
14:33	17.16	200	302	1.51	0.7	7.15	16.75	2.22
14:38	17.36	200	301	1.50	0.6	7.16	16.82	2.24

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-4 Weather: 40 Degrees, cloudy/rain

Date: 12/2/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.40 Water Column (ft): 7.76

Depth to Water(ft): 17.64 Volume of Water in Well (gal) 1.27

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 945 Purge Rate: 200 mL/min

End Purging: 1023 Volume of Water Removed (gal): 1.25

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-4, RIMW-4_PFAS

DUP_120225_PFAS; MS/MSD

Time: RIMW-4 @ 12:25 ; RIMW-4_PFAS @ 12:40 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
11:48	17.88	200	260	1.93	11.0	5.93	10.8	5.68
11:53	18.11	200	261	1.85	4.0	6.19	11.75	4.37
11:58	18.18	200	261	1.85	2.9	6.20	11.77	4.30
12:03	18.27	200	262	1.84	1.5	6.22	11.83	4.24
12:08	18.36	200	263	1.82	1.4	6.23	11.86	4.07
12:13	18.43	200	264	1.78	1.2	6.24	11.67	3.88
12:18	18.51	200	265	1.76	0.6	6.29	11.58	3.80
12:23	18.53	200	266	1.78	0.7	6.31	11.04	3.26

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-5 Weather: 46 Degrees, cloudy

Date: 11/25/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.50 Water Column (ft): 7.92

Depth to Water(ft): 17.58 Volume of Water in Well (gal) 1.29

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 14:21 Purge Rate: 200 mL/min

End Purging: 15:58 Volume of Water Removed (gal): 2.25

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-6, RIMW-6_PFAS

Time: RIMW-6 @ 15:50 ; RIMW-6_PFAS @ 15:47 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
14:30	17.25	200	284	1.07	111.0	7.11	15.44	0.86
14:35	17.29	200	284	1.07	845.0	7.07	15.59	0.30
14:40	17.23	200	283	1.06	787.0	7.06	15.48	0.03
14:45	17.24	200	282	1.05	581.0	7.04	15.25	0.00
14:50	17.23	200	281	1.05	321.0	7.04	15.17	0.02
14:55	17.23	200	280	1.05	131.0	7.03	15.13	0.00
15:00	17.23	200	279	1.05	522.0	7.03	15.19	0.09
15:05	17.23	200	278	1.05	63.8	7.03	15.16	0.00
15:10	17.23	200	277	1.05	56.1	7.03	15.16	0.05
15:25	17.23	200	274	1.05	22.3	7.04	14.93	0.02

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-6 Weather: 46 Degrees, cloudy

Date: 11/25/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 19.78 Water Column (ft): 3.86

Depth to Water(ft): 15.92 Volume of Water in Well (gal) 0.63

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 10:17 Purge Rate: 200 mL/min

End Purging: 11:35 Volume of Water Removed (gal): 1.75

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-7, RIMW-7_PFAS

Time: RIMW-7 @ 11:25 ; RIMW-7_PFAS @ 11:20 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
10:24	16.11	200	153	1.17	31.6	6.97	16.37	9.77
10:29	16.07	200	158	1.18	30.3	6.92	16.34	3.57
10:34	16.06	200	166	1.18	22.1	6.90	16.34	3.11
10:39	16.06	200	169	1.17	22.2	6.91	16.36	2.60
10:44	16.06	200	174	1.17	18.8	6.91	16.38	2.80
10:49	16.06	200	177	1.17	17.9	6.90	16.42	2.74
10:54	16.06	200	182	1.17	16.3	6.93	16.46	2.49
10:59	16.05	200	185	1.17	14.5	6.92	16.47	2.44
11:04	16.05	200	188	1.18	12.4	6.92	16.47	2.54
11:09	16.05	200	190	1.18	13.6	6.94	16.48	2.43

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-7 Weather: 53 Degrees, cloudy

Date: 11/26/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 19.78 Water Column (ft): 3.86

Depth to Water(ft): 15.92 Volume of Water in Well (gal) 0.63

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 10:17 Purge Rate: 200 mL/min

End Purging: 11:35 Volume of Water Removed (gal): 1.75

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-7, RIMW-7_PFAS

Time: RIMW-7 @ 11:25 ; RIMW-7_PFAS @ 11:20 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
10:24	16.11	200	153	1.17	31.6	6.97	16.37	9.77
10:29	16.07	200	158	1.18	30.3	6.92	16.34	3.57
10:34	16.06	200	166	1.18	22.1	6.90	16.34	3.11
10:39	16.06	200	169	1.17	22.2	6.91	16.36	2.60
10:44	16.06	200	174	1.17	18.8	6.91	16.38	2.80
10:49	16.06	200	177	1.17	17.9	6.90	16.42	2.74
10:54	16.06	200	182	1.17	16.3	6.93	16.46	2.49
10:59	16.05	200	185	1.17	14.5	6.92	16.47	2.44
11:04	16.05	200	188	1.18	12.4	6.92	16.47	2.54
11:09	16.05	200	190	1.18	13.6	6.94	16.48	2.43

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-8 Weather: 53 Degrees, cloudy

Date: 11/26/2025 Purge Water Disposal: 55 Gallon Drum

Sampled By: ET Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.30 Water Column (ft): 2.62

Depth to Water(ft): 22.68 Volume of Water in Well (gal) 0.43

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 9:18 Purge Rate: 200 mL/min

End Purging: 10:10 Volume of Water Removed (gal): 1.00

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-8, RIMW-8_PFAS

Time: RIMW-8 @ 10:05 ; RIMW-8_PFAS @ 10:00 Laboratory : Eurofins

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
9:28	22.92	200	285	1.40	20.7	7.04	16.68	3.37
9:33	22.95	200	287	1.39	8.9	6.99	16.99	2.72
9:38	22.98	200	288	1.39	3.1	6.97	17.08	2.54
9:43	23.03	200	289	1.39	0.3	6.96	17.14	2.38
9:48	23.04	200	290	1.39	0.0	6.97	17.12	2.31
9:53	23.06	200	290	1.39	0.0	6.98	17.25	2.09
9:58	23.09	200	290	1.38	0.0	6.99	17.44	2.18

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-1 Weather: 64, Cloudy

Date: 10/1/2024 Purge Water Disposal: 55 Gallon Drum

Sampled By: EL Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 24.99 Water Column (ft):

Depth to Water(ft): 14.95 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 945 Purge Rate: 200 mL/min

End Purging: 1023 Volume of Water Removed (gal): 1.25

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-1, RIMW-1_P;Full Suite + EC

DUP_10012024_2

Time: 1025 and 1200 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
9:55	15.78	200	142	1.61	5.0	7.22	17.28	7.28
10:00	16.1	200	146	1.60	4.4	7.22	17.15	6.80
10:05	16.48	200	149	1.58	4.6	7.25	17.1	6.37
10:10	16.96	200	151	1.58	5.3	7.23	17.07	6.23
10:15	17.29	200	152	1.50	5.9	7.31	17.05	5.50
10:20	17.73	200	151	1.43	6.2	7.41	17.06	5.23
10:23	17.92	200	151	1.45	6.4	7.4	17.07	5.09

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-4 Weather: 67, Partly Cloudy

Date: 10/1/2024 Purge Water Disposal: 55 Gallon Drum

Sampled By: EL Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.00 Water Column (ft):

Depth to Water(ft): 17.26 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 1440 Purge Rate: 200 mL/min

End Purging: 1513 Volume of Water Removed (gal): 1.25

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-4;Full Suite

Time: 1515 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C^o - F^o (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
14:48	17.58	200	156	0.812	0.7	6.69	16.97	7.09
14:53	17.74	200	168	0.815	1.1	6.61	16.02	6.04
14:58	17.91	200	174	0.818	1.7	6.59	15.8	5.81
15:03	18.06	200	177	0.820	2.0	6.59	15.84	5.63
15:08	18.24	200	179	0.815	1.8	6.60	15.77	5.46
15:13	18.36	200	181	0.814	1.7	6.59	15.71	5.27

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-5 Weather: 66, Cloudy

Date: 10/1/2024 Purge Water Disposal: 55 Gallon Drum

Sampled By: EL Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.01 Water Column (ft):

Depth to Water(ft): 16.45 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal): --

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 1305 Purge Rate: 200 mL/min

End Purging: 1340 Volume of Water Removed (gal): 1.25

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-5;Full Suite

Time: 1345 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C^o - F^o (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
13:11	16.73	200	127	0.799	3.7	6.86	17.3	3.01
13:16	16.47	200	132	0.803	8.1	6.86	17.12	2.07
13:21	17.19	200	132	0.805	4.4	6.88	17.07	1.22
13:26	17.32	200	132	0.801	2.5	6.88	17.13	0.81
13:31	17.45	200	133	0.801	1.7	6.87	17.05	0.76
13:36	17.66	200	135	0.800	1.5	6.88	16.97	0.56
13:39	17.74	200	136	0.799	1.3	6.88	16.94	0.42

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-6 Weather: 65, Cloudy

Date: 10/1/124 Purge Water Disposal: 55 Gallon Drum

Sampled By: EL Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 25.29 Water Column (ft):

Depth to Water(ft): 16.63 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal): --

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 9:55 Purge Rate: 200 mL/min

End Purging: 10:33 Volume of Water Removed (gal): 2.5

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-6, RIMW-6_P;Full Suite + EC

Time: 10:33 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
10:00	16.75	200	137	0.942	49.8	7.49	18	1.98
10:05	16.75	200	145	0.937	34.0	7.18	17.24	0.11
10:10	16.75	200	146	0.935	24.5	7.15	17.09	1.54
10:15	16.75	200	144	0.934	17.3	7.19	17.00	0.00
10:20	16.75	200	143	0.931	10.2	7.21	16.82	0.00
10:25	16.75	200	140	0.930	5.7	7.24	16.81	0.00
10:30	16.75	200	138	0.930	4.8	7.29	16.77	0.00

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ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-7 Weather: 65, Cloudy

Date: 10/1/2024 Purge Water Disposal: 55 Gallon Drum

Sampled By: MH Well Diameter / Type: 2" Flushmount

Depth of Well (ft): 19.72 Water Column (ft):

Depth to Water(ft): 15.48 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal):

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 1315 Purge Rate: 200 mL/min

End Purging: 1415 Volume of Water Removed (gal): 2.0

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Turbid, no odor, provided additional pumping to eliminate sediment (clear at sample collection)

Samples Collected: (analyses / no. bottles) RIMW-7; Full Suite

Time: 1350 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
13:20	15.75	200	166	1.31	291.0	7.40	20.28	6.80
13:25	15.72	200	172	1.33	180.0	7.45	19.49	7.54
13:30	15.72	200	177	1.33	116.0	7.44	19.28	10.55
13:35	15.72	200	182	1.33	72.1	7.42	19.00	10.60
13:40	15.72	200	186	1.34	53.6	7.40	18.96	10.41
13:45	15.72	200	190	1.34	49.5	7.37	18.71	10.43

DRAFT

ROUX

Well Sampling Data Form

Client: NRP **Project Number:** 2908.0011Y000

Site Location: Sol on Park

Well No: RIMW-8 Weather: 65, Cloudy

Date: 10/1/2024 Purge Water Disposal: 55 Gallon Drum

Sampled By: MH Well Diameter / Type: 2" Flushmount

Depth of Well (ft): Water Column (ft):

Depth to Water(ft): 22.05 Volume of Water in Well (gal)

Depth to Product (ft): -- Volume of Water to Remove (gal): --

well diameter:	1 in	**2 in**	4 in	6 in	8 in
gallons per foot:	0.041	**0.163**	0.653	1.469	2.611

Start Purging: 1444 Purge Rate: 200 mL/min

End Purging: 1514 Volume of Water Removed (gal):

Method of Purge: Peri-Pump Method of Sampling: Low-Flow

Physical Appearance/ Comments: Clear, no odor

Samples Collected: (analyses / no. bottles) RIMW-8;Full Suite

Time: 1520 Laboratory : Alpha

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O_2 mg/L (w/in 10%)
14:49	22.25	200	175	1.360	31.5	7.52	22.25	4.09
14:54	22.35	200	184	1.390	30.2	7.32	21.49	2.75
14:59	22.45	200	189	1.380	28.8	7.26	21.02	2.62
15:04	22.5	200	190	1.380	27.1	7.25	20.83	2.64
15:09	22.54	200	190	1.380	24.3	7.26	20.75	2.69
15:14	22.58	200	188	1.370	19.0	7.31	20.64	2.84

DRAFT

ROUX

Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 5 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 17800 ppm

Helium Rate from sample tubing: 0 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.23 in. of Hg		
Starting Time:	9:15	**Date:**	10/1/2024
Ending Time:	17:15	**Date:**	10/1/2024
Ending Pressure:	-6.45 in. of Hg		

Summa Canister Identification #:	1554
Flow Regulator ID #:	1080
Sample ID #:	RISV-1
Analysis	TO-15
Laboratory	Pace

Comments

None

DRAFT

Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 7 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 3.8%

Helium Rate from sample tubing: 0 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.47 in. of Hg		
Starting Time:	9:04	**Date:**	10/1/2024
Ending Time:	17:04	**Date:**	10/1/2024
Ending Pressure:	-6.00 in. of Hg		

Summa Canister Identification #:	924
Flow Regulator ID #:	1285
Sample ID #:	RISV-2
Analysis	TO-15
Laboratory	Pace

Comments

None

DRAFT

Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 7 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 12600 ppm

Helium Rate from sample tubing: 0 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure: -30.22 in. of Hg

Starting Time: 9:09 **Date:** 10/1/2024

Ending Time: 17:09 **Date:** 10/1/2024

Ending Pressure: -4.99 in. of Hg

Summa Canister Identification #: 2921

Flow Regulator ID #: 1501

Sample ID #: RISV-3

Analysis TO-15

Laboratory Pace

Comments

None

DRAFT

Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 16 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 3.2%

Helium Rate from sample tubing: 200 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.38 in. of Hg		
Starting Time:	9:21	**Date:**	10/1/2024
Ending Time:	17:21	**Date:**	10/1/2024
Ending Pressure:	-8.15 in. of Hg		

Summa Canister Identification #:	2724
Flow Regulator ID #:	1247
Sample ID #:	RISV-4
Analysis	TO-15
Laboratory	Pace

Comments

None

DRAFT

Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 7 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 2.1%

Helium Rate from sample tubing: 25 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.15 in. of Hg		
Starting Time:	9:00	**Date:**	10/1/2024
Ending Time:	17:00	**Date:**	10/1/2024
Ending Pressure:	-6.45 in. of Hg		

Summa Canister Identification #: 1829

Flow Regulator ID #: 59

Sample ID #: RISV-7

Analysis TO-15

Laboratory Pace

Comments

None

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Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed:	Yes	
Sampling Depth:	7 feet	
Sealed at land surface :	Yes	
Purge Rate:	0.2 L/min	Must be less than 0.2 L/min
Purge Time:	2 min	
Helium Rate at enclosure:	2.1%	
Helium Rate from sample tubing:	25 ppm	Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.65 in. of Hg		
Starting Time:	9:00	**Date:**	10/1/2024
Ending Time:	17:00	**Date:**	10/1/2024
Ending Pressure:	-6.44 in. of Hg		

Summa Canister Identification #:	952
Flow Regulator ID #:	127
Sample ID #:	DUP_10012024_1
Analysis	TO-15
Laboratory	Pace

Comments

DUP_10012024_1 collected from RISV-7

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Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 7 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 2.8%

Helium Rate from sample tubing: 0 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.20 in. of Hg		
Starting Time:	9:06	**Date:**	10/1/2024
Ending Time:	17:06	**Date:**	10/1/2024
Ending Pressure:	-8.69 in. of Hg		

Summa Canister Identification #:	3335
Flow Regulator ID #:	1886
Sample ID #:	RISV-8
Analysis	TO-15
Laboratory	Pace

Comments

None

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Soil Vapor Sampling Form

Date: 10/1/2024 **Time:** 7:30

Weather : Partly Cloudy

Temperature:	61 F	Humidity:	81%
Wind Magnitude:	8 MPH	Wind Direction:	NE
Barometric Pressure:	30.07"	Precipitation:	-

Sampling Team: Emery Lovekamp & Mauricio Hollis

Sampling Location: 1451 Washington Ave, Bronx, New York

Site Condition (i.e. any adjacent questionable facilities, vent pipes, tanks, etc. and type of basement present)

Vacant lot (former baseball field)

Prior to commencing the sampling activity, remove the brass cap from the end of the sample tubing and fit a new brass hose barb fitting onto the sample tubing.

Calibrate the Helium detection meter

Utility Clearance Completed: Yes

Sampling Depth: 7 feet

Sealed at land surface : Yes

Purge Rate: 0.2 L/min Must be less than 0.2 L/min

Purge Time: 2 min

Helium Rate at enclosure: 7200 ppm

Helium Rate from sample tubing: 0 ppm Is this rate <10% of the rate at the enclosure? **PASS**

If the Helium readings have a greater ratio than 10% the seals should be rechecked and the tracer gas should be reapplied.

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Is the Summa Canister Certified Clean and within the proper holding time ? Yes

Starting Pressure:	-30.44 in. of Hg		
Starting Time:	9:10	**Date:**	10/1/2024
Ending Time:	17:10	**Date:**	10/1/2024
Ending Pressure:	-5.56 in. of Hg		

Summa Canister Identification #:	3921
Flow Regulator ID #:	124
Sample ID #:	RISV-9
Analysis	TO-15
Laboratory	Pace

Comments

None

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APPENDIX H

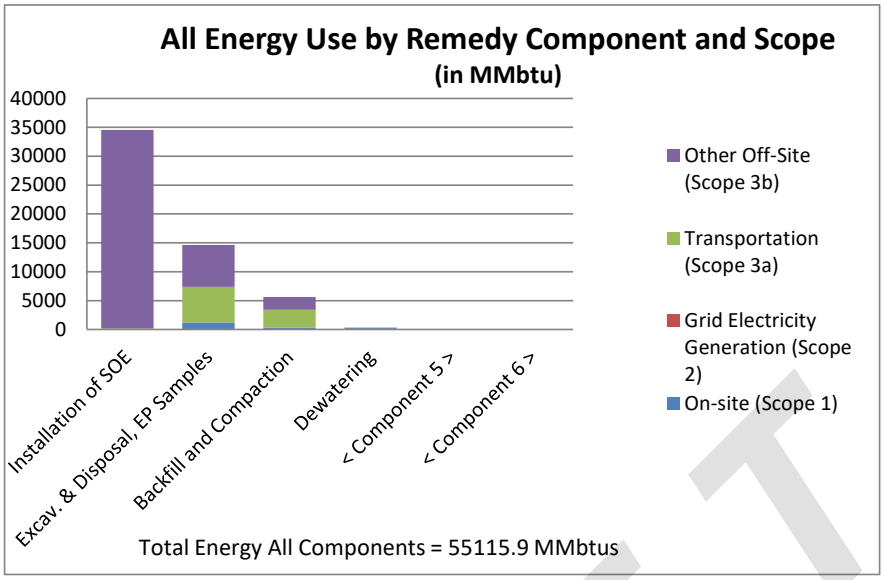
Laboratory Reports

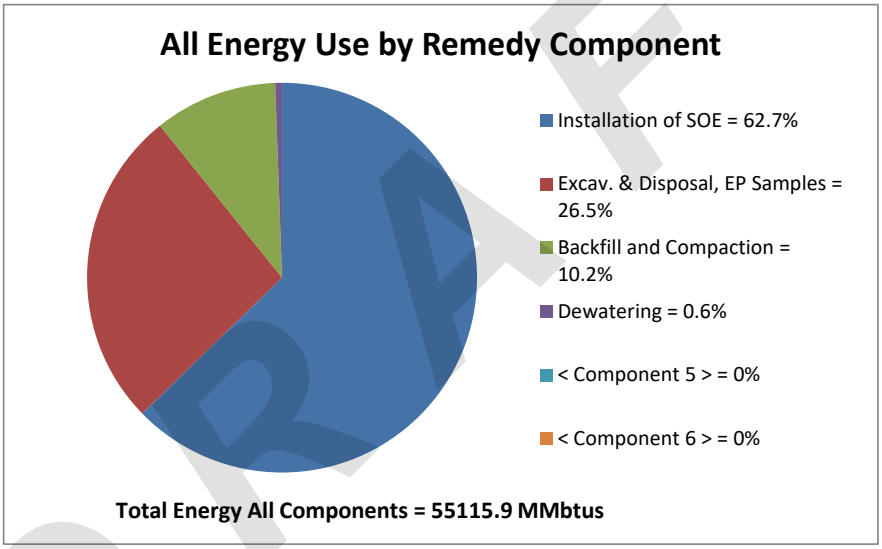
DRAFT

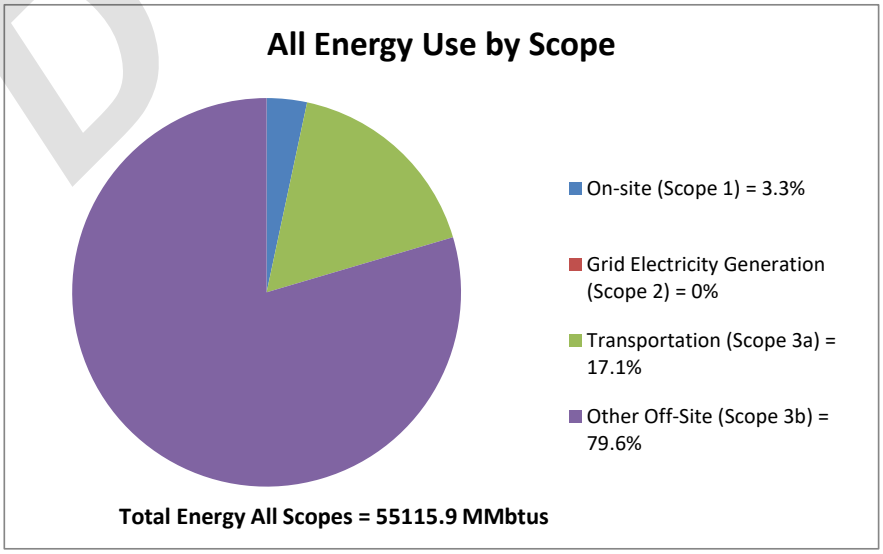
APPENDIX I

GSR Worksheets

DRAFT


All Energy Use by Remedy Component and Scope
(in MMbtu)
40000
35000
30000
25000
20000
15000
10000
5000
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
Dewatering
<Component 5>
<Component 6>
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 55115.9 MMbtus


All Energy Use by Remedy Component
Installation of SOE = 62.7%
Excav. & Disposal, EP Samples = 26.5%
Backfill and Compaction = 10.2%
Dewatering = 0.6%
< Component 5 > = 0%
< Component 6 > = 0%
Total Energy All Components = 55115.9 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 3.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 17.1%
Other Off-Site (Scope 3b) = 79.6%
Total Energy All Scopes = 55115.9 MMbtus

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Total Energy
MMbtus

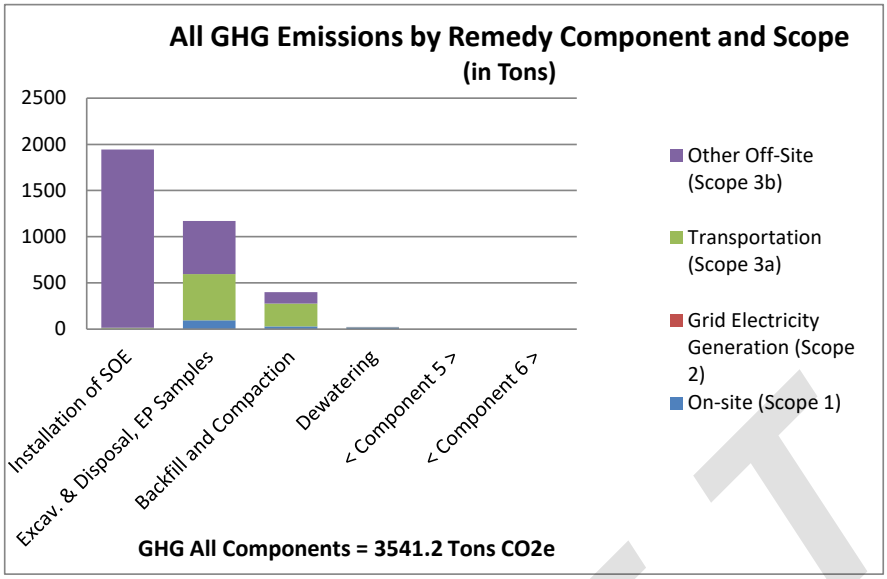
	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total	
On-site (Scope 1)	62.6	1,192.6	348.6	239.8	0.0	0.0	1,843.6	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	l Electricity
nsportation (Scope 3a)	128.0	6,175.7	3,083.1	26.5	0.0	0.0	9,413.3	Tran
ner Off-Site (Scope 3b)	34,378.8	7,248.1	2,187.0	45.1	0.0	0.0	43,859.0	Oth
Total	34,569.4	14,616.4	5,618.7	311.4	0.0	0.0	55,115.9	

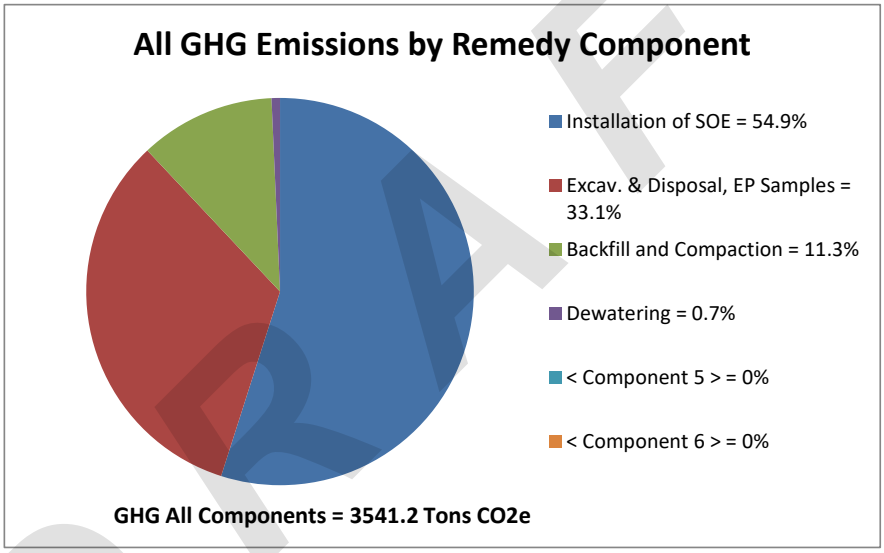
Installation of SOE = 62.7%
Excav. & Disposal, EP Samples = 26.5%
Backfill and Compaction = 10.2%
Dewatering = 0.6%
< Component 5 > = 0%
< Component 6 > = 0%

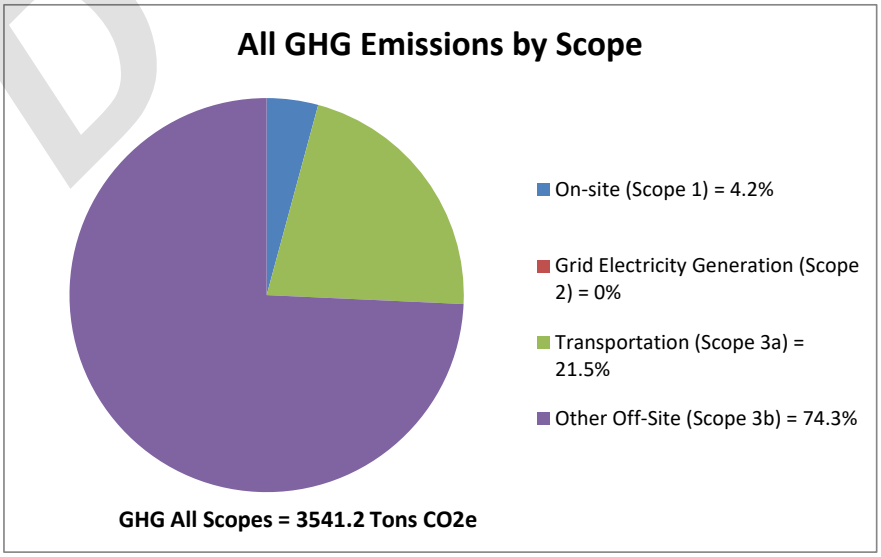
On-site (Scope 1) = 3.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 17.1%
Other Off-Site (Scope 3b) = 79.6%

Total Energy All Components = 55115.9 MMbtus
Total Energy All Scopes = 55115.9 MMbtus

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All GHG Emissions by Remedy Component and Scope
(in Tons)
2500
2000
1500
1000
500
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
Dewatering
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 3541.2 Tons CO2e


All GHG Emissions by Remedy Component
Installation of SOE = 54.9%
Excav. & Disposal, EP Samples = 33.1%
Backfill and Compaction = 11.3%
Dewatering = 0.7%
< Component 5 > = 0%
< Component 6 > = 0%
GHG All Components = 3541.2 Tons CO2e


All GHG Emissions by Scope
On-site (Scope 1) = 4.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 21.5%
Other Off-Site (Scope 3b) = 74.3%
GHG All Scopes = 3541.2 Tons CO2e

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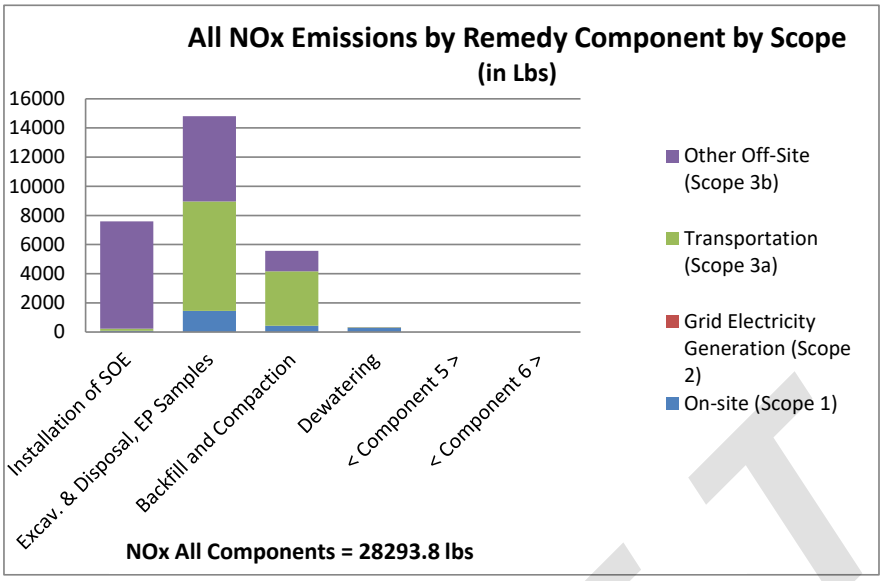
GHG Tons CO2e	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total	
On-site (Scope 1)	5.1	96.5	28.2	19.4	0.0	0.0	149.2	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Electricity
sportation (Scope 3a)	10.3	499.8	249.5	2.1	0.0	0.0	761.7	Tran
er Off-Site (Scope 3b)	1,929.4	575.0	122.6	3.4	0.0	0.0	2,630.3	Oth
Total	1,944.8	1,171.2	400.3	24.9	0.0	0.0	3,541.2	

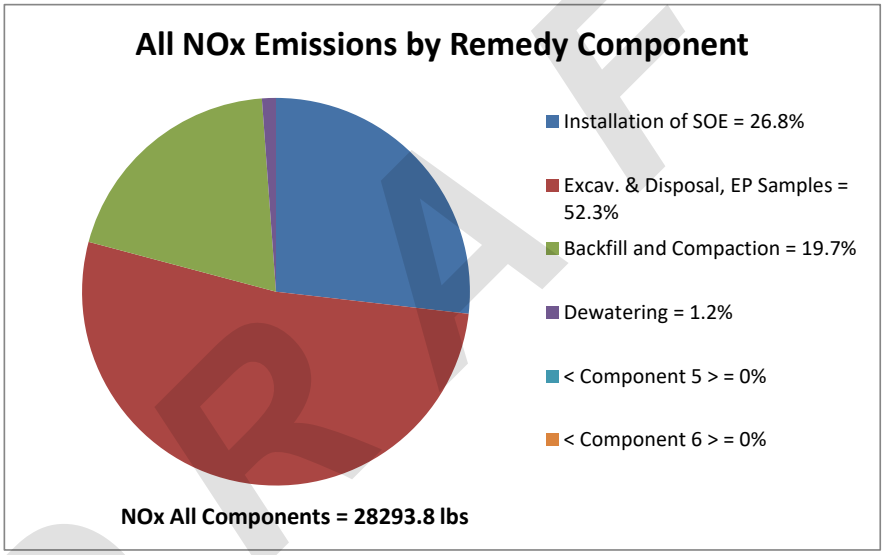
Installation of SOE = 54.9%
Excav. & Disposal, EP Samples = 33.1%
Backfill and Compaction = 11.3%
Dewatering = 0.7%
< Component 5 > = 0%
< Component 6 > = 0%

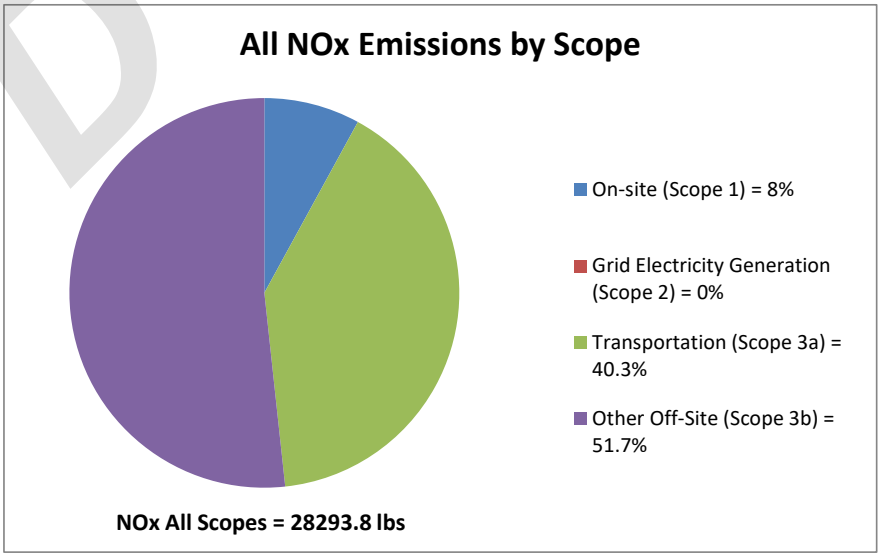
On-site (Scope 1) = 4.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 21.5%
Other Off-Site (Scope 3b) = 74.3%

GHG All Components = 3541.2 Tons CO2e
GHG All Scopes = 3541.2 Tons CO2e

DRAFT


All NOx Emissions by Remedy Component by Scope
(in Lbs)
16000
14000
12000
10000
8000
6000
4000
2000
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
Dewatering
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 28293.8 lbs


All NOx Emissions by Remedy Component
Installation of SOE = 26.8%
Excav. & Disposal, EP Samples = 52.3%
Backfill and Compaction = 19.7%
Dewatering = 1.2%
< Component 5 > = 0%
< Component 6 > = 0%
NOx All Components = 28293.8 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 8%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 40.3%
Other Off-Site (Scope 3b) = 51.7%
NOx All Scopes = 28293.8 lbs

DRAFT

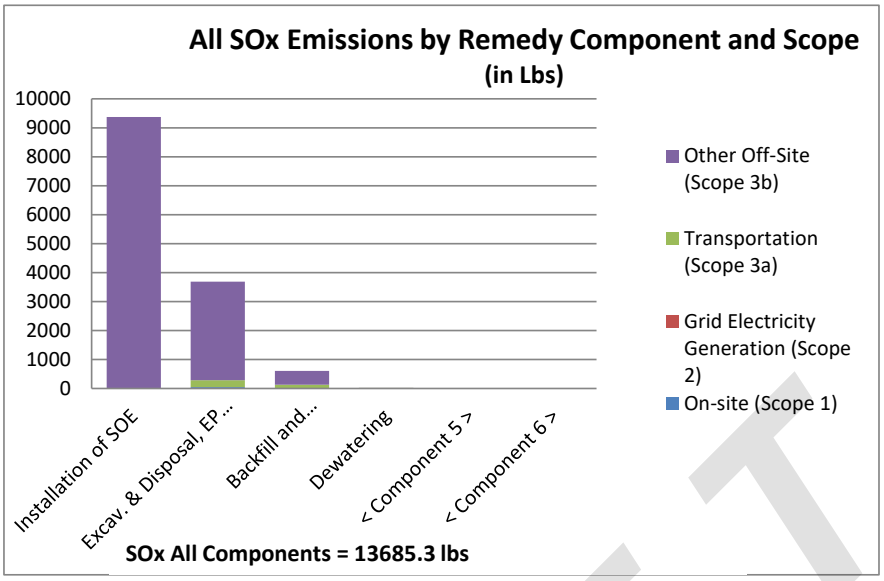
NOx lbs	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total	
On-site (Scope 1)	76.5	1,458.6	426.4	293.3	0.0	0.0	2,254.7	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Electricity
sportation (Scope 3a)	146.6	7,497.7	3,741.0	23.5	0.0	0.0	11,408.8	Tran
er Off-Site (Scope 3b)	7,365.3	5,847.6	1,405.6	11.8	0.0	0.0	14,630.3	Oth
Total	7,588.5	14,803.9	5,573.0	328.5	0.0	0.0	28,293.8	

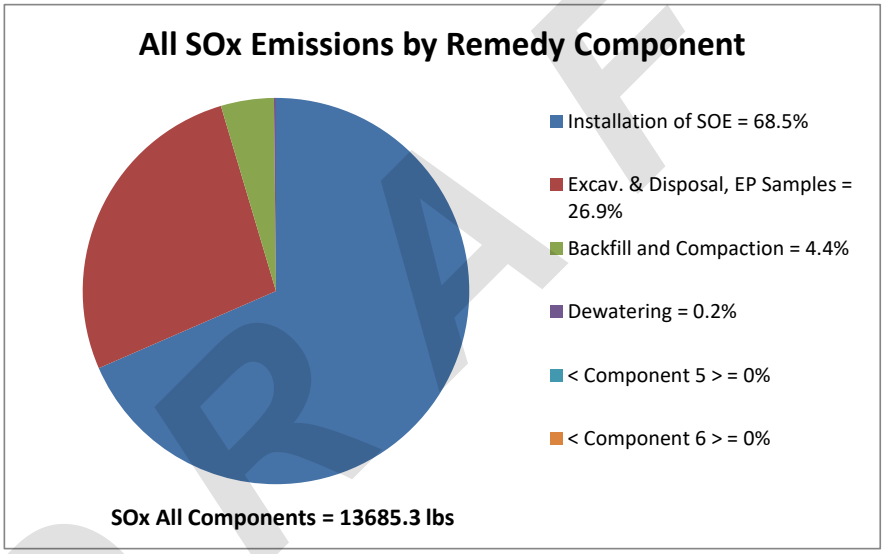
Installation of SOE = 26.8%
Excav. & Disposal, EP Samples = 52.3%
Backfill and Compaction = 19.7%
Dewatering = 1.2%
< Component 5 > = 0%
< Component 6 > = 0%

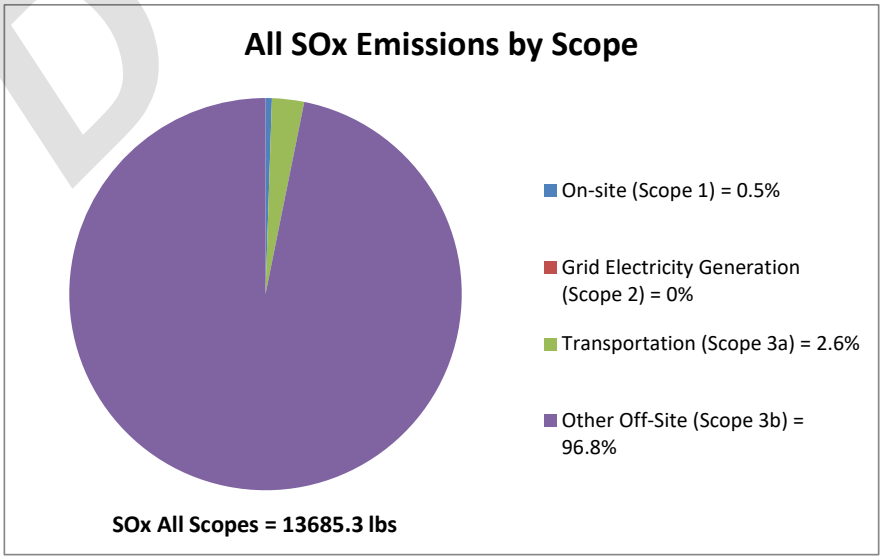
On-site (Scope 1) = 8%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 40.3%
Other Off-Site (Scope 3b) = 51.7%

NOx All Components = 28293.8 lbs
NOx All Scopes = 28293.8 lbs

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All SOx Emissions by Remedy Component and Scope
(in Lbs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Installation of SOE
Excav. & Disposal, EP...
Backfill and...
Dewatering
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 13685.3 lbs


All SOx Emissions by Remedy Component
Installation of SOE = 68.5%
Excav. & Disposal, EP Samples = 26.9%
Backfill and Compaction = 4.4%
Dewatering = 0.2%
< Component 5 > = 0%
< Component 6 > = 0%
SOx All Components = 13685.3 lbs


All SOx Emissions by Scope
On-site (Scope 1) = 0.5%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 2.6%
Other Off-Site (Scope 3b) = 96.8%
SOx All Scopes = 13685.3 lbs

DRAFT

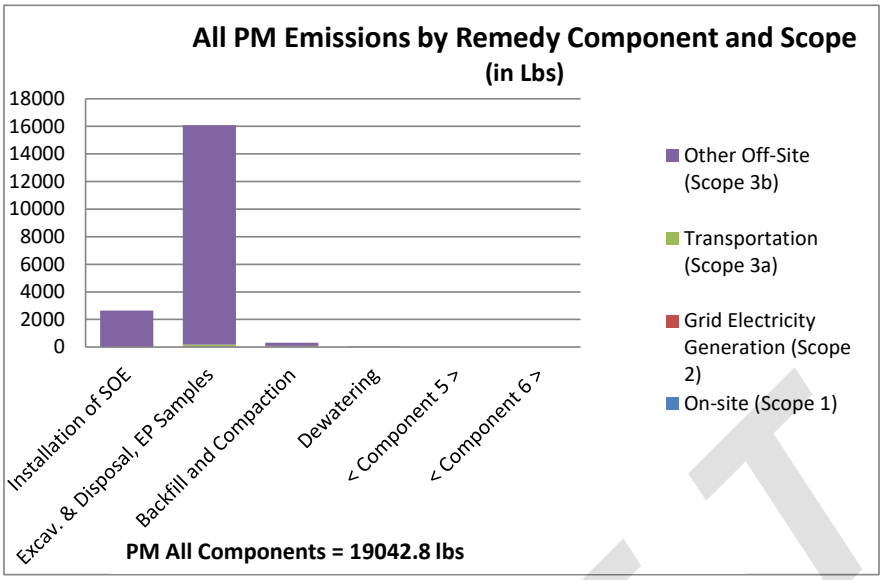
SOx lbs	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total	
On-site (Scope 1)	2.4	46.3	13.5	9.3	0.0	0.0	71.6	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Electricity
sportation (Scope 3a)	4.6	237.9	118.7	0.7	0.0	0.0	362.0	Tran
er Off-Site (Scope 3b)	9,362.4	3,401.7	474.3	13.3	0.0	0.0	13,251.7	Oth
Total	9,369.5	3,686.0	606.5	23.3	0.0	0.0	13,685.3	

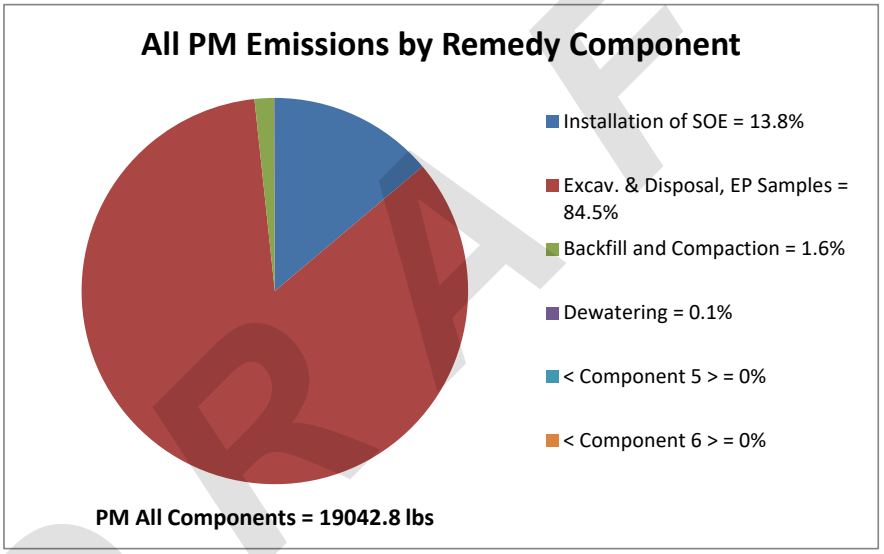
Installation of SOE = 68.5%
Excav. & Disposal, EP Samples = 26.9%
Backfill and Compaction = 4.4%
Dewatering = 0.2%
< Component 5 > = 0%
< Component 6 > = 0%

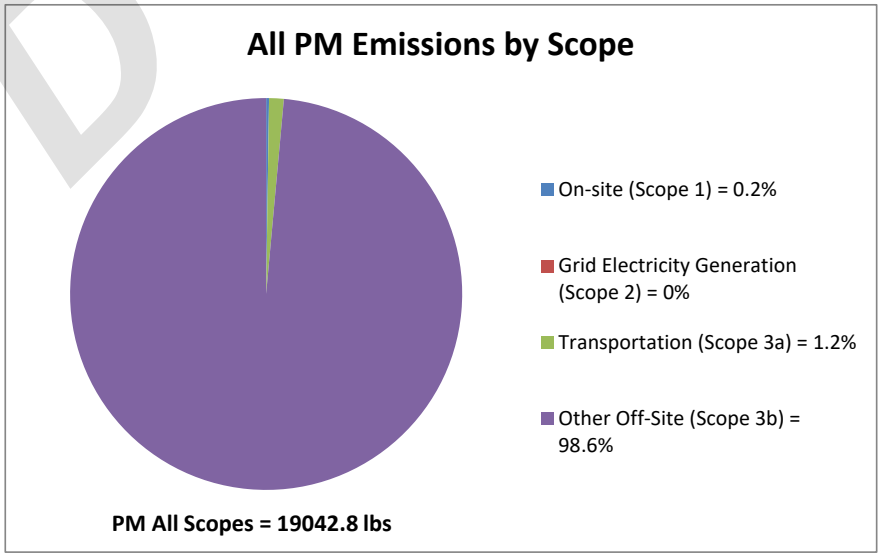
SOx All Components = 13685.3 lbs
SOx All Scopes = 13685.3 lbs

On-site (Scope 1) = 0.5%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 2.6%
Other Off-Site (Scope 3b) = 96.8%

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All PM Emissions by Remedy Component and Scope
(in Lbs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
Dewatering
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 19042.8 lbs


All PM Emissions by Remedy Component
Installation of SOE = 13.8%
Excav. & Disposal, EP Samples = 84.5%
Backfill and Compaction = 1.6%
Dewatering = 0.1%
< Component 5 > = 0%
< Component 6 > = 0%
PM All Components = 19042.8 lbs


All PM Emissions by Scope
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.2%
Other Off-Site (Scope 3b) = 98.6%
PM All Scopes = 19042.8 lbs

DRAFT

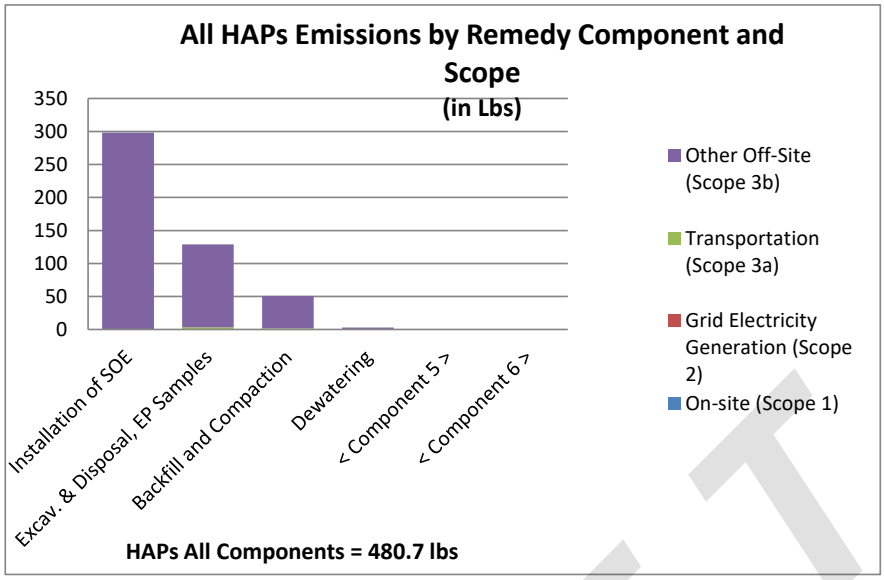
PM lbs	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total	
On-site (Scope 1)	1.5	29.2	8.5	5.9	0.0	0.0	45.1	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Electricity
sportation (Scope 3a)	3.1	151.0	75.4	0.6	0.0	0.0	230.2	Tran
er Off-Site (Scope 3b)	2,631.7	15,904.8	227.5	3.4	0.0	0.0	18,767.5	Oth
Total	2,636.4	16,085.0	311.4	9.9	0.0	0.0	19,042.8	

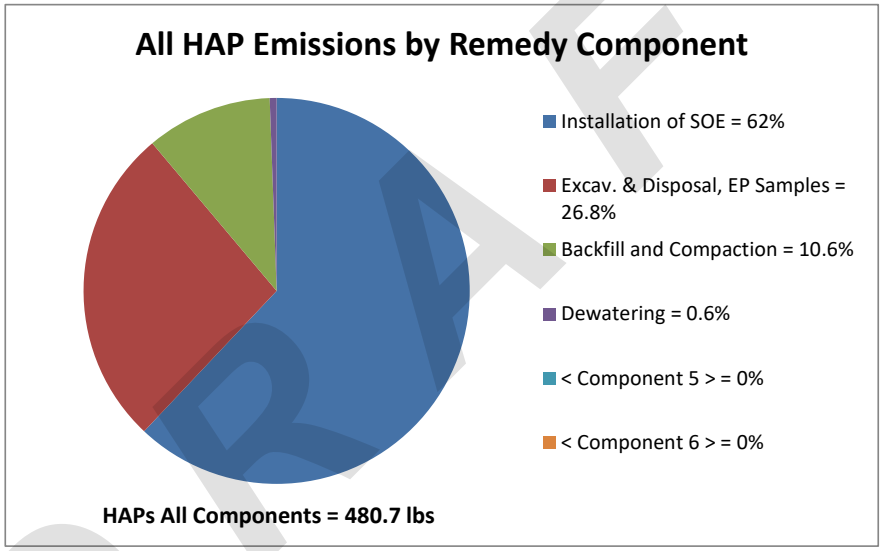
Installation of SOE = 13.8%
Excav. & Disposal, EP Samples = 84.5%
Backfill and Compaction = 1.6%
Dewatering = 0.1%
< Component 5 > = 0%
< Component 6 > = 0%

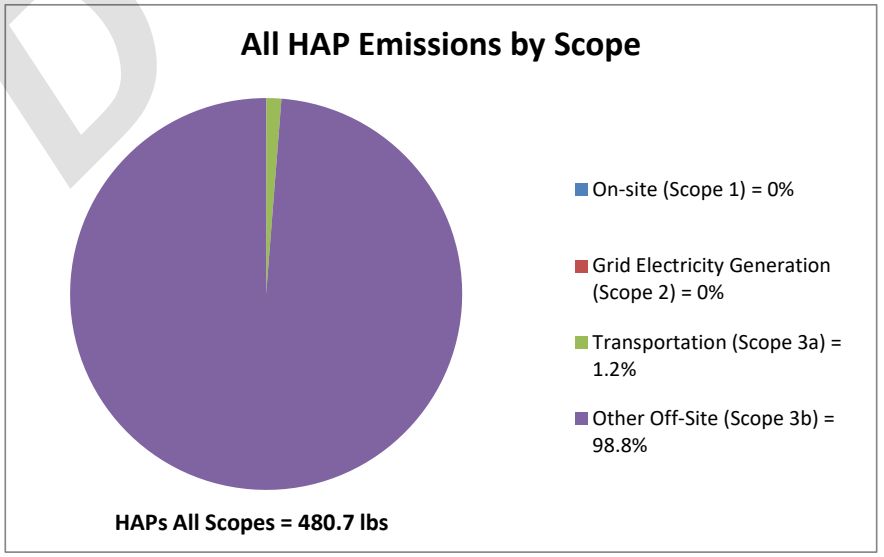
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.2%
Other Off-Site (Scope 3b) = 98.6%

PM All Components = 19042.8 lbs
PM All Scopes = 19042.8 lbs

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All HAPs Emissions by Remedy Component and Scope
(in Lbs)
350
300
250
200
150
100
50
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
Dewatering
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 480.7 lbs


All HAP Emissions by Remedy Component
Installation of SOE = 62%
Excav. & Disposal, EP Samples = 26.8%
Backfill and Compaction = 10.6%
Dewatering = 0.6%
< Component 5 > = 0%
< Component 6 > = 0%
HAPs All Components = 480.7 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.2%
Other Off-Site (Scope 3b) = 98.8%
HAPs All Scopes = 480.7 lbs

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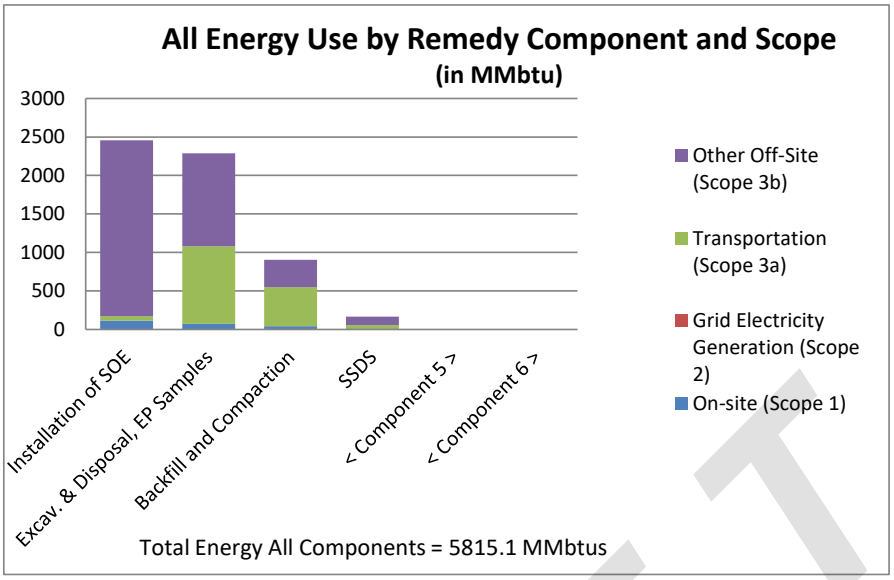
HAPs lbs	Installatior	Excav. & D	Backfill an	Dewaterin	< Compon	< Compon	Total
On-site (Scope 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
sportation (Scope 3a)	0.5	3.2	1.7	0.5	0.0	0.0	5.9
er Off-Site (Scope 3b)	297.7	125.7	49.1	2.3	0.0	0.0	474.7
Total	298.2	129.0	50.8	2.8	0.0	0.0	480.7

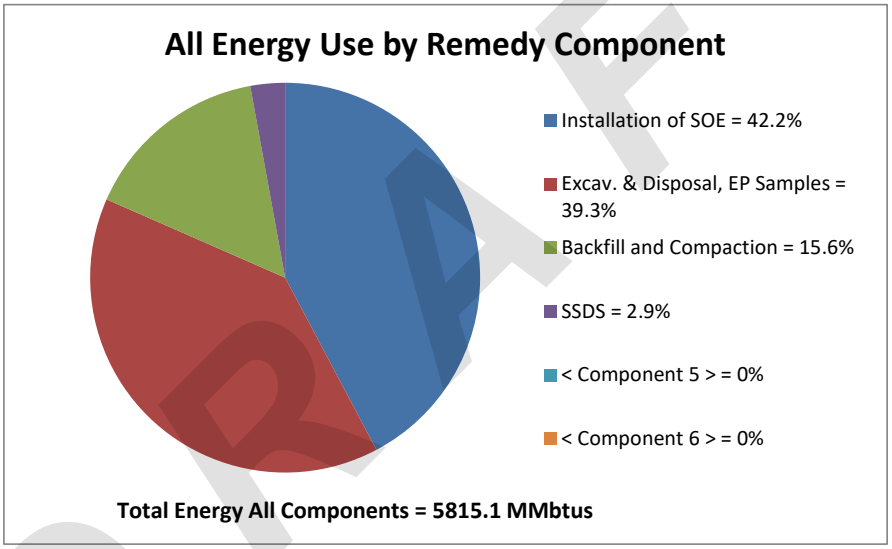
Installation of SOE = 62%
Excav. & Disposal, EP Samples = 26.8%
Backfill and Compaction = 10.6%
Dewatering = 0.6%
< Component 5 > = 0%
< Component 6 > = 0%

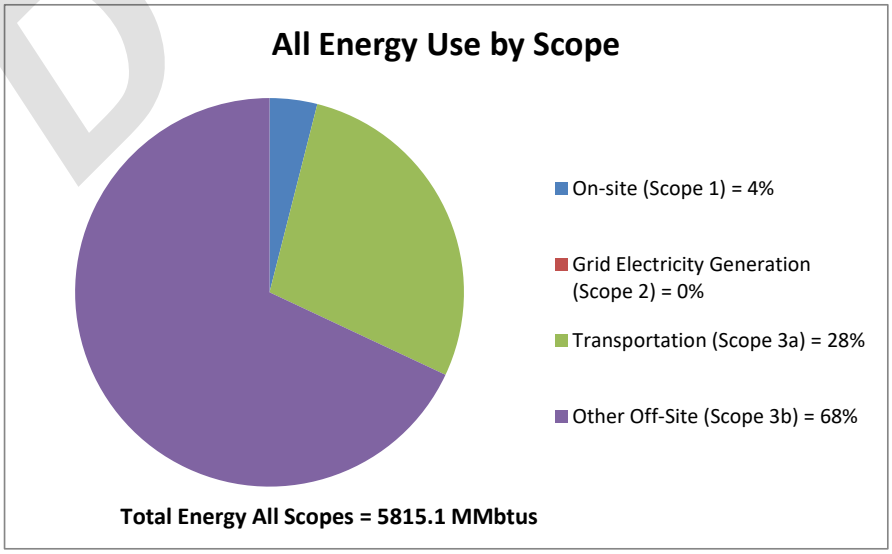
On-site (Scope 1) = 0%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.2%
Other Off-Site (Scope 3b) = 98.8%

HAPs All Components = 480.7 lbs
HAPs All Scopes = 480.7 lbs

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All Energy Use by Remedy Component and Scope
(in MMbtu)
3000
2500
2000
1500
1000
500
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 5815.1 MMbtus


All Energy Use by Remedy Component
Installation of SOE = 42.2%
Excav. & Disposal, EP Samples = 39.3%
Backfill and Compaction = 15.6%
SSDS = 2.9%
< Component 5 > = 0%
< Component 6 > = 0%
Total Energy All Components = 5815.1 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 28%
Other Off-Site (Scope 3b) = 68%
Total Energy All Scopes = 5815.1 MMbtus

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Total Energy
MMbtus

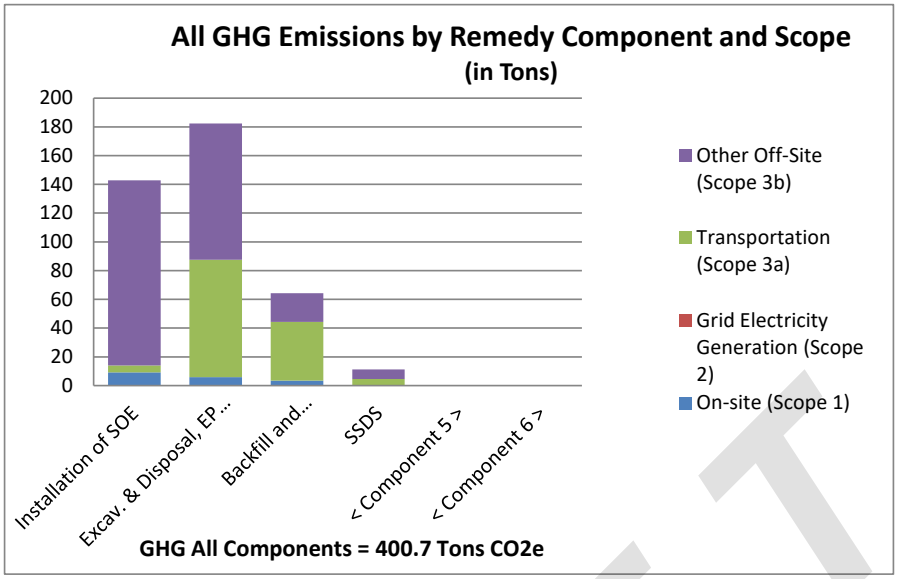
	Installation	Excav. & Di	Backfill and	SSDS	< Compon	< Compon	Total	
On-site (Scope 1)	114.7	73.0	42.5	0.0	0.0	0.0	230.2	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	58.3	1,008.3	506.3	56.7	0.0	0.0	1,629.6	Trar
ner Off-Site (Scope 3b)	2,283.2	1,206.5	355.7	110.0	0.0	0.0	3,955.3	Oth
Total	2,456.2	2,287.8	904.5	166.7	0.0	0.0	5,815.1	

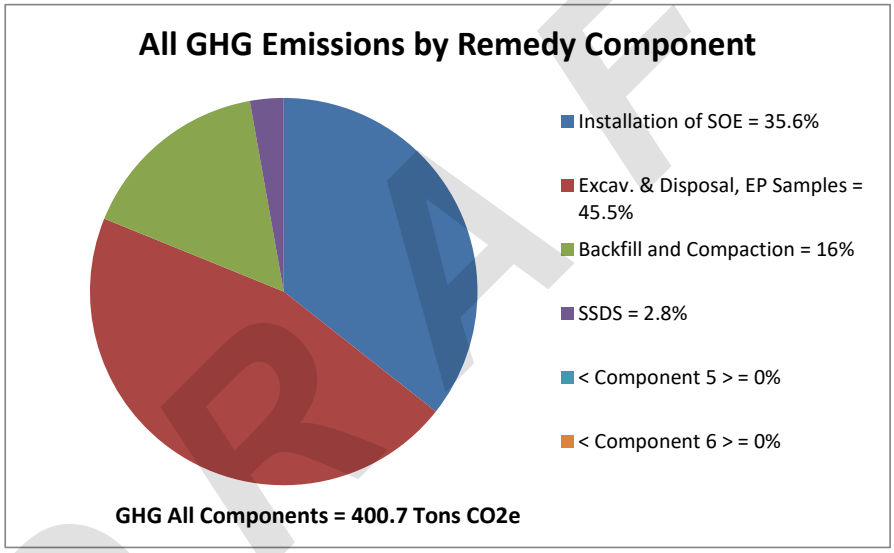
Installation of SOE = 42.2%
Excav. & Disposal, EP Samples = 39.3%
Backfill and Compaction = 15.6%
SSDS = 2.9%
< Component 5 > = 0%
< Component 6 > = 0%

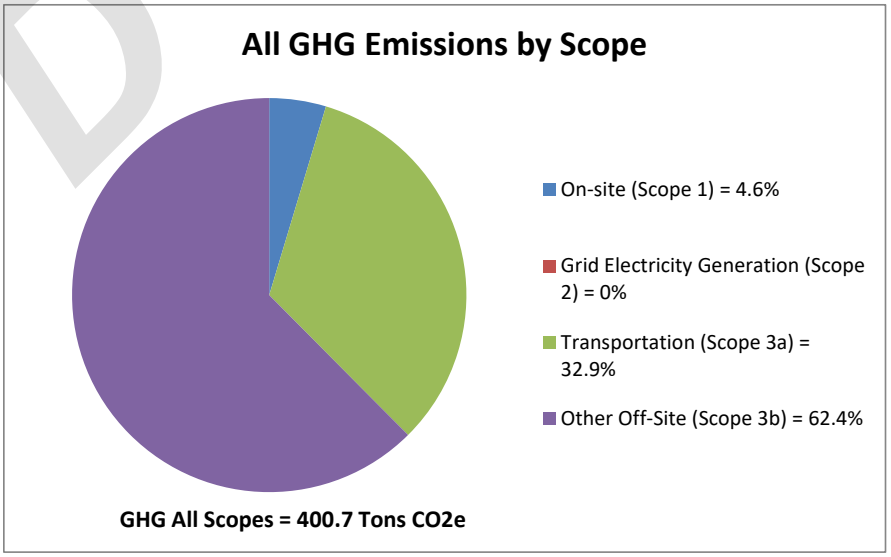
On-site (Scope 1) = 4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 28%
Other Off-Site (Scope 3b) = 68%

Total Energy All Components = 5815.1 MMbtus
Total Energy All Scopes = 5815.1 MMbtus

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All GHG Emissions by Remedy Component and Scope
(in Tons)
200
180
160
140
120
100
80
60
40
20
0
Installation of SOE
Excav. & Disposal, EP ...
Backfill and...
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 400.7 Tons CO2e


All GHG Emissions by Remedy Component
Installation of SOE = 35.6%
Excav. & Disposal, EP Samples = 45.5%
Backfill and Compaction = 16%
SSDS = 2.8%
< Component 5 > = 0%
< Component 6 > = 0%
GHG All Components = 400.7 Tons CO2e


All GHG Emissions by Scope
On-site (Scope 1) = 4.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 32.9%
Other Off-Site (Scope 3b) = 62.4%
GHG All Scopes = 400.7 Tons CO2e

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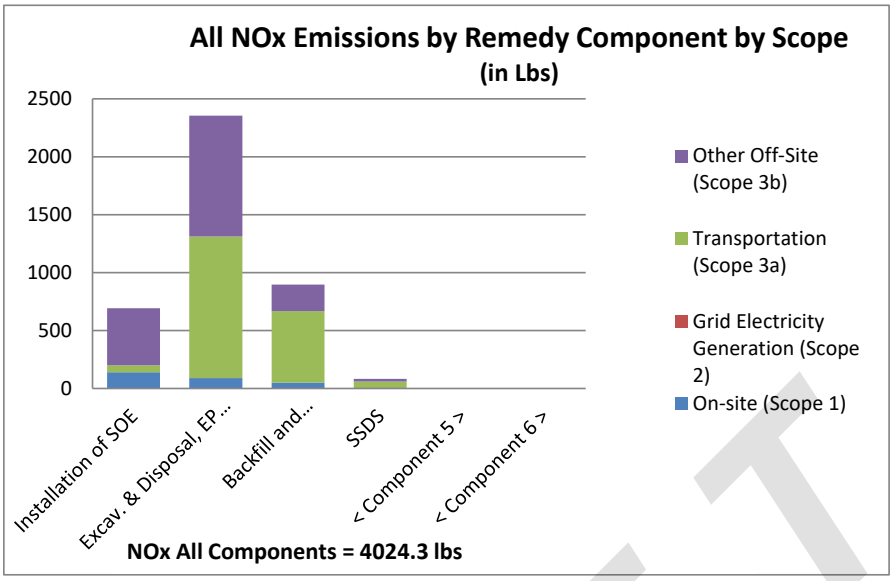
GHG Tons CO2e	Installatior	Excav. & D	Backfill anc	SSDS	< Compon	< Compon	Total	
On-site (Scope 1)	9.3	5.9	3.4	0.0	0.0	0.0	18.6	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	4.7	81.6	41.0	4.6	0.0	0.0	131.9	Trar
ner Off-Site (Scope 3b)	128.8	94.8	19.9	6.7	0.0	0.0	250.2	Oth
Total	142.8	182.3	64.3	11.2	0.0	0.0	400.7	

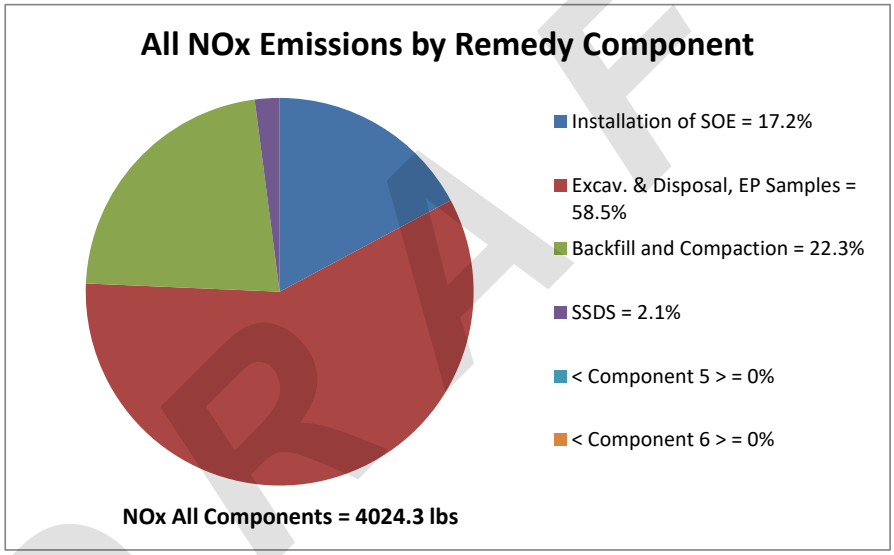
Installation of SOE = 35.6%
Excav. & Disposal, EP Samples = 45.5%
Backfill and Compaction = 16%
SSDS = 2.8%
< Component 5 > = 0%
< Component 6 > = 0%

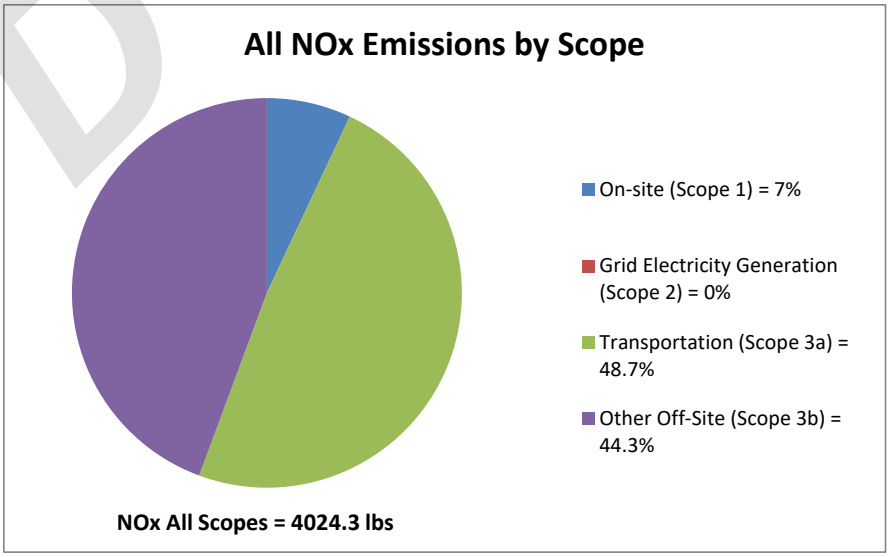
On-site (Scope 1) = 4.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 32.9%
Other Off-Site (Scope 3b) = 62.4%

GHG All Components = 400.7 Tons CO2e
GHG All Scopes = 400.7 Tons CO2e

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All NOx Emissions by Remedy Component by Scope
(in Lbs)
2500
2000
1500
1000
500
0
Installation of SOE
Excav. & Disposal, EP ...
Backfill and...
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 4024.3 lbs


All NOx Emissions by Remedy Component
Installation of SOE = 17.2%
Excav. & Disposal, EP Samples = 58.5%
Backfill and Compaction = 22.3%
SSDS = 2.1%
< Component 5 > = 0%
< Component 6 > = 0%
NOx All Components = 4024.3 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 7%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 48.7%
Other Off-Site (Scope 3b) = 44.3%
NOx All Scopes = 4024.3 lbs

DRAFT

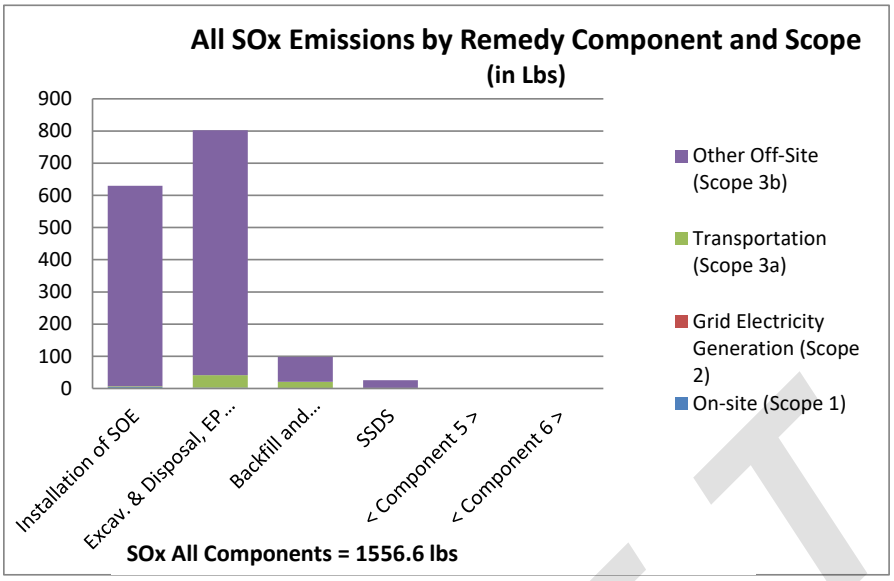
NOx lbs	Installation	Excav. & D	Backfill and	SSDS	< Compon	< Compon	Total	
On-site (Scope 1)	140.3	89.3	52.0	0.0	0.0	0.0	281.5	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	60.5	1,223.3	614.7	59.5	0.0	0.0	1,958.1	Trar
ner Off-Site (Scope 3b)	490.8	1,041.4	229.1	23.4	0.0	0.0	1,784.8	Oth
Total	691.6	2,354.0	895.8	82.9	0.0	0.0	4,024.3	

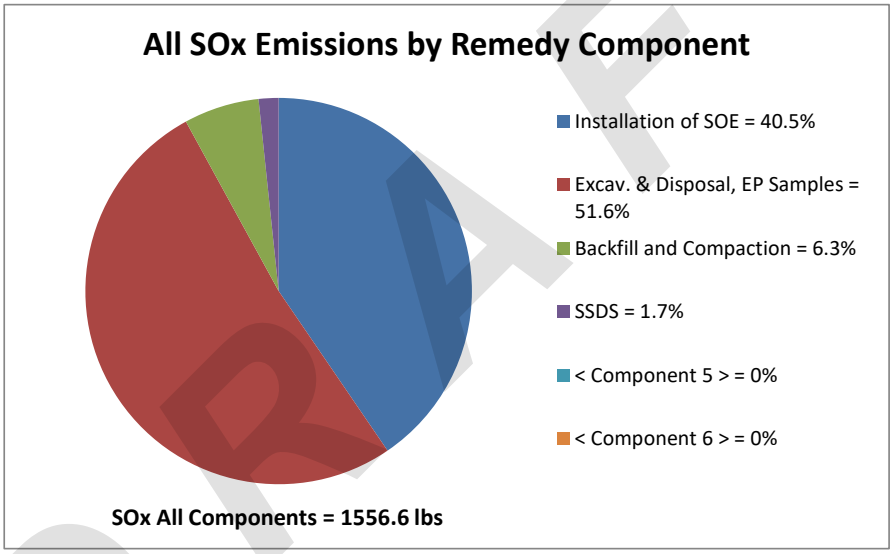
Installation of SOE = 17.2%
Excav. & Disposal, EP Samples = 58.5%
Backfill and Compaction = 22.3%
SSDS = 2.1%
< Component 5 > = 0%
< Component 6 > = 0%

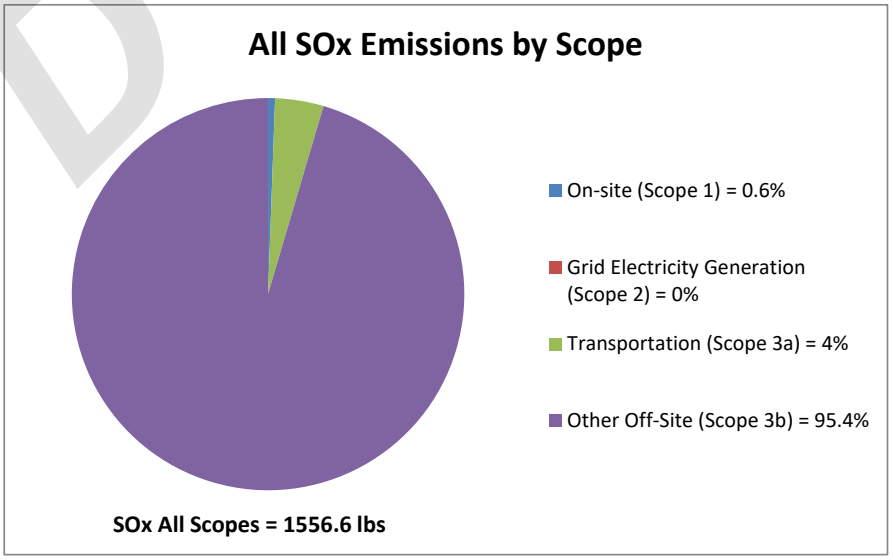
On-site (Scope 1) = 7%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 48.7%
Other Off-Site (Scope 3b) = 44.3%

NOx All Components = 4024.3 lbs
NOx All Scopes = 4024.3 lbs

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All SOx Emissions by Remedy Component and Scope
(in Lbs)
900
800
700
600
500
400
300
200
100
0
Installation of SOE
Excav. & Disposal, EP ...
Backfill and...
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 1556.6 lbs


All SOx Emissions by Remedy Component
Installation of SOE = 40.5%
Excav. & Disposal, EP Samples = 51.6%
Backfill and Compaction = 6.3%
SSDS = 1.7%
< Component 5 > = 0%
< Component 6 > = 0%
SOx All Components = 1556.6 lbs


All SOx Emissions by Scope
On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 4%
Other Off-Site (Scope 3b) = 95.4%
SOx All Scopes = 1556.6 lbs

DRAFT

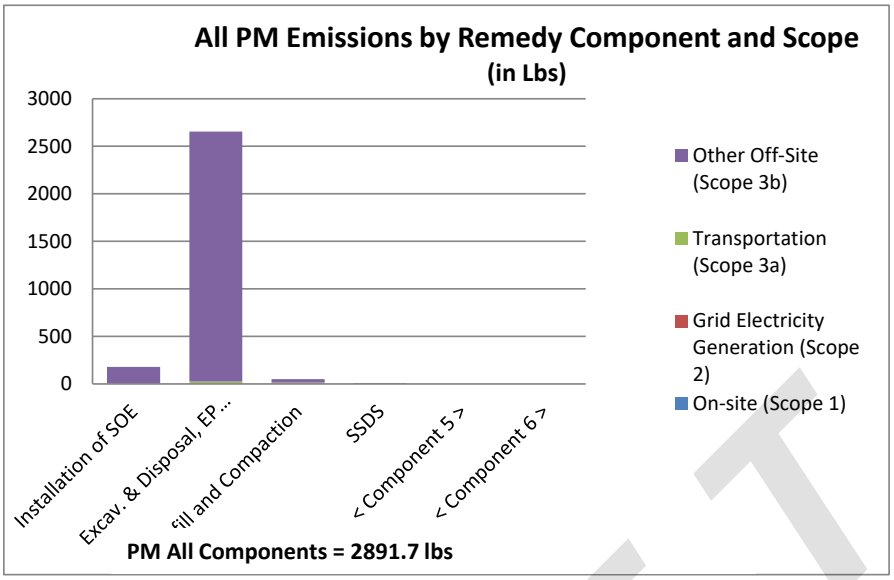
SOx lbs	Installation	Excav. & D	Backfill and	SSDS	< Compon	< Compon	Total	
On-site (Scope 1)	4.5	2.8	1.7	0.0	0.0	0.0	8.9	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	1.9	38.8	19.5	1.9	0.0	0.0	62.1	Trar
ner Off-Site (Scope 3b)	623.6	761.0	76.9	24.0	0.0	0.0	1,485.6	Oth
Total	630.0	802.6	98.1	25.9	0.0	0.0	1,556.6	

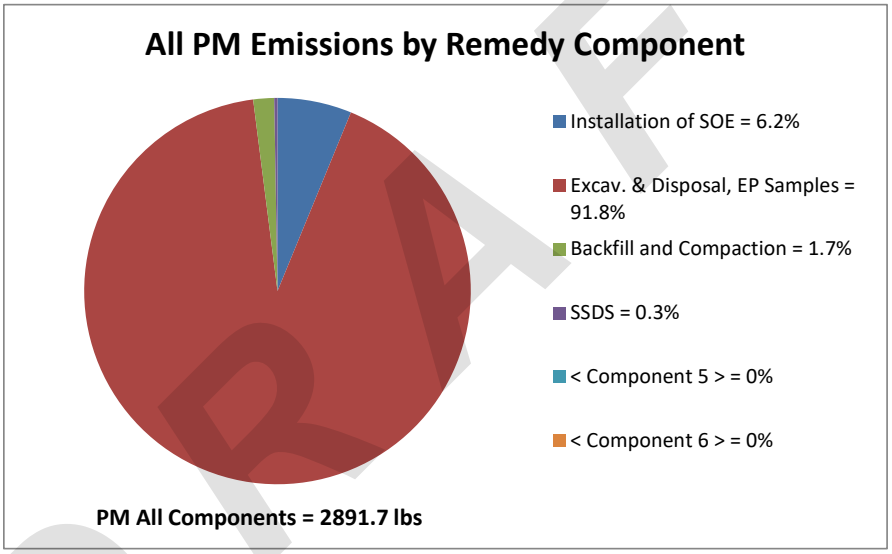
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Excav. & Disposal, EP Samples = 51.6%
Backfill and Compaction = 6.3%
SSDS = 1.7%
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< Component 6 > = 0%

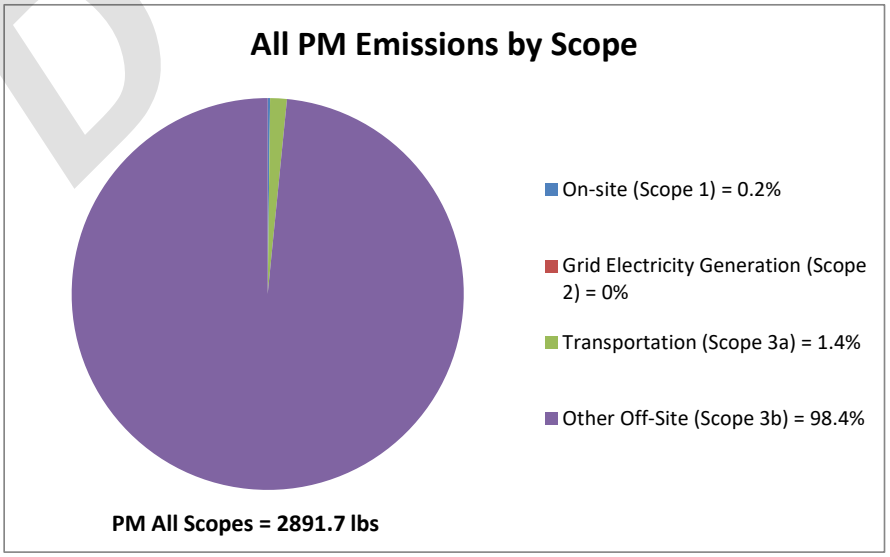
On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 4%
Other Off-Site (Scope 3b) = 95.4%

SOx All Components = 1556.6 lbs
SOx All Scopes = 1556.6 lbs

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All PM Emissions by Remedy Component and Scope
(in Lbs)
3000
2500
2000
1500
1000
500
0
Installation of SOE
Excav. & Disposal, EP ...
ill and Compaction
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 2891.7 lbs


All PM Emissions by Remedy Component
Installation of SOE = 6.2%
Excav. & Disposal, EP Samples = 91.8%
Backfill and Compaction = 1.7%
SSDS = 0.3%
< Component 5 > = 0%
< Component 6 > = 0%
PM All Components = 2891.7 lbs


All PM Emissions by Scope
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.4%
Other Off-Site (Scope 3b) = 98.4%
PM All Scopes = 2891.7 lbs

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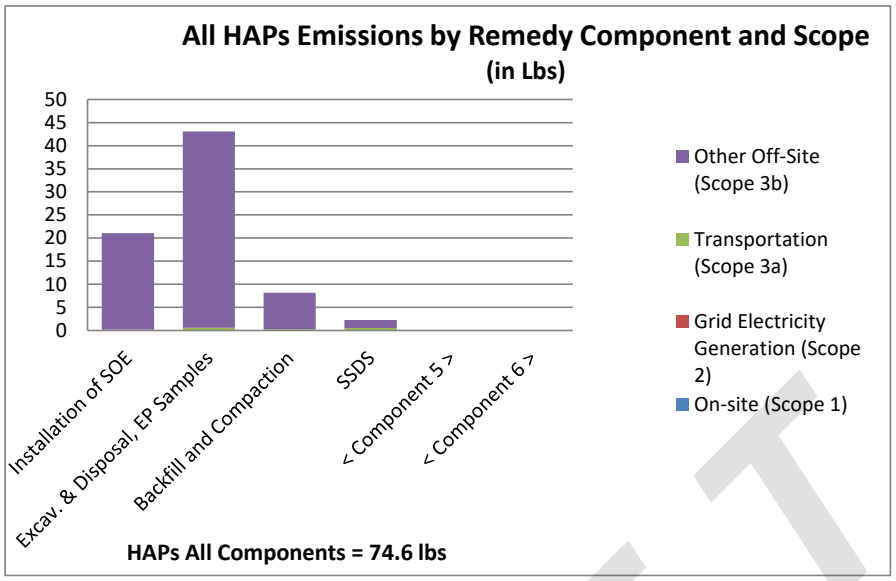
PM lbs	Installation	Excav. & D	Backfill and	SSDS	< Compon	< Compon	Total	
On-site (Scope 1)	2.8	1.8	1.0	0.0	0.0	0.0	5.6	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	1.4	24.7	12.4	1.4	0.0	0.0	39.8	Trar
ner Off-Site (Scope 3b)	175.2	2,627.6	37.0	6.4	0.0	0.0	2,846.3	Oth
Total	179.4	2,654.0	50.4	7.8	0.0	0.0	2,891.7	

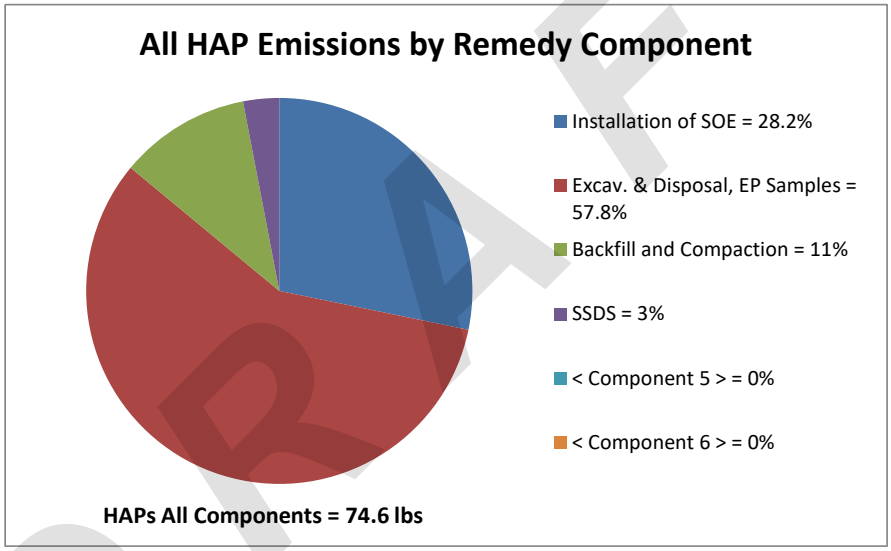
Installation of SOE = 6.2%
Excav. & Disposal, EP Samples = 91.8%
Backfill and Compaction = 1.7%
SSDS = 0.3%
< Component 5 > = 0%
< Component 6 > = 0%

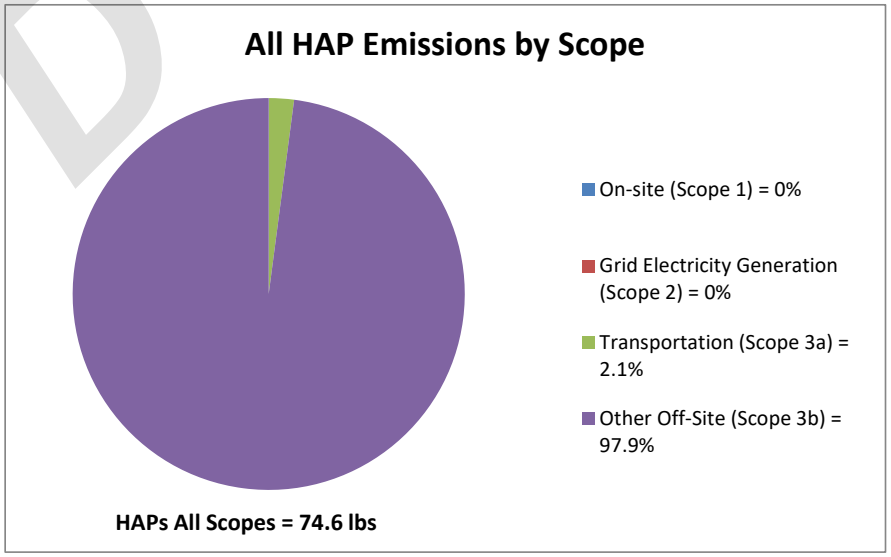
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.4%
Other Off-Site (Scope 3b) = 98.4%

PM All Components = 2891.7 lbs
PM All Scopes = 2891.7 lbs

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All HAPs Emissions by Remedy Component and Scope
(in Lbs)
50
45
40
35
30
25
20
15
10
5
0
Installation of SOE
Excav. & Disposal, EP Samples
Backfill and Compaction
SSDS
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 74.6 lbs


All HAP Emissions by Remedy Component
Installation of SOE = 28.2%
Excav. & Disposal, EP Samples = 57.8%
Backfill and Compaction = 11%
SSDS = 3%
< Component 5 > = 0%
< Component 6 > = 0%
HAPs All Components = 74.6 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 2.1%
Other Off-Site (Scope 3b) = 97.9%
HAPs All Scopes = 74.6 lbs

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HAPs lbs	Installatior	Excav. & D	Backfill anc	SSDS	< Compon	< Compon	Total
On-site (Scope 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nsportation (Scope 3a)	0.2	0.6	0.3	0.5	0.0	0.0	1.5
ner Off-Site (Scope 3b)	20.9	42.5	7.9	1.7	0.0	0.0	73.0
Total	21.1	43.1	8.2	2.2	0.0	0.0	74.6

Installation of SOE = 28.2%
Excav. & Disposal, EP Samples = 57.8%
Backfill and Compaction = 11%
SSDS = 3%
< Component 5 > = 0%
< Component 6 > = 0%

On-site (Scope 1) = 0%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 2.1%
Other Off-Site (Scope 3b) = 97.9%

HAPs All Components = 74.6 lbs
HAPs All Scopes = 74.6 lbs

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APPENDIX J

Citizens Participation Plan

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NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Sol on Park

May 2024

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C203169
1451 Washington Ave
Bronx, NY 10456

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* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

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Applicant: **Sol on Park LLC**
Site Name: **Sol on Park ("Site")**
Site Address: **1451 Washington**
Site County: **Bronx**
Site Number: **C203169**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision-makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

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- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision-making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web-site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

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The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- Residents, owners, and occupants of the site and properties adjacent to the site;
- The public water supplier which services the area in which the site is located;
- Any person who has requested to be placed on the site contact list;
- The administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

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- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

A local document repository has been established at the following location:

Morrisania Library
610 East 169th Street
Bronx, NY 10456
718-589-9268
morrisanialibrary@nypl.org

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

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To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

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Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

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3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

The Applicant is committed to informing and involving the public during the investigation and remediation of the project. The objective of the CP Plan is to promote communication and to assist the public in understanding the project process. Citizen participation in the project process provides the Applicant and the NYSDEC with an opportunity to obtain public input as part of the comprehensive redevelopment process.

No major issues of public concern have been identified relative to the Site as of yet and there is no potential impact to nearby wells. The Site will generate some noise during daytime working hours due to construction-related activities and vehicular traffic associated with the potential investigation and remediation activities throughout the cleanup process.

The Site is located within a Potential Environmental Justice Area according to the NYSDEC maps for Potential Environmental Justice Areas. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities. This CP Plan serves as a guide to better enable communication between the community and the proposed BCP project.

The Site is located in an area with sizable Hispanic-American and African-American populations nearby. Therefore, all future fact sheets will be translated into Spanish.

For additional information, visit: https://statisticalatlas.com/tract/New-York/Bronx-County/014702/Race-and-Ethnicity

The program will include procedures for protection of public health and safety during investigation and remediation activities. During investigation and remediation, worker and community health and safety activities will be conducted, including:

- Securing the work perimeter with a chain-link fence during remediation/construction;
- On-Site air monitoring for worker protection, if warranted;
- Perimeter air monitoring for community protection, if warranted; and
- Using odor, vapor, and dust controls such as water or foam sprays, if needed.

Details on the Site Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP) will be included in the documents generated in support of the remediation.

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4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description
The Site is located at 1451 Washington Ave, Bronx, NY, as shown on the figure in Appendix C. The Site is identified on the New York City Tax Map as being a part of Block 2902, Lot 36 in the Bronx, NY. The Site is a portion of a larger tax lot and primarily located within the southwestern portion of Lot 36. The Site consists of a vacant grass-covered lot with fencing and will undergo redevelopment into a multi-story apartment building.

The Site currently encompasses an area of approximately 0.68 acres and is a vacant grass-covered lot. The Site slopes from an elevation of approximately 30 feet above mean sea level (ft amsl) at the southeastern property corner to approximately 17 ft amsl at the northwestern property corner. The Site is surrounded by the following properties, as summarized by the table below:

Adjacent Property Direction	**Property Use**
North	A 16-story Residential New York City Housing Authority (NYCHA) Morris I building (known as building #16) and a paved parking lot.
South	St Pauls Place and NYC Department of Education Public School 128.
East	A 16-story Residential New York City Housing Authority (NYCHA) Morris I building (known as building #17).
West	Park Avenue and the Metro North rail line.

History of Site Use, Investigation, and Cleanup

Historical use at the Site included mixed residential as well as commercial and industrial use. Residential structures were once developed at areas along St Pauls Place from at least 1891 through the 1950s. Former manufacturing use between 1891 through 1909 known as Varnishes and Brewers Chips occurred on the northern portion of the Site. The manufacturer of Brewers Varnish ceased operations around 1909. In the former manufacturing location, a parking lot and gasoline filling station operated until 1952. Evidence of a large-scale neighborhood redevelopment project appears in historical documents between the years of 1952 and 1966. Entire city blocks were leveled and large apartment buildings were erected during this time, which still stand today as the NYCHA campus.

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The following previous environmental investigations were conducted at the Site:

- **Phase I Environmental Site Assessment Report**, prepared by BRS, Inc., dated March 7, 2022;
- **Phase II Environmental Site Assessment Summary Letter Report**, prepared by Roux, dated March 24, 2023;

Based upon the previous investigations conducted to date, the primary contaminants of concern for the Site include semivolatile organic compounds (SVOCs) and metals in soil and groundwater due to the presence of historic fill on-Site.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for unrestricted purposes.

To achieve this goal, the Applicant will conduct investigation and/or cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) Define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) Identify the source(s) of the contamination;

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3) Assess the impact of the contamination on public health and the environment; and
4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft "Remedial Investigation Work Plan" to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a "significant threat," it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a "Certificate of Completion" (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a "Remedial Work Plan". The Remedial Work Plan describes the Applicant's proposed remedy for addressing contamination related to the site.

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When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the FER. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include caps, covers, barriers, fences, and treatment of water supplies.

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Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

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Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Erick Bower
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway
Albany, NY 12233
518-402-9824
erick.bower@dec.ny.gov

Thomas V. Panzone
Public Participation Specialist
NYSDEC
47-40 21st Street
Long Island City, NY 11101
Division of Communications, Education & Engagement
718-482-4953
Thomas.panzone@dec.ny.gov

New York State Department of Health (NYSDOH):

Jonathan Robinson
Project Manager
NYSDOH
Bureau of Environmental Exposure Investigation
Empire State Plaza, Corning Tower, Room 1787
Albany, NY 12233
518-402-7881
johnathan.robinson@health.ny.gov

Locations of Reports and Information

https://extapps.dec.ny.gov/data/DecDocs/C203169/

The facilities identified below are being used to provide the public with convenient access to important project documents:

Morrisania Library
610 East 169th
Bronx, NY 10456
Attn: Colbert Nembhard

718-589-9268
morrisanialibrary@nypl.org
Hours: M – Th 10 AM – 7 PM
Fr – Sat 10 AM – 5 PM
Sn – Closed

NYSDEC Division of Environmental Remediation
Attn: Erick Bower
Phone: 518-402-9824
Hours: 8:30 AM – 4:45 PM Monday through Friday (call for appointment)

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Appendix B - Site Contact List

i. Local and State Officials

Hon. Charles Schumer
United States Senate
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten E. Gillibrand
United States Senate
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Rep. Ritchie Torres (CD-15)
U.S. House of Representatives
540 E Fordham Rd, Unit 2A
Bronx, NY 10458

Hon. Eric Adams
New York City Mayor
City Hall
New York, NY 10007

Hon. Althea Stevens
NYC Councilmember – District 16
1377 Jerome Avenue
Bronx, NY 10452

Hon. Luis R. Sepúlveda
NYS Senator – District 32
900 Rogers Place
Bronx, NY 10459

Hon. Chantel Jackson
NYS Assemblymember – District 79
780 Concourse Village West, Ground Fl
Bronx, NY 10451

Hon. Brad Lander
New York City Comptroller
1 Centre Street #530
New York, NY 10007

Hon. Jumaane D Williams
Public Advocate
1 Centre Street #15N
New York, NY 10007

David Gold, Esq.
Commissioner, NYC Dept. of City Planning
120 Broadway, 31st Floor
New York, NY 10271

Hon. Vanessa L. Gibson
Bronx Borough President
851 Grand Concourse, 301
Bronx, NY 10451

Ischia Bravo
Bronx County Clerk
851 Grand Concourse
Bronx, NY 10451

Rohit Aggarwala
Commissioner, NYCDEP
59-17 Junction Boulevard
Flushing, NY 11373

Mark McIntyre
Acting Director/General Counsel, NYCOER
100 Gold Street – 2nd Floor
New York, NY 10038

ii. Current Site Owner

NYC Housing Authority
Vanessa Jones
90 Church Street
New York, NY 10007

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iii. Community, Civic, Religious and Other Environmental Organizations

Consolidated Edison Corporate Affairs
Evelyn Oliver - Director
511 Theodore Fremd Avenue
Rye, NY 10580

42nd Police Precinct Council
President Russell Loren
830 Washington Ave.
Bronx, NY 10451

FDNY
Rescue 3
1655 Washington Avenue
Bronx, NY 10457

WILLIAM HODSON COMMUNITY CENTER INC
1320 WEBSTER AVENUE
Bronx, NY 10456

Bronx is Blooming
https://www.bronxisblooming.org/our-team

Holy Tabernacle Church
3780 3rd Avenue
Bronx, NY 10456
(718) 293-9862

Christ the King Church
1245 Washington Ave,
Bronx, NY 10456

Baptist Temple of God
1205 Washington Ave,
Bronx, NY 10456

Evangelical Church of God
1205 Washington Ave,
Bronx, NY 10456

Open Door Church
1581 Washington Ave,
Bronx, NY 10457

Iglesia Mision Cristiana
1591 Washington Ave,
Bronx, NY 10457

Iglesia Cristiana Hijos De Sion, Inc. Sons Of Zion Christian Church, Inc.
3798 Park Ave,
Bronx, NY 10456

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New Morris Ania Full Gospel
1205 Washington Ave,
Bronx, NY 10456

Templo Cristiano El Faro
1731 Washington Ave,
Bronx, NY 10457

Bronx Seventh-day Adventist Church
1695 Washington Ave,
Bronx, NY 10457

House of Prayer Deliverance
1205 Washington Ave,
Bronx, NY 10456

Upper Room Baptist Church
1373 College Ave,
Bronx, NY 10456

Goodwill Baptist Church
642 Crotona Park S,
Bronx, NY 10456

Kingdom Hall of Jehovah's Witnesses
1352 Fulton Ave,
Bronx, NY 10456

Iglesia Metodista Libre El Remanente Inc.
1446 Prospect Ave,
Bronx, NY 10456

NYCHA Butler Houses
https://www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
DEVELOPMENT MANAGEMENT OFFICE
1402 WEBSTER AVENUE
Bronx, NY 10456

NYCHA Butler Houses
https://www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
President – Resident Association
1402 WEBSTER AVENUE
Bronx, NY 10456

NYCHA Butler Houses
https://www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
SENIOR CENTER
1320 WEBSTER AVENUE
Bronx, NY 10456

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NYCHA Butler Houses
https://www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
COMMUNITY CENTER
1368 WEBSTER AVENUE
Bronx, NY 10456

SoBRO
Lourdes Zapata - President & CEO
lzapata@sobro.org
https://sobro.org/
555 Bergen Avenue
Bronx, NY 10455

Claremont Homeowners & Tenant Civic Improvement Corp.
Ms. D. Lee Ezell, Exec. Director/CEO
(718) 538-6881
https://www.nyc.gov/assets/bronxcb4/downloads/pdf/cbo_list.pdf
1325 Teller Avenue
Bronx, NY 10456

Clay Avenue Tenants Association
Ms. Maria A. Forbes, President
(718) 588-7588
https://www.nyc.gov/assets/bronxcb4/downloads/pdf/cbo_list.pdf
1236 Clay Avenue, Suite 2C
Bronx, NY 10456

Iglesia Ni Cristo - Locale of Bronx
1343 Fulton Avenue
Bronx, NY 10456

Masjid Sidiki
1462 Boston Rd,
Bronx, NY 10459

Greater Zion Baptist Church
1281 Findlay Avenue
Bronx, NY 10456

Claremont Neighborhood Centers, Inc
http://www.claremontcenter.org/index.html
489 East 169th Street
Bronx, NY 10456

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iv. Parks and Recreation

NYC Dept. of Parks & Recreation
The Arsenal, Central Park, 830 Fifth Avenue
New York, NY 10065
Attn: Sue Donoghue – Commissioner

v. Day Cares and Schools within Quarter Mile Radius

Success Academy Charter School – Bronx 2
President/Executive Director/Principal
450 Saint Pauls Place, 5th Floor
Bronx, NY 10456
(347) 286-7965
https://www.successacademies.org/school/bronx-2/

Bronx Center for Science and Mathematics
President/Executive Director/Principal
https://www.bronxcenter.nyc/1363
Fulton Avenue,
Bronx, NY 10456
(718) 992-7089

Kids Zone Care Corp
President/Executive Director/Principal
1527 Washington Avenue
Bronx, NY 10457
(718) 304-7578

South Bronx Community Charter High School
President/Executive Director/Principal
1110 Washington Ave,
Bronx, NY 10456
https://southbronxcommunity.org/
929-579-0025

I.S. 219 New Venture School
President/Executive Director/Principalhttps://www.is219.org/
3630 3rd Avenue
Bronx, NY 10456
(718) 681-7093

PS 42 Claremont Community School
President/Executive Director/Principal
https://www.theclaremontschool.org/
1537 Washington Avenue
Bronx, NY 10457
718-583-7366

Early Scholars Group Family Daycare
President/Executive Director/Principal
1348 Webster Avenue
Bronx, NY 10456
(347) 818-5610

Community School 55 – Benjamin Franklin School
President/Executive Director/Principal
https://cs55bengaltigers.com/
450 St. Paul's Place
Bronx, NY 10456
718-681-6227

P.S. 132 Garret A. Morgan Elementary School
President/Executive Director/Principal
https://www.ps132x.org/
1245 Washington Avenue
Bronx, NY 10456
718-681-6455

P186X Walter J. Damrosch School
President/Executive Director/Principal
https://p186x.org/p186146.html
968 Cauldwell Avenue
Bronx, NY 10456
718-378-0624

Mott Hall Charter School
President/Executive Director/Principal
https://www.motthallcs.org/contact-us
1260 Franklin Avenue
Bronx, NY 10456
(718)-991-9139

P.S. 53 The Basheer Qusim School
President/Executive Director/Principal
https://www.ps53.org/
360 East 168th Street
Bronx, NY 10456
718-681-7276

X404 School for Excellence
President/Executive Director/Principal
https://schoolforexcellence.net/
1110 Boston Road
Bronx, NY 10456
718-860-1385

ALEENE LOGAN PRESCHOOL CENTER
President/Executive Director/Principal
1450 WEBSTER AVENUE

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Bronx, NY 10456
(718) 293-1530
https://insideschools.org/school/09XAMI

Ready Set Learn Childcare Center
President/Executive Director/Principal
3467 3rd AVENUE
Bronx, NY 10456
(718) 665-1234

FORT GEORGE COMMUNITY ENRICHMENT
President/Executive Director/Principal
489 ST PAULS PLACE
Bronx, NY 10456

MID BRONX CCRP ECC INC.
President/Executive Director/Principal
1458 WEBSTER AVENUE
Bronx, NY 10456
https://www.myschools.nyc/en/schools/3k/09XBSW/
718-684-4790

LOUIS A. FICKLING CHILD DEVELOPMENT CENTER
President/Executive Director/Principal
1240 WEBSTER AVENUE
Bronx, NY 10456
(718) 538-7135

1332 FULTON DAY CARE CENTER
President/Executive Director/Principal
1332 FULTON AVENUE
Bronx, NY 10456
(718) 378-1331

TREMONT MONTEREY DAY CARE, INC.
President/Executive Director/Principal
1600 BATHGATE AVENUE
Bronx, NY 10457
(718) 466-6700

LA PENINSULA HEAD START FULTON – XARC
President/Executive Director/Principal
1717 FULTON AVENUE
Bronx, NY 10457
https://www.lapen.com/fulton
718-215-2020

PUERTO RICAN FAMILY INSTITUTE, INC.
President/Executive Director/Principal
1423 PROSPECT AVENUE
Bronx, NY 10459
(718) 991-5590

LABOR BATHGATE COMMUNITY CHILD CARE CENTER
President/Executive Director/Principal
1638 ANTHONY AVENUE
Bronx, NY 10457
(718) 583-3850

Harriet Tubman Charter School
President/Executive Director/Principal
https://www.htcsbronx.org/
3565 3rd Avenue
Bronx, NY 10456
718-537-9912

NYCHA Butler Houses
DAY CARE CENTER
www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
1450 WEBSTER AVENUE
Bronx, NY 10456

NYCHA Butler Houses
DAY CARE CENTER
www.nyc.gov/assets/nycha/downloads/pdf/Butler.pdf
1458 WEBSTER AVENUE
Bronx, NY 10456

X241 the Urban Assembly School for Applied Math and Science
President/Executive Director/Principal
https://www.amsbronx.org/
718-466-7800
1595 Bathgate Avenue
Bronx, NY 10457

Bronx Preparatory Charter School
President/Executive Director/Principal
718-294-0841
3872 Third Avenue
Bronx, NY 10457

P.S./M.S. 004 Crotona Park West
President/Executive Director/Principal
https://insideschools.org/school/09X004
718-583-6655
1701 Fulton Avenue
Bronx, NY 10457

William H Taft High School Educational Campus
President/Executive Director/Principal

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https://insideschools.org/school/00Z001
240 East 172nd Street
Bronx, NY 10457

Frederick Douglass Academy III Secondary School
President/Executive Director/Principal
https://www.fdaiii.com/
718-538-9726
3630 3rd Avenue
Bronx, NY 10456

Jackie's Loving Arms Daycare, INC.
President/Executive Director/Principal
(347) 726-5660
3603 Third Avenue
Bronx, NY 10456

Author's Academy
President/Executive Director/Principal
718-589-3058
1260 Franklin Avenue
Bronx, NY 10456

DREAM Highbridge Elementary School
President/Executive Director/Principal
https://wearedream.org/highbridge-elementary-school/ 360 East 168th Street
Bronx, NY 10456

vi. Local News and Media

Bronx Times
3602 East Tremont Avenue
Bronx, NY 10465

El Diario NY
Impremedia, 41 Flatbush Avenue 1st Floor
Brooklyn, NY 11217

vii. Any Person, Community Based Organization, or Local Media Who Has Requested to be placed on the contact list

No persons have requested to be on the Site Contact List.

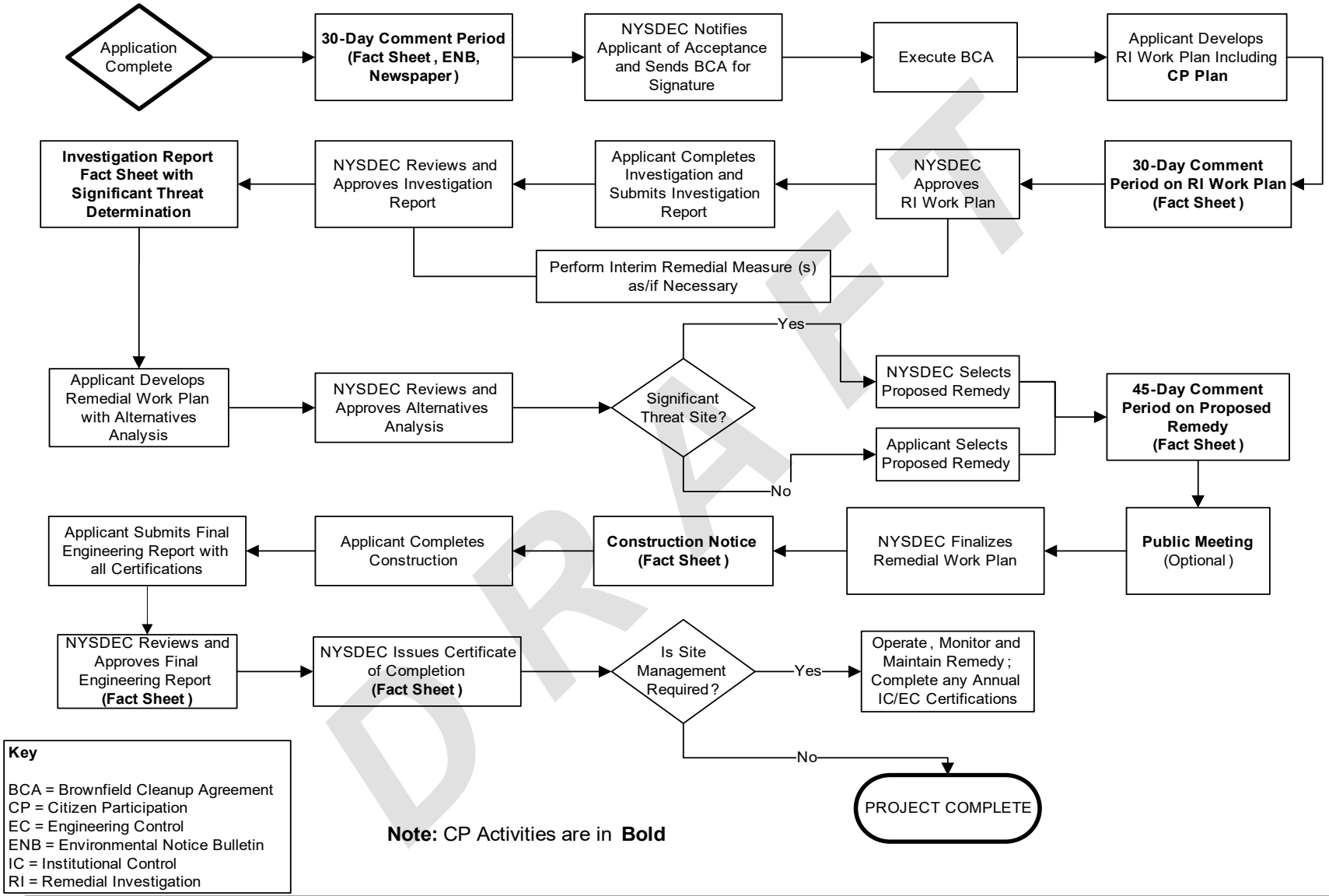
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Appendix C - Site Location Map



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Appendix D– Brownfield Cleanup Program Process



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Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern

Instructions

This Scoping Sheet assesses major issues of public concern; impacts of the site and its remedial program on the community; community interest in the site; information the public needs; and information needed from the public.

The information generated helps to plan and conduct required citizen participation (CP) activities, and to choose and conduct additional CP activities, if appropriate. The scoping sheet can be revisited and updated as appropriate during the site's remedial process to more effectively implement the site's CP program.

Note: Use the information as an aid to prepare and update the Major Issues of Public Concern section of the site CP Plan.

General Instructions

- When to prepare: During preparation of the CP Plan for the site. It can be revisited and updated anytime during the site remedial process.
- Fill in site name and other information as appropriate.
- The Scoping Sheet may be prepared by DEC or a remedial party, but must be reviewed and approved by the DER site project manager or his/her designee.

Instructions for Numbered Parts

Consider the bulleted issues and questions below and any others that may be unique or appropriate to the site and the community to help complete the five Parts of this Scoping Sheet. Identify the issue stakeholders in Parts 1 through 3 and adjust the site's contact list accordingly.

Part 1. List Major Issues of Public Concern and Information the Community Wants.

- Is our health being impacted? (e.g. Are there problems with our drinking water or air? Are you going to test our water, yards, sumps, basements? Have health studies been done?)
- There are odors in the neighborhood. Do they come from the site and are they hazardous?
- Are there restrictions on what we may do (e.g. Can our children play outside? Can we garden? Must we avoid certain areas? Can we recreate (fish, hunt, hike, etc. on/around the site?)
- How and when were the site's contamination problems created?
- What contaminants are of concern and why? How will you look for contamination and find out where it is going? What is the schedule for doing that?
- The site is affecting our property values!
- How can we get more information (e.g. who are the project contacts?)
- How will we be kept informed and involved during the site remedial process?
- Who has been contacted in the community about site remedial activities?
- What has been done to this point? What happens next and when?

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- The site is going to be cleaned up for restricted use. What does that mean? We don't want redevelopment on a "dirty" site.

Part 2. List Important Information Needed From the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

Part 3. List Major Issues and Information That Need to be Communicated to the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

Part 4. Community Characteristics

a. - e. Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

f. Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

g. In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

h. Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.

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- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

Part 5. Affected/Interested Public.

Individuals and organizations who need or want information and input can change during the site's remedial process. This need is influenced by real, potential, or perceived impacts of the site or the remedial process. Some people may want information and input throughout the remedial process. Others may participate only during specific remedial stages, or may only be interested in particular issues.

It is important to revisit this question when reviewing this scoping sheet. Knowing who is interested in the site – and the issues that are important to them – will help to select and conduct appropriate outreach activities, and to identify their timing and the information to be exchanged.

Check all affected/interested parties that apply to the site. **Note: Adjust the site's contact list appropriately.** The following are some ways to identify affected/interested parties:

- Tax maps of adjacent property owners
- Attendees at public meetings
- Telephone discussions
- Letters and e-mails to DER, the remedial party, and other agencies
- Political jurisdictions and boundaries
- Media coverage
- Current/proposed uses of site and/or nearby properties (recreational, commercial, industrial)
- Discussions with community organizations: grass roots organizations, local environmental groups, environmental justice groups, churches, and neighborhood advisory groups

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Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: Sol on park

Site Number: C203169

Site Address and County: 1451 Washington Ave, Bronx, NY 10456

Remedial Party(ies): Sol on Park LLC

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**
None identified.

How were these issues and/or information needs identified?
NA

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.
NA

How were these information needs identified?
NA

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.
None identified.

How were these issues and/or information needs identified?
NA

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☐ **Commercial** ☐ **Industrial**

b. Residential type around site:
☒ **Urban** ☐ **Suburban** ☐ **Rural**

c. Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

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d. Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☒ **Yes** ☐ **No**

h. Special considerations:
☒ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
Future fact sheets will be translated into Spanish.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☒ **Non-Adjacent Residents/Property Owners:** Click here to enter text.

☒ **Local Officials:** Click here to enter text.

☒ **Media:** Click here to enter text.

☐ **Business/Commercial Interests:** Click here to enter text.

☐ **Labor Group(s)/Employees:** Click here to enter text.

☐ **Indian Nation:** Click here to enter text.

☒ **Citizens/Community Group(s):** Click here to enter text.

☐ **Environmental Justice Group(s):** Click here to enter text.

☐ **Environmental Group(s):** Click here to enter text.

☒ **Civic Group(s):** Click here to enter text.

☐ **Recreational Group(s):** Click here to enter text.

☐ **Other(s):** Click here to enter text.

Prepared/Updated By: Ron Lombino/Brooke Hildebrand, Roux **Date:** 5/1/2024

Reviewed/Approved By: Thomas V. Panzone **Date:** 1-25-24

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APPENDIX K

Health and Safety Plan

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Site-specific Health and Safety Plan (HASP)

3728 Park Avenue
Bronx, New York 10456

February 13, 2026

Prepared for:

Sol on Park LLC
c/o NRP Holdings LLC
1228 Euclid Avenue, 4th Floor
Cleveland, Ohio 44125

Prepared by:

Roux Environmental Engineering and Geology, D.P.C.
209 Shafter Street
Islandia, New York 11749

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Environmental Consulting
& Management
+1.800.322.ROUX
rouxinc.com

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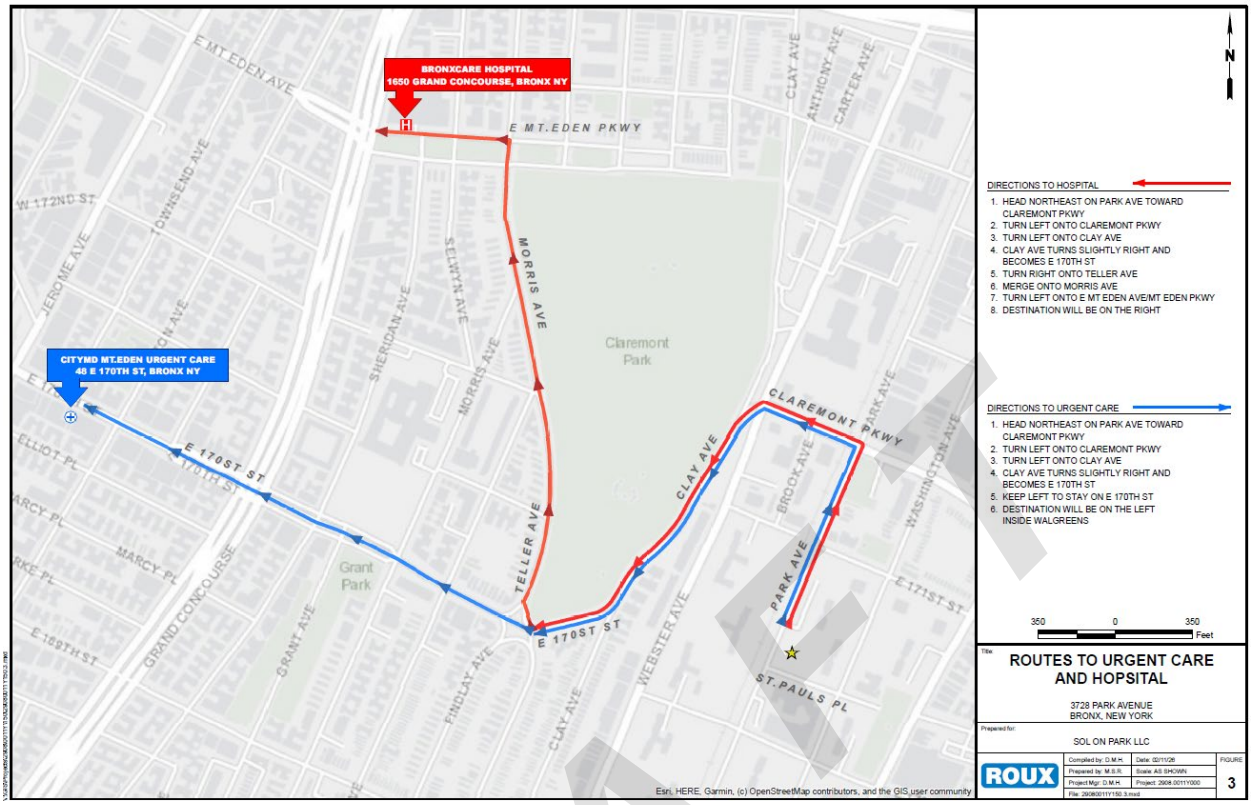
Site-Specific Emergency Information

Emergency Phone Numbers

Most emergency services can be obtained by calling 911. Where 911 service is not available, use the telephone numbers provided in the below table. The following is a master emergency phone list for use by the project management personnel. A more condensed version of the emergency numbers listed below will be posted throughout project work areas. Emergencies encountered on the site will be responded to by a combination of off-site emergency services and on-site personnel.

Emergency Contact Information			
Site Personnel			
Title	**Contact**		**Telephone**
Operations Manager (OM)	Jeff Wills, P.G.		631-630-2366
Project Principal (PP)	Charlie McGuckin, P.E.		631-630-2346
Project Manager (PM)	Dana Hignell		631-630-2329
Site Supervisor (SS)	TBD		
Site Health and Site Safety Officer (SHSO)	TBD		
Office Health and Safety Manager (OHSM)	Nevin Pahlad, CSP, CHMM		347-885-6930
Corporate Health and Safety Director (CHSD)	Brian Hobbs, CIH, CSP		631-807-0193
WorkCare, Inc.	Occupational Health Care Management Provider		888-449-7787
Client Emergency Contact	Michael Koenig		440-655-4130
Outside Assistance			
Agency	**Contact**	**Telephone**	**Address/Location**
Police	NYC Police Department – 48th Precinct	911/ 718-299-3900	450 Cross Bronx Expressway, Bronx, NY 10457
Fire	FDNY Fire Department Engine 92	911/ 718-999-2000	1259 Morris Avenue, Bronx, NY 10456
Site Address	3728 Park Avenue, Bronx, NY 10456		

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BRONXCARE HOSPITAL
1650 GRAND CONCOURSE, BRONX NY
CITYMD MT.EDEN URGENT CARE
48 E 170TH ST, BRONX NY
E MT.EDEN PKWY
E 170ST ST
MORRIS AVE
TELLER AVE
CLAY AVE
CLAREMONT PKWY
PARK AVE
ST.PAULS PL
Claremont Park
Grant Park
GRAND CONCOURSE
WEBSTER AVE
DIRECTIONS TO HOSPITAL
1. HEAD NORTHEAST ON PARK AVE TOWARD CLAREMONT PKWY
2. TURN LEFT ONTO CLAREMONT PKWY
3. TURN LEFT ONTO CLAY AVE
4. CLAY AVE TURNS SLIGHTLY RIGHT AND BECOMES E 170TH ST
5. TURN RIGHT ONTO TELLER AVE
6. MERGE ONTO MORRIS AVE
7. TURN LEFT ONTO E MT EDEN AVE/MT EDEN PKWY
8. DESTINATION WILL BE ON THE RIGHT
DIRECTIONS TO URGENT CARE
1. HEAD NORTHEAST ON PARK AVE TOWARD CLAREMONT PKWY
2. TURN LEFT ONTO CLAREMONT PKWY
3. TURN LEFT ONTO CLAY AVE
4. CLAY AVE TURNS SLIGHTLY RIGHT AND BECOMES E 170TH ST
5. KEEP LEFT TO STAY ON E 170TH ST
6. DESTINATION WILL BE ON THE LEFT INSIDE WALGREENS
350 0 350 Feet
ROUTES TO URGENT CARE AND HOPSITAL
3728 PARK AVENUE
BRONX, NEW YORK
SOL ON PARK LLC
ROUX
FIGURE
3
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

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1. Introduction

This Site-specific Health and Safety Plan (HASP) has been prepared by Roux Environmental Engineering and Geology, D.P.C. (Roux) for use during the remedial activities at the Sol on Park site, located at 3728 Park Avenue, Bronx, NY (Site; **Figure 1**). This HASP was prepared in general accordance with the requirements of the Occupational Safety and Health Administration (OSHA) standards promulgated at 29 CFR 1910.120 and 29 CFR 1926.65, both commonly referred to as the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. In accordance with the HAZWOPER Standard, this Site-specific HASP was prepared to address the safety and health hazards associated with the remedial activities being performed at the Site by Roux and to provide requirements and procedures for the protection of Roux employees, subcontractor personnel, government oversight personnel, Site personnel, and the general public. It also addresses client- and Site-specific requirements for health and safety. Additionally, subcontractors may be required to submit their own HASP as it relates to their specific work activities and will be kept onsite during such work.

Implementation of this HASP is the joint responsibility of the Project Manager (PM), the Site Health and Safety Officer (SHSO), and all field staff, with assistance from the Project Principal (PP), Office Health and Safety Manager (OHSM), and Corporate Health and Safety Director (CHSD). The PM for this project is Dana Hignell. The Site Supervisor (SS) is TBD and Site Health and Safety Officer (SHSO) is TBD.

This HASP will be introduced to, reviewed, and signed off on by all Roux personnel through a formal training session prior to commencing work. A copy of the HASP will be kept at the Site at all times. The Roux SHSO or PM will be responsible for posting any changes, amendments, memos, etc. to the HASP. Any revisions to this HASP will be signed by appropriate personnel, which can include Roux's PP, CHSD, and SS. Any changes will be announced to all workers at the next safety meeting.

1.1 Roles and Responsibilities

Overall Roles and Responsibilities (R&Rs) of Roux personnel are provided in Roux's Policies and Procedures Manual. Only those R&Rs specific to HASP requirements are listed below.

Project Manager (PM)

The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Health and Safety Officer (SHSO), has the authority to oversee and monitor the performance of the SHSO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

- Preparing and coordinating the Site work plan;
- Providing Site supervisor(s) with work assignments and overseeing their performance; Coordinating safety and health efforts with the SSHO;
- Ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); and
- Serving as primary Site liaison with public agencies and officials and Site contractors.

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Site Health and Safety Officer (SHSO)

The SHSO has the full responsibility and authority to develop and implement this HASP and to verify compliance. The SHSO reports to the Project Manager. The SHSO is on Site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SHSO include:

- Managing the safety and health functions on this Site;
- Serving as the Site's point of contact for safety and health matters;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Assessing Site conditions for unsafe acts and conditions and providing corrective action;
- Assisting the preparation and review of this HASP;
- Maintaining effective safety and health records as described in this HASP; and
- Coordinating with the SS and others as necessary for safety and health efforts.

Site Supervisor (SS)

The Site Supervisor (SS) is responsible for field operations and reports to the Project Manager (PM). The SS ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor include:

- Executing the work plan and schedule as detailed by the PM;
- Coordination with the SHSO on safety and health; and
- Ensuring Site work compliance with the requirements of this HASP.

Employees

All Roux employees are responsible for reading and following all provisions of the Corporate Health and Safety Manual, including this HASP. Employees report to the SS at the project Site. Each employee is also responsible for the following:

- Wearing all appropriate PPE as outlined within this HASP;
- Attending all safety meetings;
- Inspecting tools and equipment prior to use, and taking any defective tools or equipment out of service;
- Appropriately documenting field events as they occur within a logbook or equivalent;
- Properly operating machinery and/or equipment only if trained to do so;
- Stopping work operations if unsafe conditions exist;
- Identifying and mitigating hazards when observed;
- Reporting all incidents and near misses to the Roux SHSO and SS immediately; and
- Knowing where emergency equipment is located (e.g., first aid kit, fire extinguisher).

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Subcontractors and Visitors

Subcontractors and visitors are responsible for complying with the same health and safety requirements. It is the responsibility of all to make sure subcontractors and visitors comply and uphold the HASP. Subcontractors and visitors have the following additional responsibilities:

- Designating a qualified safety representative for the project that can make the necessary changes in work practices, as necessary;
- Attending all safety meetings while participating in Roux Site work activities;
- Reporting all incidents and near misses to Roux SHSO and SS immediately;
- Conducting initial and periodic equipment inspections in accordance with manufacturer and regulatory guidelines; and
- Providing copies of all Safety Data Sheets (SDS) to Roux SHSO for materials brought to the Site.

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2. Background

Relevant background information is provided below, including a general description of the Site; a brief review of the Site's history with respect to hazardous material use, handling, and/or storage; and a review of known and potential releases of hazardous substances at the Site.

2.1 Site Description

The Site is bounded by St. Paul's Place to the south, Park Avenue to the west, and New York City Housing Authority (NYCHA) Building Nos. 16 and 17 to the north and east, respectively. The Site is located in the Morrisania neighborhood of the Bronx. Residential neighborhoods surround the Site to the north and east. A New York City Department of Education school is located to the south across St Paul's Place. The Metro North rail line is located to the west across Park Avenue. The footprint of the Site is approximately 0.68 acres. The Site is currently a grassy fenced-in vacant lot.

2.2 Site History

Research identified the following Site history. Residential use in areas along St Paul's Street occurred from 1891 or prior through the 1950s. Development occurred in the northern portion of the Site prior to 1891 for manufacturing usage that took place between 1891 and 1909. The manufacturing facilities were identified as Brewers Varnish in 1891 and Varnishes and Brewers Chips in 1909. In 1952, a gasoline filling station and parking lot were observed in the former manufacturing area. The Site appears vacant after 1959.

2.3 Known and Potential Releases of Hazardous Substances at the Site

Based on historic information available, there was no information found regarding the usage of hazardous substances and no known releases of hazardous substances that occurred at the Site. Roux conducted a Phase II Environmental Site Assessment at the Site in 2023 that included the use of ground penetrating radar equipment to scan the subsurface for anomalies. There was no indication of the presence of underground storage tanks located at the Site.

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3. Scope of Work

The objectives of the RAWP are to facilitate remedial action during redevelopment construction activities onsite. The following activities will be completed by Roux as part of the remedial action:

- Construction oversight.
- Collection of end-point soil samples.
- Management and tracking of onsite soils.
- Tracking appropriate offsite disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.
- Implementation of a Community Air Monitoring Plan (CAMP) during any intrusive subsurface activities to conduct monitoring and protection for potential offsite receptors.

Additional quality assurance/quality control (QA/QC) samples will be collected in accordance with the Quality Assurance Project Plan/Field Sampling Plan (QAPP/FSP).

No non-routine activities are anticipated for Roux personnel.

If there are any changes with the scope a revision of the HASP will be required to address any new hazards.

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4. Site Control

This Site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the Site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the Site, and to deter vandalism and theft.

4.1 Site Map

A map of this Site, showing Site boundaries, designated work zones, and points of entry and exit is provided in Figure 2.

4.2 Site Access

Access to the work areas at the Site is restricted to reduce the potential for exposure to its safety and health hazards. During hours of Site operation, Site entry and exit is authorized only at the points identified in Figure 2. Entry and exit at these points is controlled by the following: locked gate. When the Site is not operating, access to the Site is controlled by the following: locked gate.

4.3 Buddy System

This section is not applicable for all components of the SOW described in Section 3. Some Site inspections are completed by a single Roux employee. However, when completing these tasks, the single Roux employee is accompanied either by Roux subcontractors or the Site caretaker/other representatives from Sol on Park LLC. Any time Roux is on-site, Sol on Park LLC is made aware and communications with Sol on Park LLC and the Roux PM is maintained via cellular phone.

While working in the Exclusion Zone, Site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- Remaining in close visual contact with partner;
- Providing partner with assistance as needed or requested;
- Observing partner for signs of heat stress, chemical overexposure or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the SS or other Site personnel if emergency assistance is needed.

4.4 Site Communications

The following communication equipment is used to support on-site communication: cell phones, visual hand signals.

As applicable, hand signals will be used according to the following:

Hand Signals

SIGNAL	MEANING
Hand gripping throat	Out of air; I cannot breathe

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Hand Signals

SIGNAL	MEANING
Grip partner's wrist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	I am all right; okay
Thumbs down	No; negative

A current list of emergency contact numbers is included in the Site-Specific Emergency Information at the beginning of this HASP.

4.5 Site Work Zones

The SOW does not require the implementation of work zones; however, should the need arise, this section provides details for the proper execution of work zones at this Site.

Work areas at the Site will be divided into three (3) major zones, described below. These zones are characterized by the likely presence or absence of biological, chemical, or physical hazards and the activities performed within them. Zone boundaries are clearly marked at all times and the flow of personnel among the zones is controlled. The Site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed and workers are immediately notified of the change.

Exclusion Zone

The area where contamination exists is the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered part of the EZ. This zone will be clearly delineated by chain link fencing, caution tape, cones or other effective barriers, as necessary. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker);
- Required minimum level PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination

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of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker);
- Appropriate PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. The SZ will contain the temporary project trailers and provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

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5. Job Hazard Evaluation

Roux's work at the Site is expected to entail a variety of physical, chemical, and biological hazards, all of which must be sufficiently managed to allow the work to be performed safely. Some of the hazards are Site-specific (i.e., they are associated with the nature, physical characteristics, and/or routine operation of the Site itself), while others are activity-specific (i.e., they are associated with [or arise from] the particular activity being performed). The various hazards can be grouped into the following categories:

- **Caught/Crushed** – the potential to become caught in, under, between, or by an object or parts of an object, such as equipment with parts that open and close or move up and down ("pinch points") or equipment that rotates, and the accompanying potential to have body parts cut, mangled, or crushed thereby.
- **Contact** – the potential to be struck by or against moving or stationary objects that can cause physical injury, such as heavy machinery, overhead piping, moving vehicles, falling objects, and equipment (including tools and hand-held equipment) or infrastructure with the ability to cut or impale.
- **Energy Sources** – the potential for bodily harm associated with energy sources, most notably electricity, but also including latent energy sources such as compressed air and equipment under tension (which when released could cause injurious contact or a fall).
- **Ergonomics** – the potential for musculoskeletal injury associated with lifting/carrying, pushing/pulling, bending, reaching, and other physical activity attributable to poor body position/mechanics, repetitive motion, and/or vibration.
- **Exposure** – the potential for injury/illness due to physical, chemical, or biological exposures in the work environment, including, but not limited to, temperature extremes, solar radiation, and noise (physical), chemical splashes and hazardous atmospheres (chemical), and animal/insect bites and poisonous plants (biological).
- **Falls** – the potential to slip or trip and thus fall or drop a load, resulting in bodily injury to oneself or others.

The foregoing is intended to provide Roux employees with a general awareness of the hazards involved with Site work. A more detailed review of the potential hazards associated with each specific activity planned for the Site (or on-going activity, as the case may be) is provided in the activity-specific Job Safety Analysis (JSA) forms in **Appendix A**. As can be seen in the JSA forms, the hazards are identified by category per the above, and specific measures designed to mitigate/manage those hazards are also identified. In preparing the JSA forms, all categories of hazards were considered, and all anticipated potential hazards were identified to the extent possible based on the experience of the personnel preparing and reviewing the JSA forms. However, there is always the possibility for an unanticipated hazard to arise, potentially as condition change over the course of the workday. Roux personnel must maintain a continual awareness of potential hazards in the work zone, regardless of whether the hazard is identified in the JSA form. Particular attention should be paid to hazards associated with exposure to hazardous substances (see **Table 1** for a listing of the hazardous substances most likely to be encountered in environmental media at the Site) and to Site personnel being located "in the line of fire" with respect to moving equipment, pinch points, and latent energy (e.g., being located or having body parts located within the swing radius of an excavator, between two sections of pipe being connected, below a piece of suspended equipment, or adjacent to a compressed air line).

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5.1 Hazard Communication and Overall Site Information Program

The information in the JSAs and SDSs is made available to all employees and subcontractors who could be affected by it prior to the time they begin their work activities.

Modifications to JSAs are communicated during routine pre-work briefings, and periodically updated as needed in the HASP. SDSs will be maintained by the SHSO/SS for new chemicals brought on-site as needed. Copies of SDSs can be found in **Appendix B**.

5.2 Noise

Noise is associated with the operation of heavy equipment, power tools, pumps, and generators. Noise is also a potential hazard when working near operating equipment such as excavators, drill rigs or pole drivers. High noise (i.e., < 85 dBA) operations may be evaluated by the SHSO utilizing a type 2 handheld sound level meter (SLM) operating on the "A"-weighted scale with slow response because this scale most closely resembles human response to noise and complies with OSHA 29 CFR 1910.95. Hearing protection is required in areas with noise exposure greater than 85 dBA. Double hearing protection (ear plugs and earmuffs) should be donned in areas where the noise exposure is more than 95 dBA. Noise exposure will be controlled by hearing protection as described above or by maintaining set-backs from high-noise equipment, as warranted. Personnel handling heavy equipment and using power tools that produce noise levels exceeding those described levels above are required by OSHA 29 CFR 1910.95 to wear the appropriate Noise Reduction Rating (NRR) level of hearing protection. Appropriate hearing protection will be evaluated by the SHSO as necessary in consultation with the OHSM and CHSD.

5.3 Slip, Trip, and Fall Hazards

Slip, trip, and fall hazards may include, but are not limited to, general slip and trip hazards associated with uneven ground, possible debris, wet grass, and equipment. Prior to work, walking paths will be assessed for solid footings, any ground penetrations that may cause a tripping hazard will be appropriately marked, and other areas will be noted and discussed with the field team.

Personnel shall be aware of their surroundings and footings at all time, and all accommodations should be made for proper housekeeping and organized equipment placement at the Site, where possible, to help prevent any slip, trip, and fall-related incidents. All tools and materials should be appropriately stored when not in use and placed in appropriate storage containers.

5.4 Biological Hazards

Biological hazards that may potentially be present at a Site, include poisonous plants, insects (ticks, spiders, bees), animals (snakes, dogs), etc. Information on biological hazards can be found within Roux's Biological Hazard Awareness Management Program located within Roux's Corporate Health and Safety Manual. There is also potential for transmission and/or exposure to SARS-CoV-2, the virus that causes COVID-19. Prior to beginning work, on-Site protocols shall be established by the project team, including subcontractors, in accordance with federal, state, county, city, and/or other guidance, as applicable.

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6. Emergency Response Plan

This emergency response plan details actions to be taken in the event of Site emergencies. The PM and SHSO is responsible for the implementation of emergency response procedures onsite. The SHSO/PM provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures and notification of appropriate authorities. In the event of an emergency, Site personnel are evacuated and do not participate in emergency response activities, response is facilitated through external emergency services.

6.1 Emergency Response

The SHSO, after investigating the incident and relevant information, shall determine the level of response required for containment, rescue and medical care. Limited on-site emergency response activities could occur therefore the SHSO is responsible for notifying external emergency response agencies. The SHSO provides relevant information to the responding organizations, including, but not limited to, the hazards associated with the emergency incident, potential containment problems, and missing Site personnel.

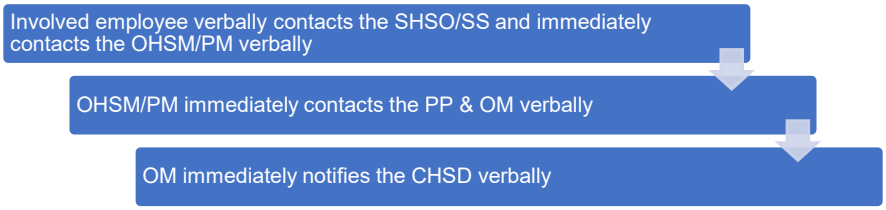
6.2 Emergency Alerting and Evacuation

If evacuation notice is given, Site workers leave the worksite, if possible, by way of the nearest exit. Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Site Plan with Emergency Muster Area (**Figure 2**). The routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by SHSO/PM.

Personnel exiting the Site gather at a designated assembly point. To determine that everyone has successfully exited the Site, personnel will be accounted for at the assembly point. If any worker cannot be accounted for, notification is given to the SHSO, PM, and any arriving response authorities so that appropriate action can be initiated. Subcontractors on this Site have coordinated their emergency response plans to ensure that these plans are compatible and potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

6.3 Emergency Medical Treatment and First Aid

In the event of a work-related injury or illness, employees are required to follow the procedures outlined below. All work-place injury and illness situations require Roux's Project and Corporate Management Team to be notified when an injury/illness incident occurs, and communication with the contracted Occupational Health Care Management Provider, WorkCare, Inc., is initiated, as necessary. The Injury/Illness Notification Flowchart is provided below and within Roux's Incident Investigation and Reporting program included within Roux's Corporate Health and Safety Manual.



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If on-Site personnel require any medical treatment, the following steps will be taken:

a. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, WorkCare, immediately following the notifications provided above.

b. Based on discussions with the Project Team, Corporate Management and the WorkCare evaluation, if medical attention beyond onsite first aid is warranted, transport the injured / ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with location to BronxCare Hospital Center and CityMD is included as **Figure 3**.

c. Decontaminate to the extent possible prior to administration of first aid or movement to medical or emergency facilities.

d. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).

e. The SHSO and PM will perform a Loss Investigation (LI) and the Project Team will complete the final Loss Report. If a Roux employee is involved in a vehicular incident, the employee must also complete the Acord Automobile Loss Notice.

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7. Environmental Conditions and Response

7.1 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO or project principal will determine if work can continue without jeopardizing the health and safety of field workers. Some of the items related to adverse weather conditions to be considered prior to determining if work should continue include:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related conditions. If wind speed is greater than 15 mph averaged over a 15-minute period or wind gusts over 25 mph, earthmoving operations will be ceased;
- Limited visibility; and
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions may include heavy rain, fog, high winds, and lightning. The SHSO and/or PM shall observe daily weather reports and evacuate, if necessary, in case of inclement weather conditions.

7.2 Electrical Storm Guidelines

In the event that lightning and/or thunder are observed while working onsite, all onsite activities shall stop and personnel shall seek proper shelter (e.g., substantial building, enclosed vehicle, etc.). Work shall not resume until the threat of lighting has subsided and no lightning or thunder has been observed for 30 minutes. If the possibility of lightning is forecast for the day, advise the onsite personnel on the risks and proper procedure at the pre-work safety briefing. Continuously monitor for changing weather conditions and allow enough time to properly stop work if lightning is forecast.

7.3 Environmental Stressors, Heat Stress, Heat Exhaustion, and Heat Stroke

It is the employer's responsibility to monitor weather forecasts and ambient air temperatures, both prior to the work shift and during the shift. The National Oceanic and Atmospheric Administration records average minimum/maximum temperatures of 31.4 to 75.0 degrees Fahrenheit during the year in Bronx, NY.

To prevent potential heat illness, the following strategies will be implemented:

- Adjusting personnel work/rest intervals;
- Monitoring for symptoms of heat illness;
- Providing shaded rest areas;
- Providing cool potable water so that each employee has access to at least one quart per hour for the entire shift, free of charge;
- Allowing for employees to acclimatize to the weather conditions and work demands;
- Observe workers during a heat wave (i.e., when the temperature is at least 80oF, and 10 degrees hotter than the average temperature of the five preceding days); and
- Implementing high heat procedures when the temperature reaches 95oF.

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Roux's Heat Illness Prevention Plan is implemented when the when ambient temperatures exceed 80oF. Roux's Heat Illness Prevention Program can be found within **Appendix C**. Additional information regarding heat illnesses is provided below. This can include, but is not limited to, access to shade that is sufficient in size to fit all workers who are on break; a car with air conditioning is acceptable, too. Preventative cool-down breaks shall be allowed at any time, and anyone taking such a break will be monitored for heat illness symptoms and not required to return to work until all symptoms (if present) of heat illness have disappeared. If necessary, first aid will be offered, but if symptoms are severe, emergency response procedures will be implemented per Section 6.3. Anyone who has shown symptoms of severe heat illness will not be sent home without being offered first aid or medical treatment.

High heat procedures must be implemented when temperatures reach 95oF. These procedures include:

- Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if the reception in the area is reliable.
- Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
    - Supervisor or designee observation of 20 or fewer employees;
    - Mandatory buddy system; and
    - Regular communication with sole employee such as by radio or cellular phone, or other effective means of observation.
- Designating one or more employees on each worksite as authorized to call for emergency medical services and allowing other employees to call for emergency services when no designated employee is available.
- Encouraging employees throughout the work shift to drink plenty of water.
- A review of the high heat procedures during the daily tailgate meeting and remind employees of their right to take a cool-down rest when necessary.

7.3.1 Heat Stress

Heat stress is the body's response to excessive heat and can be a significant potential hazard. The risk of heat stress can be increased with heavy physical activity and/or the use of personal protective equipment in hot, humid weather environments. There are also personal risk factors that can contribute to the risk of suffering from heat stress, such as obesity, water intake, alcohol and caffeine consumption, pregnancy, age, medication, etc. Heat illness includes heat cramps, heat exhaustion, heat syncope, and heat stroke.

7.3.2 Heat Cramps

Heat cramps may be brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps, typically in the legs.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

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Per Roux's Heat Illness Prevention Plan, employees shall have access to potable drinking water that is fresh, pure, suitably cool, free of charge and in sufficient quantities. Access to shade shall be present when temperatures exceed 80 degrees Fahrenheit and shall be available when temperatures do not exceed 80 degrees Fahrenheit.

7.3.3 Heat Exhaustion

Heat exhaustion may occur in an individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids.

If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

7.3.4 Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot, red skin;
- Body temperature approaching or above 105oF;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling when worn in hot weather environments.

7.4 Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 60°F. A work/rest regimen will be initiated when ambient temperatures and protective

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clothing cause a stressful situation. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. The signs and symptoms of cold stress include the following:

- Severe shivering;
- Abnormal behavior;
- Slowing;
- Weakness;
- Stumbling or repeated falling;
- Inability to walk;
- Collapse; and/or
- Unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks and encourage activity such as walking, wrapped in a blanket.

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8. Safety Procedures

This section of the HASP presents the specific safety procedures to be implemented during Roux's activities at the Site in order to protect the health and safety of various on-site personnel. Minimum OSHA-mandated procedures are presented first, followed by client- and Site-specific procedures. Lastly, activity-specific procedures are discussed. These Site and activity-specific procedures supplement the general safety procedures included in Roux's Corporate Health and Safety Manual, which also must be followed in their entirely.

8.1 Training

At a minimum, Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety-trained prior to performing work onsite per OSHA 29 CFR 1910.120(e) and 29 CFR 1926.65(e). More specifically, all Roux, subcontractor, and other personnel engaged in sampling and remedial activities at the Site and who are exposed or potentially exposed to hazardous substances, health hazards, or safety hazards must have received at a minimum the 40 hour initial HAZWOPER training consistent with the requirements of 29CFR 1910.120(e)(3)(i) training and a minimum of 3 days' actual field experience under the direct supervision of a trained experienced supervisor, plus 8 hours of refresher training on an annual basis. Depending on tasks performed, less training may be permitted. Evidence of such training must be maintained at the Site at all times. Furthermore, all on-Site management and supervisory personnel directly responsible for or who supervise the employees engaged in Site remedial operations, must have received an additional 8 hours of specialized training at the time of job assignment on topics including, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques, plus 8 hours of refresher training on an annual basis. Additionally, all workers who will be required to don a respirator will be properly trained on their employer's Respiratory Protection Program, which also includes being medically cleared to wear a respirator and passed a fit test, at least initially prior to use, and then annually thereafter in accordance with 29 CFR 1910.134, Respiratory Protection.

Roux personnel training records are maintained in a corporate database with records available upon request from either the OHSM/SHSO/CHSD or Human Resources Department.

8.2 Site-Specific Safety Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

8.3 HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a Site-specific tailgate briefing prior to the commencement of work to ensure employees are familiar with this HASP and the information and requirements it contains, as well as the relevant JSAs included in **Appendix A**. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during on-going Site characterization and analysis of changing conditions. Conditions for which we

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schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during Site work.

8.4 Medical Surveillance

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA Permissible Exposure Limits (PEL) or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Section 4 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f) as applicable.

8.4.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Section 4 and JSAs within **Appendix A** of this HASP and in compliance with the requirements of 29 CFR 1910.120(f)(2). Based on site information and use of direct reading instruments, limited use of respirators (less than 30 days per year), and the absence of an employee-staffed HAZMAT team, a limited medical surveillance program is required and implemented at this site. The medical surveillance program provides that:

1. Workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment, and
2. If a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.
3. These medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place. In addition, the need to implement a more comprehensive medical surveillance program will be re-evaluated after any apparent over-exposure.

8.4.2 Medical Recordkeeping Procedures

Medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available at our Islandia, New York office.

The following items are maintained in worker medical records:

- Respirator fit test and selection;
- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination);
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic); and
- Exposure monitoring results.

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8.4.3 Program Review

The medical program is reviewed to ensure its effectiveness. The Corporate Health and Safety Manager, in coordination with the Human Resources Director, is responsible for this review. At minimum, this review consists of:

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness were promptly investigated and whether corrective measures were taken wherever possible;
- Evaluation of the appropriateness of required medical tests based on site exposures; and
- Review of emergency treatment procedures and emergency contacts list to ensure they were site specific, effective, and current.

8.5 Personnel Protection

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices and PPE are used to protect employees. Appropriate personal protective equipment (PPE) shall be worn by Site personnel when there is a potential exposure to chemical, biological or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity, and noise), as determined by the SHSO. The level of personal protection, type and kind of equipment selected will depend on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors will be made before work can be safely executed.

Roux maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. Roux's PPE program can be found within **Appendix D**. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General/Construction Industry) standards for minimum PPE requirements.

The minimum level of PPE for entry onto the Site is Level D. The following equipment shall be worn:

- Work uniform (long pants, sleeved shirt);
- Hard hat;
- Steel or composite toe work boots (must comply with American Society for Testing and Materials [ASTM]) F 2412-05, Standard Test Methods for Foot Protection and ASTM F 2413-05, Standard Specification for Performance Requirements for Foot Protection);
- Safety Glasses (must comply with one of the following ANSI/ISEA Z87.1-2010, ANSI Z87.1-2003, ANSI Z87.1-2003);
- Boot Covers (as needed);
- Hearing protection (as needed);
- High visibility clothing (shirt/vest); and
- Hand protection (e.g., minimum cut resistance meeting ANSI 105-2000 Level 2).

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object (e.g., wrist watches, bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder-length hair should be tied back.

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Site specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must be approved by the PP and immediately communicated to all Roux personnel and subcontractors as applicable. PPE is used in accordance with manufacturers' recommendations.

8.5.1 Hearing Conservation

Hearing protection is made available when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA. Hearing protection is required when the 8-hour time weighted average sound level > 85 dBA, or when noise levels exceed 140 dBA at any point or exceeds 115 dBA for at least 15 minutes. Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the JSA for the tasks/operation, and hearing protection is included as one of the control measures (PPE).

8.6 Monitoring

An air monitoring program is important to the safety of on- and off-Site personnel, and the surrounding area. A preliminary survey, to establish background conditions in the immediate sampling area, may be made prior to the initiation of Site work including, but not limited to, monitoring wind direction (e.g., wind socks) and approximate temperature during all invasive Site activities. This survey will be conducted with the appropriate pre-calibrated air monitoring instrument(s), as warranted by the field activity. Once this survey has been complete, any changes in the type of PPE will be determined and relayed to those working on Site.

Work zone air monitoring will be performed to verify that the proper level of PPE is used, and to determine if increased protection or work stoppage is required. The following equipment shall be used to monitor conditions:

- A Photoionization Detector (PID) with a lamp energy of 10.6 eV will be used to provide direct readings of organic vapor concentrations during intrusive activities to determine that personnel protection is adequate. Concentrations shall be recorded during intrusive activities with the potential to encounter contaminant vapors.

Personal exposure monitoring utilizing activated charcoal tubes may be considered based on whether or not the area sample results are at or above half of the PEL. The decision to perform the monitoring will be made by, and under the control of, the CHSD.

Below are monitoring action levels for Site-specific chemicals of concern. In the event PID readings above the thresholds identified below are sustained for 5 minutes in the breathing zone, worker protection will require upgrading following notification to the OHSM and applicable parties.

8.6.1 Action Levels for Air Monitoring

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm and benzene is non detect. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants. The action levels to initiate testing with colorimetric tubes for airborne volatiles is 1 ppm (PID reading) and is based on the Permissible Exposure Limit (PEL) for benzene (1 ppm). The colorimetric tubes are used to confirm the presence or absence of specific constituents, and they do not provide a measured concentration.

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PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants.

Air Monitoring Summary and Action Levels Organic Vapors	
PID Reading in Breathing Zone (ppm)	**Action**
<5 ppm	Continue Monitoring, ventilate space
≥ 5 ppm - ≤ 25 ppm	Ventilate space until PID reads < 5 ppm. If < 5 ppm cannot be achieved, upgrade to Level C[1].
≥ 25 ppm	Ventilate space and evacuate area. Consult with CHSD.

Background concentrations should be established at the beginning of each work day. It may be necessary to re-establish background concentrations and ambient conditions vary through the day.

1 Measured air concentrations of known organic vapors will be reduced by the respirator to one half of the PEL or lower, and the individual and combined compound concentrations shall be within the service limit of the respirator cartridge.

Air Monitoring Summary and Action Levels Oxygen	
O_2 Reading in Breathing Zone (%)[1]	**Action**
20.9% O_2	Oxygen level normal
< 19.5% O_2	Oxygen deficient Interrupt task/Evacuate area
>23.5% O_2	Oxygen enriched Interrupt task/Evacuate area

1. Action levels based on USEPA Standard Operating Safety Guides; Table 5-1

Air Monitoring Summary and Action Levels Carbon Monoxide	
CO Reading in Breathing Zone (ppm)[1]	**Action**
<12.5 ppm	Inspect exhaust system for leaks or other sources of CO. Monitor initially and every 15 minutes during use of CO-generating equipment.
12.5-25 ppm	Ventilate area. Monitor continuously and record measurements. Contact PM.
>25 ppm	Cease Field Operations. Ventilate area.

1. Based upon the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 25 ppm as an 8-hour time weighted average (TWA) and OSHA's Permissible Exposure Limit (PEL) of 50 ppm as an 8-hour TWA concentration.

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Air Monitoring Summary and Action Levels Combustible Gases	
Lower Explosive Limit (LEL) Reading	**Action**
< 4% LEL	Site activities will continue with normal monitoring
4% – 20% LEL	Stop work until levels dissipate to <4% LEL
> 20% LEL	Potential explosion hazard. Halt all site activities, research source of release, aerate work area, suppress source.
Air Monitoring Summary and Action Levels Hydrogen Sulfide	
Hydrogen Sulfide (H_2S) Reading	**Action**
<10 ppm	Site activities will continue with normal monitoring
≥10 ppm	Stop work until levels dissipate to <10 ppm; use mechanical ventilation if possible. Consult with CHSD if unable to reduce concentrations below 10 ppm.

8.6.3 Air Monitoring Equipment and Calibration

A PID calibrated to an appropriate calibration mixture will be used to detect organic vapors in and around the work areas. Monitoring will be conducted in and around all work areas and at the workers breathing zone before activities commence to establish a background level, then at 15-minute intervals throughout the day. All equipment will be calibrated according to the manufacturer's recommendation. A calibration log will be maintained and will include the name of the person who performed the calibration, the date and time calibrated, and the instrument reading at the time of calibration. A manual bellows pump or equivalent with colorimetric tubes for specific compounds will be utilized to determine the course of action related to upgrading or downgrading the level of respiratory protection, as applicable.

If air monitoring data indicate safe levels of potentially harmful constituents at consistent intervals (5-minute intervals), then monitoring can be conducted less frequently (every 30 minutes). This determination will be made by the onsite SHSO. Monitoring data, including background readings and calibration records, will be documented. Work to be performed on-Site will conform to Roux's Standard Operating Procedures (SOPs). Conformance with these guidelines as well as the guidelines described in this HASP will aid in mitigating the physical and chemical hazards mentioned throughout this HASP.

8.7 Tailgate Safety Meetings

A designated Site worker will provide daily safety briefings (e.g., tailgate meetings) including, but not limited to, the following scenarios:

- When new operations are to be conducted;
- Whenever changes in work practices must be implemented; and
- When new conditions are identified and/or information becomes available.

Daily safety briefings shall be recorded on the Roux Daily Tailgate Health and Safety Meeting Log/Daily Site Safety Checklist, and all completed forms will become a part of the project file.

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8.8 Spill Containment

Spill containment equipment and procedures should, at a minimum, meet the requirements of the facility's Spill Prevention, Control and Countermeasure Plan, if applicable. Otherwise, spill containment equipment and procedures must be considered depending on the task, including, but not limited to, chemical/product transfer points and handling.

8.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify the SHSO. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries without compromising their own safety.

8.8.2 Spill Evaluation and Response

The SHSO is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated to the extent possible. If necessary to protect nearby community members, notification of the appropriate authorities is made by the PM as appropriate. On-Site response is limited to small spills (e.g., <10 gallons); large spills require external emergency responders who will be contacted by the SHSO.

8.9 Decontamination

The decontamination section of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This section also describes how residual waste from decontamination processes is disposed. The site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the site and off-site. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. Decontamination is facilitated within the CRZ at this site, if applicable.

8.9.1 Decontamination Procedures for Personnel and PPE

The following are general decontamination procedures established and implemented at this site.

1. Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the SZ only after undergoing the decontamination procedures described below in the next section.
2. Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
3. PPE used at this site that requires maintenance or parts replacement is decontaminated prior to repairs, or
4. PPE used at this site is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.
5. This site uses an off-site laundry for decontamination of PPE. The site has informed that facility of the hazards associated with contaminated PPE from this site.
6. The site requires and trains workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.

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7. Procedures for disposal of decontamination waste meet applicable local, State, and Federal regulations.

8.9.2 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the EZ or CRZ are decontaminated in the CRZ prior to removal to the SZ. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

General Equipment Decontamination Procedures:

1. Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the SZ only after undergoing the equipment decontamination procedures.
2. Vehicles that travel regularly between the contaminated and clean areas of the site are carefully decontaminated each time they exit the EZ and the effectiveness of that decontamination is monitored to reduce the likelihood that contamination will be spread to other parts of the site.
3. Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.
4. Procedures for disposal of decontamination waste shall meet applicable local, State, and Federal regulations.

The following items may be used to decontaminate equipment:

- Fresh water rinse;
- Non-phosphorus detergent wash;
- Acetone rinse;
- Distilled water rinse; and
- A steam cleaner or pressure washer (heavy equipment only).

8.9.3 Monitoring the Effectiveness of Decontamination Procedures

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures. Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Personnel who work in contaminated areas of the site, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this section of the HASP and in related SOPs. If site procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

8.10 Confined Space Entry

Confined space entry will not be performed.

The following is a list of the safety requirements for confined space entry at the Site:

- **ROUX PERSONNEL ARE NOT AUTHORIZED TO ENTER AN OSHA PERMIT REQUIRED CONFINED SPACE;**

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- Currently the scope of work **DOES NOT** require personnel to enter permitted confined space for this project; and
- Any changes to the field activities that may necessitate confined space entry will be reported to the Project Principal and OHSM.

Confined space is defined as any space, depression, or enclosure that:

- Has limited opening for entry and egress;
- Is large enough for and employee to enter and perform assigned work; and
- Is not intended for continuous occupancy.

A permit required confined space is one that meets the definition of a confined space and has one or more of the following characteristics:

- May contain or produce life-threatening atmospheres due to oxygen deficiency the presence of toxic, flammable, or corrosive contaminants;
- Contains a material that has the potential for engulfment;
- Has an internal configuration that may cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; and
- Contains any other serious safety or health hazards.

Although Roux personnel will not perform confined space entry, it is expected that subcontractors performing cleaning and mitigation and/or remedial measures activities may be required to enter structures that are considered to be a permit required confined space. Permitting of the confined space as well as hazard mitigation for entry will be completed by the subcontractor in accordance with 29 CFR 1910.146 or 1926.1201-1213 and/or applicable local/client requirements.

8.11 Client and Site-Specific

In addition to the OSHA-specific procedures discussed above, there may be client and site-specific safety procedures that must be adhered to during the performance of remedial activities at the Site.

8.12 Unusual or Significant Risks

Field activities that appear to have unusual or significant risks that cannot be adequately managed with existing risk tools such as LMRAs, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSD to help with the assessment and management of the associated potential safety risks. Examples include the use of explosives for demolition, use of firearms to control wildlife, rappelling, demolition over water, diving, etc.

8.13 Activity-Specific Hazards

In addition to the general hazards discussed above, there are activity-specific hazards associated with each work activity planned for the Site. An activity-specific JSA has been completed for each of the activities planned for the Site. JSAs are provided in **Appendix A**. In the event that new work activities or tasks are planned, JSAs will be developed and implemented prior to performing the new activities. In the absence of a JSA, the personnel performing work must prepare a field JSA and receive clearance from a designated competent safety official prior to performing any task with significant risk. In emergency situations where time is critical, Risk Assessments (LMRAs) will be utilized to identify the task, associated hazards and mitigative actions to take. For lower risk activities (as deemed by the discretion of a Competent Person)

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where a JSA is determined to not be needed, the individual(s) conducting the activities must perform LMRAs prior to and during the work.

8.13.1 Electrical and Other Utility Assessment and Accommodations

Roux shall perform a site walk to identify any potential overhead electrical or utility lines. All applicable guidelines will be followed in the vicinity of overhead power and utility lines (see Section 8.13.3 below).

During the Phase II ESA that was conducted onsite by Roux, GPR was performed and did not indicate any subsurface utilities located within the Site.

8.13.2 Subsurface Work

Subsurface work activities will require adherence to Roux's Corporate Subsurface Utility Clearance Management program found within Appendix E.

8.13.2.1 Excavations and Trenching

Trenching and excavation work activities carried out by Roux and their subcontractors shall comply with applicable OSHA standards (i.e., 29 CFR 1926.650-652). Regional Notification Centers (i.e., Underground Services Alert) shall be notified at least two working days prior to the start of any digging or excavation work per state requirements (i.e., 811-One Call). Personnel responsible for excavation activities will be trained in their job responsibilities. Additionally, for trenches 4 feet or deeper, where employees will enter, the trench needs to have a stairway, ladder or other safe means of egress, and located so that employees do not have to travel farther than 25 feet horizontally. Where employees will enter trenches greater than 5 feet deep, the trench must have some type of protective system or sloped sidewalls appropriately to prevent cave-ins.

The SHSO or other responsible Roux personnel will be present on-Site during all Roux contracted excavation and backfill operations and will supplement health and safety monitoring conducted by Subcontractor air quality screening to ensure that appropriate levels of protection and safety procedures are utilized. The proximity of chemical, water, sewer, and electrical lines will be identified by Roux and/or their subcontractor before any subsurface activity or sampling is attempted. Prior to any excavation activities, trees, shrubbery, and other objects that can potentially pose as a hazard during excavation should be supported or removed from the excavation area. The following safe work practices will be implemented during this task.

- The proximity of chemical, water, sewer, and electrical lines will be identified by a facility representative prior to beginning any subsurface activity.
- At the start of every day, a competent person will inspect excavations to evaluate if the area is stable and safe to enter. Inspections will be conducted as needed throughout the excavation operations. If deemed necessary, a competent person may also conduct inspections after rainfall or any other event that can potentially affect the integrity of the excavation. Employees will not enter excavations where water has accumulated until protective measures have been implemented.
- Prior to entering excavations greater than 4 feet in depth, air monitoring for oxygen and hazardous atmospheres must be conducted to assure atmospheric conditions are within normal levels described in Section 8.6. Continuous air monitoring with a standard multi-gas detector (O2, LEL%, CO, H2S) shall be used during the course of work within an excavation; if action limits are reached workers shall safely exit the excavation. Upgrades to worker protection should be evaluated with the SHSO and PP in consultation with the CHSD. Emergency rescue equipment, such as breathing apparatuses and safety harnesses connected to an extraction device, will be readily available in the event of hazardous atmospheric conditions.

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- While earthmoving, stay out of the excavator's delineated heavy equipment exclusion zone and away from the excavation sides where there is potential for cave in (within excavations that are 6 feet or more in depth, a delineated perimeter 6 feet away from the excavated edge is required).
- During loading and unloading operations, stand away from haul trucks and other vehicles to avoid contact with any falling loads.
- Traffic cones, caution tape, or other barriers will be set up around the perimeter of the excavation when employees are working along the excavation edge and for any excavation that will be left open overnight or unattended for more than two days.

Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[3]
Stable Rock	Vertical (90°)
Type A[2]	3/4 : 1 (53°)
Type B	1 : 1 (45°)
Type C	1 1/2 : 1 (34°)

29 CFR 1926 Subpart P Appendix B Sloping and Benching Table B-1

Notes:

[1] Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

[2] A short-term maximum allowable slope of 1/2H : 1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 meters) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 meters) in depth shall be 3/4H : 1V (53°).

[3] Sloping or benching for excavations greater than 20 feet deep shall be designed and stamped by a registered professional engineer.

Proper stockpiling (i.e., 2 feet minimum distance from the excavation edge), containment, transport, storage, and disposal practices will be utilized and is dependent upon the potential type and amount of waste generated during operations. The location of safety equipment and evacuation procedures will be established prior to initiation of operations according to this HASP.

8.13.3 Heavy Equipment

Use of heavy equipment at the Site will require adherence to Roux's Corporate Heavy Equipment Exclusion Zone Management Program found within Appendix F. Additionally, operation of the drill rig/other heavy equipment will maintain clearances from overhead power lines in accordance with 29 CFR 1926.1408 Table A Minimum Clearance Distances provided below.

Minimum Required Clearances for Energized Overhead Power Lines

Nominal System Voltage of Power Line (K V)	Minimum Required Clearance (feet)
0-50	10
51-100	12
101-200	15
201-300	20
301-500	25
501-750	35
751-1000	45

1 kilovolt (KV) = 1,000 volts

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8.14 Traffic Control

If Site operations encroach upon public streets or highways and a hazard exists to Site personnel because of traffic conditions, a traffic control plan will be implemented in accordance with the United States Department of Transportation's (DOT's) "Manual on Uniform Traffic Control Devices."

8.15 Sanitation

Sanitation facilities will be provided in accordance with the sanitation standards (29 CFR 1910.141, 29 CFR 1926.51 and 29 CFR 1928.110). Sanitation facilities will be maintained and kept in good conditions at all times.

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9. Field Team Review

Each person performing work at or visiting this site shall sign this section after site-specific training is completed and before being permitted to access the CRZ or Exclusion Zone.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: Sol on Park, 3728 Park Avenue, Bronx, NY

Name & Company	Signature	Date

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10. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the Sol on Park Site.

TBD – Site Health and Safety Officer	02/13/2026 Date
Nevin Pahlad, CSP, CHMM – Office Health and Safety Manager	02/13/2026 Date
Dana Hignell– Project Manager	02/13/2026 Date
Charlie McGuckin, P.E. – Project Principal	02/13/2026 Date

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TABLES

1. Toxicological Properties of Hazardous Substances Present at the Site

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
ORGANOCHLORINE PESTICIDES (OCP)									
DDT	50-29-3	TWA 1 mg/m3	TWA 0.5 mg/m3	TWA 1 mg/m3	500 mg/m3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system	White, odorless and tasteless, very stable, water-insoluble, synthetic BP: 260°F Fl.Pt. = 162-171°F LEL: NA UEL: NA
Aldrin	309-00-2	TWA 0.1 mg/m3	TWA 0.25 mg/m3	TWA 0.25 mg/m3	25 mg/m3	Inhalation, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; clonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]	Developmemntal, Endocrine, Liver, Immune System, Nervous System,	Colorless to dark-brown crystalline solid with a mild chemical odor. BP: 293°F Fl.Pt. = 150°F LEL: NA UEL: NA
Lindane (gamma-BHC)	58-89-9	TWA 0.5 mg/m3	TWA 0.5 mg/m3	TWA 0.5 mg/m3	50 mg/m3	Inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; headache; nausea; clonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; In Animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, blood, liver, kidneys	White to yellow, crystalline powder with a slight, musty odor. BP: 614°F Fl.Pt. = 150°F LEL: NA UEL: NA
Dieldrin	860-57-1□	TWA 0.1 mg/m3	TWA 0.25 mg/m3	TWA 0.25 mg/m3	25 mg/m3	Inhalation, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; ; In Animals: liver, kidney damage [potential occupational carcinogen]	Developmemntal, Endocrine, Liver, Immune System, Nervous System,	Colorless to light-tan crystals with a mild, chemical odor. BP: NA (Decomposes) Fl.Pt. = NA LEL: NA UEL: NA
VOLATILE ORGANIC COMPOUNDS (VOCs)									
1,1,1-Trichloroethane	71-55-6	TWA 350 ppm STEL 450 ppm	C 350 ppm (1900 mg/m^3) [15-minute]	TWA 350 ppm (1900 mg/m^3)	700 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver	Colorless liquid with a mild, chloroform-like odor. BP: 165°F Fl.Pt. = NA LEL: 7.5% UEL: 12.5% Combustible Liquid, but burns with difficulty
1,1,2,2-Tetrachloroethane	79-34-5	TWA 1 ppm [skin]	Ca TWA 1 ppm (7 mg/m^3) [skin]	TWA 5 ppm (35 mg/m^3) [skin]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, vomiting, abdominal pain; tremor fingers; jaundice, hepatitis, liver tenderness; dermatitis; leukocytosis (increased blood leukocytes); kidney damage; [potential occupational carcinogen]	Skin, liver, kidneys, central nervous system, gastrointestinal tract	Colorless to pale-yellow liquid with a pungent, chloroform-like odor BP: 296°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	TWA 1000 ppm STEL 1250 ppm	TWA 1000 ppm (7600 mg/m3) ST 1250 ppm (9500 mg/m3)	TWA 1000 ppm (7600 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation skin, throat, drowsiness, dermatitis; central nervous system depression; In Animals: cardiac arrhythmias, narcosis	Skin, heart, central nervous system, cardiovascular system	Colorless to water-white liquid with an odor like carbon tetrachloride at high concentrations. [Note: A gas above 118°F.] BP: 118°F Fl.Pt. = NA LEL: NA UEL: NA
1,1,2-Trichloroethane	79-00-5	TWA 10 ppm [skin]	Ca TWA 10 ppm (45 mg/m3) [skin]	TWA 10 ppm (45 mg/m3) [skin]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; central nervous system depression; liver, kidney damage; dermatitis; [potential occupational carcinogen]	Eyes, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, chloroform-like odor BP: 237°F Fl.Pt. = NA LEL: 6% UEL: 15.5% Combustible Liquid, forms dense soot
1,1-Dichloroethane	75-34-3	TWA 100 ppm	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	3,000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system	Colorless, oily liquid with a chloroform-like odor. BP: 135°F Fl.Pt. = 2°F LEL: 5.4% UEL: 11.4% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,1-Dichloroethene	75-35-4	TWA 5 ppm	Ca	None	Ca	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor BP: 89°F Fl.Pt. = -2°F LEL: 6.5% UEL: 15.5% Class IA Flammable Liquid: Fl.P. below 73°F and BP below 100°F
1,2,3-Trichlorobenzene	87-61-6	Cameo Chemicals Source https://cameochemicals.noaa.gov/chemical/10051	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	Inhalation may cause irritation of respiratory tract. Irritating to the eyes. May redden skin on contact. Ingestion may cause liver damage.	Skin, eyes, respiratory tract, liver	A white solid with a sharp chlorobenzene odor. Insoluble in water and denser than water. Hence sinks in water Fl.Pt. = 234.9°F
1,2,4-Trichlorobenzene	120-82-1	C 5 ppm	C 5 ppm (40 mg/m3)	None	N.D.	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, mucous membrane; In Animals: liver, kidney damage; possible teratogenic effects	Eyes, skin, respiratory system, liver, reproductive system	Colorless liquid or crystalline solid (below 63°F) with an aromatic odor BP: 416°F Fl.Pt. = 222°F LEL (302°F): 2.5% UEL (302°F): 6.6% Class IIIB Combustible Liquid: Fl.P. at or above 200°F. Combustible Solid
1,2-Dibromo-3-chloropropane	96-12-8	NA	Ca	TWA 0.001 ppm	Ca	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; drowsiness; nausea, vomiting; pulmonary edema; liver, kidney injury; sterility; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys, spleen, reproductive system, digestive system	Dense yellow or amber liquid with a pungent odor at high concentrations. [pesticide] [Note: A solid below 43°F.] BP: 384°F Fl.Pt. = (oc) 170°F LEL: NA UEL: NA Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
1,2-Dibromoethane	106-93-4	None listed Skin	Ca TWA 0.045 ppm C 0.13 ppm [15-minute]	TWA 20 ppm C 30 ppm 50 ppm [5-minute maximum peak]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; dermatitis with vesiculation; liver, heart, spleen, kidney damage; reproductive effects; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, reproductive system	Colorless liquid or solid (below 50°F) with a sweet odor. [fumigant] BP: 268°F Fl.Pt. = 50°F LEL: NA UEL: NA Noncombustible Liquid
1,2-Dichlorobenzene	95-50-1	TWA 25 ppm STEL 50 ppm	C 50 ppm (300 mg/m3)	C 50 ppm (300 mg/m3)	200 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; liver, kidney damage; skin blisters	Eyes, skin, respiratory system, liver, kidneys	Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide] BP: 357°F Fl.Pt. = 1°F LEL: 2.2% UEL: 9.2% Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
1,2-Dichloroethane	107-06-2	TWA 10 ppm	Ca TWA 1 ppm (4 mg/m3) ST 2 ppm (8 mg/m3)	TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]	Ca [50 ppm]	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.] BP: 182°F Fl.Pt. = 56°F LEL: 6.2% UEL: 16% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
1,2-Dichloropropane	78-87-5	TWA 10 ppm Dermal Sensitizer (DSEN)	Ca	TWA 75 ppm (350 mg/m3)	Ca [400 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; drowsiness, dizziness; liver, kidney damage; In Animals: central nervous system depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a chloroform-like odor. [pesticide] BP: 206°F Fl.Pt. = 60°F LEL: 3.4% UEL: 14.5% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
1,3-Dichlorobenzene	541-73-1	https://cameochemicals.noaa.gov/chemical/8514				Inhalation, skin absorption, ingestion, skin and/or eye contact	INHALATION: Causes headache, drousiness, unsteadiness. Irritating to mucous membranes. EYES: Severe irritation. SKIN: Severe irritation. INGESTION: Irritation of gastric mucosa, nausea, vomiting, diarrhea, abdominal cramps and cyanosis.		Colorless liquid. Sinks in water. BP: 343°F Fl.Pt. = 146°F LEL: 2.02% UEL: 9.2%
1,4-Dichlorobenzene	106-46-7	TWA 10 ppm	Ca	TWA 75 ppm (450 mg/m3)	Ca [150 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; In Animals: liver, kidney injury; [potential occupational carcinogen]	Liver, respiratory system, eyes, kidneys, skin	Colorless or white crystalline solid with a mothball-like odor. [insecticide] BP: 345°F Fl.Pt. = 150°F LEL: 2.5% UEL: NA Combustible Solid, but may take some effort to ignite.

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,4-Dioxane	123-91-1	TWA 20 ppm [skin]	Ca C 1 ppm (3.6 mg/m3) [30-minute]	TWA 100 ppm (360 mg/m3) [skin]	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; drowsiness, headache; nausea, vomiting; liver damage; kidney failure; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys	Colorless liquid or solid (below 53°F) with a mild, ether-like odor. BP: 214°F Fl.Pt. = 55°F LEL: 2.0% UEL: 22% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
2-Butanone	78-93-3	TWA 200 ppm STEL 300 ppm	TWA 200 ppm (590 mg/m3) ST 300 ppm (885 mg/m3)	TWA 200 ppm (590 mg/m3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor BP: 175°F Fl.Pt. = 16°F LEL (200°F): 1.4% UEL (200°F): 11.4% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
2-Hexanone	591-78-6	TWA 5 ppm STEL 10 ppm [skin]	TWA 1 ppm (4 mg/m3)	TWA 100 ppm (410 mg/m3)	1600 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eyes, skin, respiratory system, central nervous system, peripheral nervous system	Colorless liquid with an acetone-like odor BP: 262°F Fl.Pt. = 77°F LEL: NA UEL: 8.0% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
4-Methyl-2-pentanone	108-10-1	TWA 20 ppm STEL 75 ppm	TWA 50 ppm (205 mg/m3) ST 75 ppm (300 mg/m3)	TWA 100 ppm (410 mg/m3)	500 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis; In Animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a pleasant odor BP: 242°F Fl.Pt. = 64°F LEL (200°F): 1.2% UEL (200°F): 8.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
Acetone	67-64-1	TWA 250 ppm STEL 500 ppm	TWA 250 ppm (590 mg/m^3)	TWA 1000 ppm (2400 mg/m^3)	2500 ppm [10% LEL]	Inhalation, ingestion, skin and/or eye contact	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, mint-like odor BP: 133°F Fl.Pt. = 0°F LEL: 12.8% UEL: 2.5% Class IB Flammable liquid: Fl.P. below 73°F and BP at or above 100°F.
Benzene	71-43-2	TWA 0.5 ppm STEL 2.5 ppm	Ca TWA 0.1 ppm ST 1 ppm	TWA 1 ppm ST 5 ppm	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, blood, central nervous system, bone marrow	Colorless to light yellow liquid with an aromatic odor [Note: Solid below 42 °F] BP: 176°F Fl.Pt. = 12°F LEL: 1.2% UEL: 7.8% Class IB Flammable liquid. Fl.P. below 73°F and BP at or above 100°F.
Bromochloromethane	74-97-5	TWA 200 ppm	TWA 200 ppm (1050 mg/m3)	TWA 200 ppm (1050 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; confusion, dizziness, central nervous system depression; pulmonary edema	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless to pale-yellow liquid with a chloroform-like odor. [Note: May be used as a fire extinguishing agent.] BP: 155°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Bromodichloromethane	75-27-4	https://cameochemicals.noaa.gov/chemical/16064				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and respiratory tract. It may also cause narcosis. Other symptoms may include nausea, dizziness and headache.	Liver and kidney damage. Central nervous system effects may also occur.	Clear colorless liquid BP: 189°F Fl.Pt. = NA LEL: NA UEL: NA
Bromoform	75-25-2	TWA 0.5 ppm	TWA 0.5 ppm (5 mg/m3) [skin]	TWA 0.5 ppm (5 mg/m3) [skin]	850 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; central nervous system depression; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless to yellow liquid with a chloroform-like odor. [Note: A solid below 47°F.] BP: 301°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Bromomethane	74-83-9	TWA 1 ppm [skin]	Ca	C 20 ppm (80 mg/m3) [skin]	Ca [250 ppm]	Inhalation, skin absorption (liquid), skin and/or eye contact (liquid)	Irritation eyes, skin, respiratory system; muscle weak, incoordination, visual disturbance, dizziness; nausea, vomiting, headache; malaise (vague feeling of discomfort); hand tremor; convulsions; dyspnea (breathing difficulty); skin vesiculation; liquid: frostbite; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system	Colorless gas with a chloroform-like odor at high concentrations. [Note: A liquid below 38°F. Shipped as a liquefied compressed gas.] BP: 38°F Fl.Pt. = NA (Gas) LEL: 10% UEL: 16.0% Flammable Gas, but only in presence of a high energy ignition source.

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Carbon disulfide	75-15-0	TWA 1 ppm [skin]	TWA 1 ppm (3 mg/m3) ST 10 ppm (30 mg/m3) [skin]	TWA 20 ppm C 30 ppm 100 ppm (30-minute maximum peak)	500 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Dizziness, headache, poor sleep, lassitude (weakness, exhaustion), anxiety, anorexia, weight loss; psychosis; polyneuropathy; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver injury; eye, skin burns; dermatitis; reproductive effects	Central nervous system, peripheral nervous system, cardiovascular system, eyes, kidneys, liver, skin, reproductive system	Colorless to faint-yellow liquid with a sweet ether-like odor. [Note: Reagent grades are foul smelling.] BP: 116°F Fl.Pt. = -22°F LEL: 1.3% UEL: 50.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Carbon tetrachloride	56-23-5	TWA 5 ppm STEL 10 ppm [skin]	Ca ST 2 ppm (12.6 mg/m3) [60-minute]	TWA 10 ppm C 25 ppm 200 ppm (5-minute maximum peak in any 4 hours)	Ca [200 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Central nervous system, eyes, lungs, liver, kidneys, skin	Colorless liquid with a characteristic ether-like odor BP: 170°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Chlorobenzene	108-90-7	TWA 10 ppm	NA	TWA 75 ppm (350 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; In Animals: liver, lung, kidney injury	Eyes, skin, respiratory system, central nervous system, liver	Colorless liquid with an almond-like odor BP: 270°F Fl.Pt. = 82°F LEL: 1.3% UEL: 9.6% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.
Chloroethane	75-00-3	TWA 100 ppm [skin]	Handle with caution in the workplace	TWA 1000 ppm (2600 mg/m3)	3800 ppm [10%LEL]	Inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Liver, kidneys, respiratory system, cardiovascular system, central nervous system	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. [Note: Shipped as a liquefied compressed gas.] BP: 54°F Fl.Pt. = NA (gas), -58°F (liquid) LEL: 3.8% UEL: 15.4% Flammable Gas
Chloroform	67-66-3	TWA 10 ppm	Ca ST 2 ppm (9.78 mg/m3) [60-minute]	C 50 ppm (240 mg/m3)	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Liver, kidneys, heart, eyes, skin, central nervous system	Colorless liquid with a pleasant odor BP: 143°F Fl.Pt. = -82°F LEL: NA UEL: NA Noncombustible Liquid
Chloromethane	74-87-3	TWA 50 ppm STEL 100 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3 hours)	Ca [2000 ppm]	Inhalation, skin and/or eye contact (liquid)	Dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Central nervous system, liver, kidneys, reproductive system	Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations. [Note: Shipped as a liquefied compressed gas.] BP: -12°F Fl.Pt. = NA (Gas) LEL: 8.1% UEL: 17.4% Flammable Gas
cis-1,2-Dichloroethene	156-59-2	TWA 200 ppm (All isomers)	TWA 200 ppm (790 mg/m3)	TWA 200 ppm (790 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor. BP: 118-140°F Fl.Pt. = 36-39°F LEL: 5.6% UEL: 12.8% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
cis-1,3-Dichloropropene	10061-01-5	https://cameochemicals.noaa.gov/chemical/20168				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include local irritation of the eyes skin and respiratory tract; dermatitis, gasping, coughing, substernal pain, extreme respiratory distress, lacrimation, central nervous system depression, skin irritation, acute gastrointestinal distress with pulmonary congestion and edema. It also may cause injury to the liver, kidneys and heart.	Skin, eyes, mucous membranes, liver, kidney, heart	Colorless to amber liquid with a sweetish odor. BP: 219.7°F Fl.Pt. = NA LEL: NA UEL: NA
Cyclohexane	110-82-7	TWA 100 ppm	TWA 300 ppm (1050 mg/m3)	TWA 300 ppm (1050 mg/m3)	1300 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; drowsiness; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sweet, chloroform-like odor. [Note: A solid below 44°F.] BP: 177°F Fl.Pt. = 0°F LEL: 1.3% UEL: 8.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Dibromochloromethane	124-48-1	https://cameochemicals.noaa.gov/chemical/16183				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and upper respiratory tract. It may also cause fatigue. Other symptoms may include central nervous system effects, lung and cornea irritation and liver and kidney damage. Prolonged exposure can cause nausea, dizziness, headache and narcosis.	Skin, eyes, mucous membranes, upper respiratory tract	Clear colorless to yellow-orange liquid BP: 246-248°F Fl.Pt. = Greater than 200°F LEL: NA UEL: NA

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Dichlorodifluoromethane	75-71-8	TWA 1000 ppm	TWA 1000 ppm (4950 mg/m3)	TWA 1000 ppm (4950 mg/m3)	15,000 ppm	Inhalation, skin and/or eye contact (liquid)	Dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Cardiovascular system, peripheral nervous system	Colorless gas with an ether-like odor at extremely high concentrations. [Note: Shipped as a liquefied compressed gas.] BP: -22°F Fl.Pt. = NA LEL: NA UEL: NA Nonflammable Gas
Ethyl benzene	100-41-4	TWA 20 ppm	TWA 100 ppm (435 mg/m^3) ST 125 ppm (545 mg/m^3)	TWA 100 ppm (435 mg/m^3)	800 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with an aromatic odor. BP: 277°F Fl.Pt. = 55°F LEL: 0.8% UEL: 6.7% Class IB Flammable Liquid below 73°F and BP at or above 100°F
Isopropyl benzene	98-82-8	TWA 5 ppm	TWA 50 ppm (245 mg/m3) [skin]	TWA 50 ppm (245 mg/m3) [skin]	900 ppm [10%LEL]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sharp, penetrating, aromatic odor BP: 306°F Fl.Pt. = 96°F LEL: 0.9% UEL: 6.5% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Methyl Acetate	79-20-9	TWA 200 ppm STEL 250 ppm	TWA 200 ppm (610 mg/m3) ST 250 ppm (760 mg/m3)	TWA 200 ppm (610 mg/m3)	3100 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; headache, drowsiness; optic nerve atrophy; chest tightness; In Animals: narcosis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, fruity odor BP: 135°F Fl.Pt. = 14°F LEL: 3.1% UEL: 16% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Methylcyclohexane	108-87-2	TWA 400 ppm	TWA 400 ppm (1600 mg/m3)	TWA 500 ppm (2000 mg/m3)	1200 ppm [LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, drowsiness; In Animals: narcosis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a faint, benzene-like odor BP: 214°F Fl.Pt. = 25°F LEL: 1.2% UEL: 6.7% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Methylene chloride	75-09-2	TWA 50 ppm [skin] STEL 100 ppm	Ca	[1910.1052] TWA 25 ppm ST 125 ppm	Ca [2300 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	Eyes, skin, cardiovascular system, central nervous system	Colorless liquid with a chloroform-like odor. [Note: A gas above 104°F.] BP: 104°F Fl.Pt. = NA LEL: 13% UEL: 23% Combustible Liquid
Methyl-t-butyl ether	1634-04-4	TWA 50 ppm	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	May cause dizziness or suffocation. Contact may irritate or burn eyes or skin. May be harmful if swallowed.	Eyes, skin	A colorless liquid with a distinctive anesthetic-like odor. BP: 131°F Fl.Pt. = -14°F LEL: NA UEL: NA
o-Xylene	95-47-6	TWA 20 ppm (All isomers)	TWA 100 ppm (435 mg/m3) ST 150 ppm (655 mg/m3)	TWA 100 ppm (435 mg/m3)	900 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 292°F Fl.Pt. = 90°F LEL: 0.9% UEL: 6.7% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Styrene	100-42-5	TWA 10 ppm STEL 20 ppm OTO (ototoxicant)	TWA 50 ppm (215 mg/m3) ST 100 ppm (425 mg/m3)	TWA 100 ppm C 200 ppm 600 ppm (5-minute maximum peak in any 3 hours)	700 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects	Eyes, skin, respiratory system, central nervous system, liver, reproductive system	Colorless to yellow, oily liquid with a sweet, floral odor BP: 293°F Fl.Pt. = 88°F LEL: 0.9% UEL: 6.8% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Tetrachloroethene	127-18-4	TWA 25 ppm STEL 100 ppm	Ca Minimize workplace exposure concentrations	TWA 100 ppm C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm	Ca [150 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a mild, chloroform-like odor BP: 250°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Sodium Hydroxide	1310-73-2	Ceiling 2 mg/m^3	C 2 mg/m^3	TWA 2 mg/m^3	10 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair	Eyes, skin, respiratory system	Colorless to white, odorless solid (flakes, beads, granular form). BP: 2534°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid, but when in contact with water may generate sufficient heat to ignite combustible materials.
Sulfuric Acid	7664-93-9	TWA 0.2 mg/m^3 (as thoracic particulate mass)	TWA 1 mg/m^3	TWA 1 mg/m^3	15 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis	Eyes, skin, respiratory system, teeth	Colorless to dark-brown, oily, odorless liquid.[Note: Pure compound is a solid below 51°F. Often used in an aqueous solution.] BP = 554°F Fl.Pt. = NA LEL = NA UEL = NA Noncombustible Liquid, but capable of igniting finely divided combustible materials.
trans-1,2-Dichloroethene	156-60-5	200 ppm (All isomers)	TWA 200 ppm (790 mg/m3)	TWA 200 ppm (790 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor. BP: 118-140°F Fl.P: 36-39°F LEL: 5.6% UEL: 12.8% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
trans-1,3-Dichloropropene	10061-02-6	https://cameochemicals.noaa.gov/chemical/18110				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include local irritation of the eyes skin and respiratory tract, dermatitis, gasping, coughing, substernal pain, extreme respiratory distress, lacrimation, central nervous system depression, acute gastrointestinal distress with pulmonary congestion and edema. It may also cause injury to the liver, kidneys and heart	Skin, eyes, mucous membranes, liver, kidney, heart	A clear colorless liquid with chloroform odor BP: 234°F Fl.P: NA LEL: NA UEL: NA
Toluene	108-88-3	TWA 20 ppm (ototoxicant)	TWA 100 ppm (375 mg/m^3) ST 150 ppm (560 mg/m^3)	TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)	500 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, pungent, benzene-like odor. BP: 232°F Fl.P: 40°F LEL: 1.1% UEL: 7.1% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
Trichloroethene (TCE)	79-01-6	TWA 10 ppm STEL 25 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	Ca [1000 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Colorless liquid (unless dyed blue) with a chloroform-like odor. BP: 189°F Fl.Pt. = NA LEL(77°F): 8.0% UEL(77°F): 10.5% Combustible Liquid, but burns with difficulty.
Trichlorofluoromethane	75-69-4	STEL C 1000 ppm	C 1000 ppm (5600 mg/m3)	TWA 1000 ppm (5600 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Skin, respiratory system, cardiovascular system	Colorless to water-white, nearly odorless liquid or gas (above 75°F) BP: 75°F Fl.P: NA LEL: NA UEL: NA Noncombustible Liquid Nonflammable Gas
Vinyl Chloride (chloroethylene)	75-01-4	TWA 1 ppm	Ca	TWA 1 ppm C 5 ppm [15-minute]	Ca (ND)	Inhalation, skin and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Liver, central nervous system, blood, respiratory system, lymphatic system	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.[Note: Shipped as a liquefied compressed gas.] BP: 7°F Fl.Pt. = NA (Gas) LEL: 3.6% UEL: 33.0% Flammable Gas
Xylene (m, o & p isomers)	108-38-3, 95-47-6, 106-42-3	TWA 20 ppm	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 282°F, 292°F, 281°F Fl. Pt. 82°F, 90°F, 81°F LEL: 1.1%, 0.9%, 1.1% UEL: 7.0%, 6.7%, 7.0% Class IC Flammable Liquid at or above 73°F and below 100°F.
Zinc Oxide (dust)	7440-66-6	TWA 2 mg/m3 (repsirable) STEL 10 mg/m^3 (respirable)	TWA 5 mg/m^3 C 15 mg/m^3	TWA 15 mg/m^3 (total dust) TWA 5 mg/m^3 (resp dust) TWA 5 mg/m^3 (fume)	500 mg/m^3	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Respiratory system	White, odorless solid. BP: NA Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)									
2-Chloronaphthalene	91-58-7	https://cameochemicals.noaa.gov/chemical/16185				Inhalation, ingestion, skin and/or eye contact	Chloracne, cysts, headache, fatigue, vertigo, anorexia and jaundice		Monoclinic plates or off-white crystalline powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
2-Methylnaphthalene	91-57-6	TWA 0.5 ppm TLV-SL 3 mg/100 cm2 [skin]	https://cameochemicals.noaa.gov/chemical/20668			Inhalation, ingestion, skin and/or eye contact	Headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Skin, eyes, mucous membranes and upper respiratory tract	White crystalline solid Combustible solid BP: 466-468 ° F Fl.Pt. = 208 ° F LEL: NA UEL: NA
Acenaphthene	83-32-9	https://cameochemicals.noaa.gov/chemical/10358				Inhalation, ingestion, skin and/or eye contact	Irritation of the skin, eyes, mucous membranes and upper respiratory tract, vomiting	Skin, eyes, mucous membranes and upper respiratory tract	White needles BP: 534 ° F Fl.Pt. = NA LEL: 0.6% UEL: NA
Acenaphthylene	208-96-8	https://cameochemicals.noaa.gov/chemical/16157				Inhalation, ingestion, skin and/or eye contact			Colorless crystalline solid BP: 509 to 527 ° F at 760 mm Hg Fl.Pt. = NA LEL: NA UEL: NA
Anthracene (as coal tar pitch volatiles)	120-12-7	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Benzo[a]anthracene	56-55-3	https://cameochemicals.noaa.gov/chemical/16171				Inhalation, injestion, skin and/or eye contact			Colorless leaflets or plates or coarse gold powder with a greenish-yellow fluorescence. May reasonably be expected to be a carcinogen. BP: 815° F at 760 mm Hg Fl.Pt. = NA LEL: NA UEL: NA
Benzo[a]pyrene (as coal tar pitch volatiles)	50-32-8	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Benzo[b]fluoranthene	205-99-2	None listed	https://cameochemicals.noaa.gov/chemical/16172			Inhalation, injestion, skin and/or eye contact			Needles or yellow fluffy powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[g,h,i]perylene	191-24-2	https://cameochemicals.noaa.gov/chemical/16174				Inhalation, injestion, skin and/or eye contact	Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution.	Lungs, skin, eyes	Colorless to white crystalline solid. Water insoluble. BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[k]fluoranthene	207-08-9	https://cameochemicals.noaa.gov/chemical/16173				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and irritating fumes.		Pale yellow needles or yellow crystalline solid BP: 896° F Fl.Pt. = NA LEL: NA UEL: NA
Chrysene (as coal tar pitch volatiles	218-01-9	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Dibenzo(a,h)anthracene	53-70-3	https://cameochemicals.noaa.gov/chemical/16192				Inhalation, injestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation. This compound is harmful if swallowed or inhaled. It may cause irritation. When heated to decomposition it emits acrid smoke, irritating fumes and toxic fumes of carbon monoxide and carbon dioxide.	Lungs	White crystals or pale yellow solid. Sublimes BP: 975° F Fl.Pt. = NA LEL: NA UEL: NA

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Fluoranthene	206-44-0	https://cameochemicals.noaa.gov/chemical/16213				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and fumes.		Light yellow fine crystals BP: 482° F Fl.Pt. = NA LEL: NA UEL: NA
Fluorene	86-73-7	https://cameochemicals.noaa.gov/chemical/16214				Inhalation, injestion, skin and/or eye contact			White leaflets. Sublimes easily under a vacuum. Fluorescent when impure. BP: 563° F Fl.Pt. = NA LEL: NA UEL: NA
Indeno[1,2,3-cd]pyrene	193-39-5	https://cameochemicals.noaa.gov/chemical/16218				Inhalation, injestion, skin and/or eye contact			Yellow crystals BP: 997° F Fl.Pt. = NA LEL: NA UEL: NA
Naphthalene	91-20-3	TWA 10 ppm [skin]	TWA 10 ppm (50 mg/m3) ST 15 ppm (75 mg/m3)	TWA 10 ppm (50 mg/m3)	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	Colorless to brown solid with an odor of mothballs. [Note: Shipped as a molten solid.] BP: 424°F Fl.P: 174°F LEL: 0.9% UEL: 5.9% Combustible Solid, but will take some effort to ignite
Phenanthrene	85-01-8	https://cameochemicals.noaa.gov/chemical/16236				Inhalation, injestion, skin and/or eye contact	Symptoms following exposure to this compound may include skin sensitization, dermatitis, bronchitis, cough, dyspnea, respiratory neoplasm, kidney neoplasm, skin irritation, and respiratory irritation.	Skin, respiratory tract	Colorless monoclinic crystals with a faint aromatic odor. Solutions exhibit a blue fluorescence. BP: 642° F Fl.Pt. = 340° F LEL: NA UEL: NA
Pyrene (see coal tar pitch volatiles)	129-00-0	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
METALS									
Aluminum	7429-90-5	TWA 1 mg/m3	TWA 10 mg/m^3 (total) TWA 5 mg/m^3 (resp)	TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)	N.D.	Inhalation, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Silvery-white, malleable, ductile, odorless metal BP: 4221°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid, finely divided dust is easily ignited; may cause explosions.
Antimony	7440-36-0	TWA 0.5 mg/m3 (as Sb)	TWA 0.5 mg/m3 [*Note: The REL also applies to other antimony compounds (as Sb).]	TWA 0.5 mg/m3 [*Note: The PEL also applies to other antimony compounds (as Sb).]	50 mg/m3 (as Sb)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Eyes, skin, respiratory system, cardiovascular system	Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder BP: 2975°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but a moderate explosion hazard in the form of dust when exposed to flame.
Arsenic	7440-38-2	TWA 0.01 mg/m3	Ca C 0.002 mg/m3 [15-minute]	[1910.1018] TWA 0.010 mg/m3	Ca [5 mg/m3 (as As)]	Inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid BP: Sublimes Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame
Barium	7440-39-3	TWA 0.5 mg/m3	0.5 mg Ba/m3 TWA	0.5 mg Ba/m3 TWA	50 mg Ba/m3	Inhalation, ingestion, skin and/or eye contact	Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. Contact may cause burns to skin, eyes, and mucous membranes. May be toxic by ingestion, inhalation and skin absorption. Used to make other chemicals.	Lungs, skin, eyes, and mucous membrane	A silver to white metallic solid BP: 1337°F Fl.Pt. = NA LEL: NA UEL: NA
Beryllium	7440-41-7	TWA 0.00005 mg/m^3	Ca C 0.0005 mg/m^3	TWA 0.002 mg/m^3 C 0.005 mg/m^3 0.025 mg/m3 [30-minute maximum peak]	Ca [4 mg/m^3 (as Be)]	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	Hard, brittle, gray-white solid BP: 4532°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but a slight explosion hazard in the form of a powder or dust.

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Cadmium	7440-43-9	TWA 0.01 mg/m^3 total dust TWA 0.002 mg/m^3 (as Cd) respirable fraction	Ca	TWA 0.005 mg/m^3	Ca [9 mg/m3 (as Cd)]	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Respiratory system, kidneys, prostate, blood	Silver-white/blue tinged lustrous, odorless solid. BP: 1409°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in powder form
Calcium	7440-70-2	https://cameochemicals.noaa.gov/chemical/309				Inhalation, ingestion, skin and/or eye contact	Contact with eyes or skin produces caustic burns.	Eyes, skin	A silvery, soft metal that turns grayish white on exposure to air. BP: 2714°F Fl.Pt. = NA LEL: NA UEL: NA
Chromium	7440-47-3	TWA 0.5 mg/m^3 (metal) TWA 0.003 mg/m^3 (water-soluble Cr III compounds) TWA 0.0002 mg/m^3 (water-soluble Cr VI compounds) STEL 0.0005 mg/m3 (water-soluble Cr VI compounds)	TWA 0.5 mg/m^3	TWA 1 mg/m^3	250 mg/m^3 (as Cr)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in dust form if heated in a flame
Cobalt	7440-48-4	TWA 0.02 mg/m3 [DSEN] [RSEN]	TWA 0.05 mg/m3	TWA 0.1 mg/m3	20 mg/m3 (as Co)	Inhalation, ingestion, skin and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Skin, respiratory system	Odorless, silver-gray to black solid BP: 5612°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but finely divided dust will burn at high temperatures.
Copper	7440-50-8	TWA 0.2 mg/m^3 (fume) TWA 1 mg/m3 (dusts and mists)	TWA 1 mg/m^3	TWA 1 mg/m^3	100 mg/m^3 (as Cu)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, pharynx; nasal septum perforation; metallic taste; dermatitis; In Animals: lung, liver, kidney damage; anemia	Eyes, skin, respiratory system, liver, kidneys (increased risk with Wilson's disease)	Reddish, lustrous, malleable, odorless solid. BP: 4703°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - powdered form may ignite
Iron (as iron oxide)	7439-89-6	TWA 5 mg/m3 (respirable particulate mass)	TWA 1 mg/m^3	NA	NA	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting; possible liver damage	Eyes, skin, respiratory system, liver, gastrointestinal tract	Appearance and odor vary depending upon the specific soluble iron salt. BP: NA Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solids
Lead	7439-92-1	TWA 0.05 mg/m3	TWA (8-hour) 0.050 mg/m3	[1910.1025] TWA 0.050 mg/m3	100 mg/m3 (as Pb)	Inhalation, ingestion, skin and/or eye contact	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	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid BP: 3164°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form
Magnesium	7439-95-4	https://cameochemicals.noaa.gov/chemical/6949				Eye and/or skin contact	Dust irritates eyes in same way as any foreign material. Penetration of skin by fragments of metal is likely to produce local irritation, blisters, and ulcers which may become infected.	Eyes	A light silvery metal BP: 1202°F Fl.Pt. = NA LEL: NA UEL: NA
Manganese	7439-96-5	TWA 0.02 mg/m3 [R] TWA 0.1 mg/m3 [I]	TWA 1 mg/m3 ST 3 mg/m3	C 5 mg/m3	500 mg/m3 (as Mn)	inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	respiratory system, central nervous system, blood, kidneys	A lustrous, brittle, silvery solid BP: 3564°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Combustible Solid
Mercury	7439-97-6	TWA 0.1 mg/m3, as Hg Aryl compounds TWA 0.025 mg/m3 as Hg, inorganic forms including metallic mercury	Hg Vapor: TWA 0.05 mg/m3 [skin] Other: C 0.1 mg/m3 [skin]	TWA 0.1 mg/m3	10 mg/m3 (as Hg)	Inhalation, skin absorption, ingestion, skin and/or eye contact	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	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Liquid

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Nickel	7440-02-0	TWA 1.5 mg/m^3 [elemental] TWA 0.1 mg/m^3 [soluble inorganic compound] TWA 0.2 mg/m^3 [insoluble inorganic compound] TWA 0.1 mg/m^3 [Nickel subsulfide]	Ca TWA 0.015 mg/m^3	TWA 1 mg/m^3	Ca [10 mg/m3 (as Ni)]	Inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Nasal cavities, lungs, skin	Lustrous, silvery, odorless solid. BP: 5139°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid; nickel sponge catalyst may ignite spontaneously in air.
Potassium	9/7/7440	https://cameochemicals.noaa.gov/chemical/4289				Eye and/or skin contact	Will burn skin and eyes	Skin, eyes	Potassium is a soft silvery metal though normally grayish white due to oxidation BP: 1425°F Fl.Pt. = NA LEL: NA UEL: NA
Selenium	7782-49-2	TWA 0.2 mg/m3	TWA 0.2 mg/m3	TWA 0.2 mg/m3	1 mg/m3 (as Se)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.] BP: 1265°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid
Silver	7440-22-4	TWA 0.1 mg/m3 [Metal, dust, and fume] TWA 0.01 mg/m3 [Soluble compounds, as Ag]	TWA 0.01 mg/m3	TWA 0.01 mg/m3	10 mg/m3 (as Ag)	Inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	Metal: White, lustrous solid BP: 3632°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Solid, but flammable in form of dust or powder
Sodium	7440-23-5	https://cameochemicals.noaa.gov/chemical/7794				Skin contact	Severe burns caused by burning metal or by caustic soda formed by reaction with moisture on skin	Skin	A silvery soft metal that becomes grayish white upon exposure to air BP: 1621°F Fl.Pt. = NA LEL: NA UEL: NA
Thallium	7440-28-0	0.02 mg/m3 inhallable particulate matter	TWA 0.1 mg/m3 [skin]	TWA 0.1 mg/m3 [skin]	15 mg/m3 (as Tl)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eyes, respiratory system, central nervous system, liver, kidneys, gastrointestinal tract, body hair	Appearance and odor vary depending upon the specific soluble thallium compound BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Vanadium	7440-62-2	https://cameochemicals.noaa.gov/chemical/16147				Inhalation, skin absorption, ingestion, skin and/or eye contact	Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution	Skin	Silvery-whitish powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Zinc	7440-66-6	https://cameochemicals.noaa.gov/chemical/4814				Inhalation, skin absorption, ingestion, skin and/or eye contact	Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. May produce corrosive solutions on contact with water. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution	Lungs	A grayish powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
PCBs									
PCBs (total)	11097-69-1, 53469-21-9	TWA 0.5 mg/m3 [skin] TWA 1 mg/m3 [skin]	Ca TWA 0.001 mg/m3 Ca TWA 0.001 mg/m3	TWA 0.5 mg/m3 [skin] TWA 1 mg/m3 [skin]	Ca [5 mg/m3] Ca [5 mg/m3]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, chloracne; liver damage; reproductive effects; [potential occupational carcinogen]	Skin, eyes, liver, reproductive system	Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor BP: 689-734°F, 617-691°F Fl.Pt. = NA, NA LEL: NA UEL: NA Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.
Petroleum Hydrocarbons									
Gasoline	86290-81-5	TWA 300 ppm STEL 500 ppm	Ca	None	Ca [N.D.]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid); possible liver, kidney damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Clear liquid with a characteristic odor BP: 102°F Fl.Pt. = -45°F LEL: 1.4% UEL: 7.6%

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Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties

References

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National Oceanic and Atmospheric Administration (NOAA) and Environmental Protection Agency (EPA), 2019. *CAMEO Chemicals Database* . https://cameochemicals.noaa.gov/
U.S. Department of Labor, 1990. *OSHA Regulated Hazardous Substances.* Industrial Exposure and Control Technologies Government Institutes, Inc.
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Proctor, N.H., J.P. Hughes and M.L. Fischman, 1989. *Chemical Hazards of the Workplace* . Van Nostrand Reinhold. New York.
Sax, N.I. and R.J. Lewis, 1989. *Dangerous Properties of Industrial Materials, 7th Edition.* Van Nostrand Reinhold. New York.

Abbreviations:

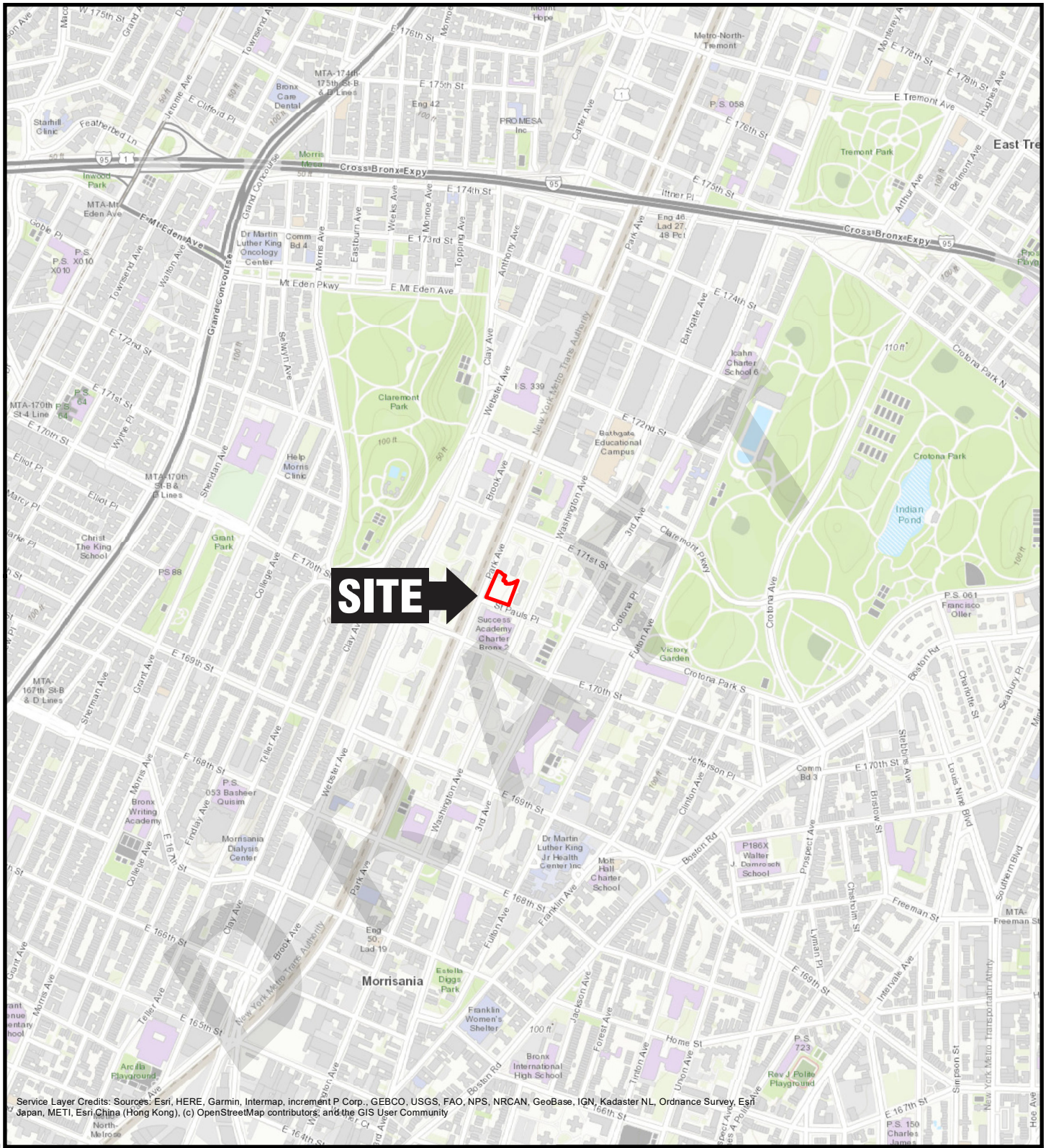
ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
Ca – Carcinogenic.
CAS# - Chemical Abstracts Service registry number which is unique for each chemical.
DSEN - Dermal Sensitization
Ft Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m^3 – Milligrams of substance per cubic meter of air
NIOSH - National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
OTO - Ototoxicant
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
RSEN - Respiratory Sensitization
SG - Specific Gravity
STEL – ACGIH Short-term exposure limit (ST)
TLV - ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)
VP - Vapor Pressure

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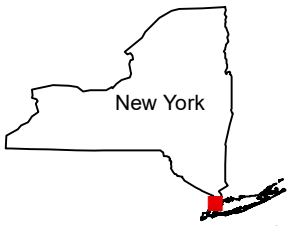
FIGURES

1. Site Location Map
2. Site Plan with Emergency Muster Area
3. Routes to Urgent Care and Hospital

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QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/11/26
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: D.M.H.	Project: 2908.0011Y000
File: 29080011Y150.1.mxd	

FIGURE 1

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N

LEGEND

EMERGENCY MUSTER AREA

SITE BOUNDARY

40 0 40'

Title:

SITE PLAN WITH EMERGENCY MUSTER AREA

3728 PARK AVENUE

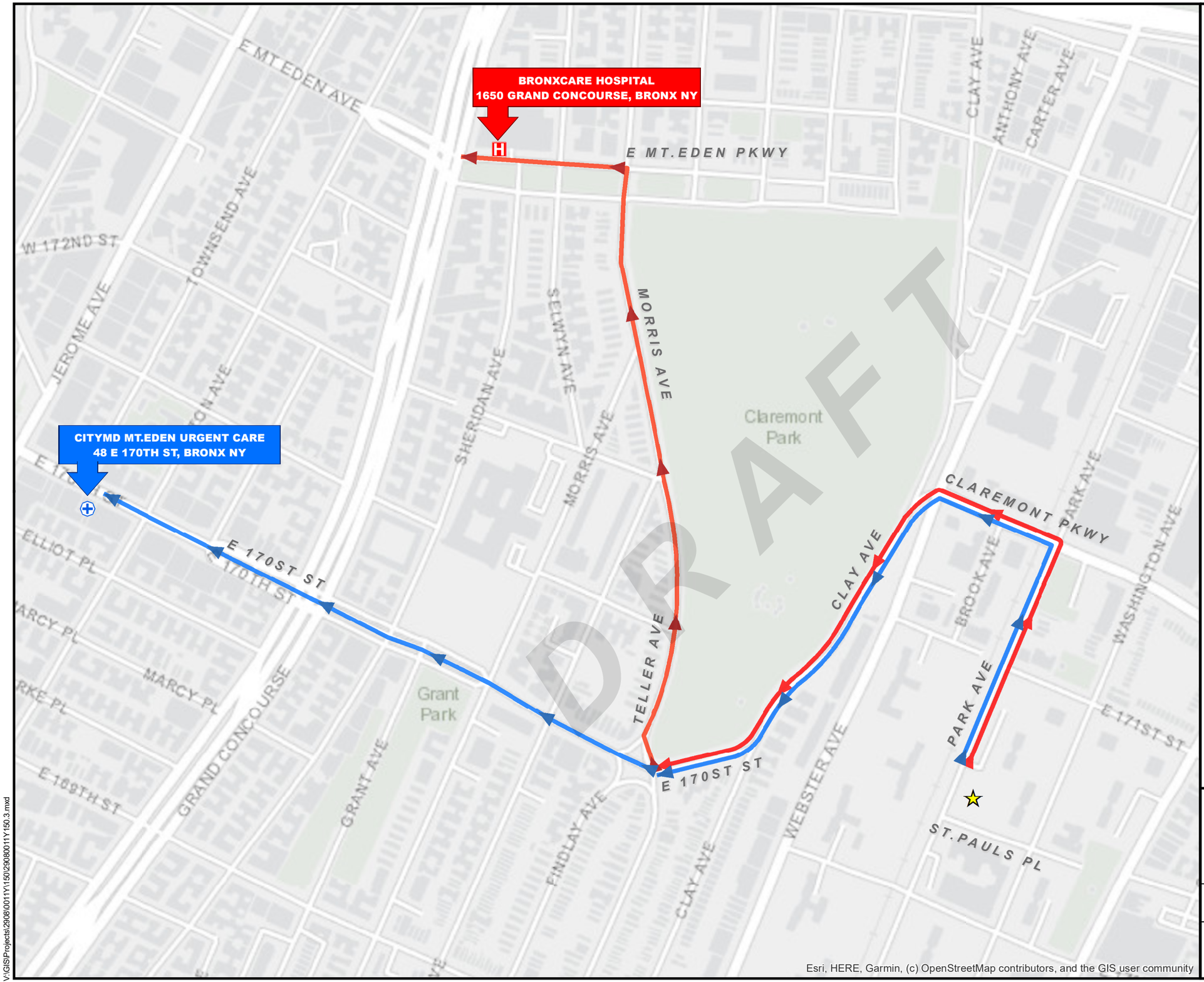
Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/11/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	2
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 29080011Y150.2.mxd		

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N

DIRECTIONS TO HOSPITAL

1. HEAD NORTHEAST ON PARK AVE TOWARD CLAREMONT PKWY
2. TURN LEFT ONTO CLAREMONT PKWY
3. TURN LEFT ONTO CLAY AVE
4. CLAY AVE TURNS SLIGHTLY RIGHT AND BECOMES E 170TH ST
5. TURN RIGHT ONTO TELLER AVE
6. MERGE ONTO MORRIS AVE
7. TURN LEFT ONTO E MT EDEN AVE/MT EDEN PKWY
8. DESTINATION WILL BE ON THE RIGHT

DIRECTIONS TO URGENT CARE

1. HEAD NORTHEAST ON PARK AVE TOWARD CLAREMONT PKWY
2. TURN LEFT ONTO CLAREMONT PKWY
3. TURN LEFT ONTO CLAY AVE
4. CLAY AVE TURNS SLIGHTLY RIGHT AND BECOMES E 170TH ST
5. KEEP LEFT TO STAY ON E 170TH ST
6. DESTINATION WILL BE ON THE LEFT INSIDE WALGREENS

350 0 350
Feet

Title:

ROUTES TO URGENT CARE AND HOPSITAL

3728 PARK AVENUE
BRONX, NEW YORK

Prepared for:

SOL ON PARK LLC

ROUX

Compiled by: D.M.H.	Date: 02/11/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	3
Project Mgr: D.M.H.	Project: 2908.0011Y000	
File: 29080011Y150.3.mxd		

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APPENDICES

A. Job Safety Analysis (JSA) Forms
B. Safety Data Sheets (SDSs) for Chemicals Used
C. Heat Illness Prevention Program
D. Personal Protective Equipment (PPE) Management Program
E. Subsurface Utility Clearance Management Program
F. Heavy Equipment Exclusion Management Program

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APPENDIX A

Job Safety Analysis (JSA) Forms

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JOB SAFETY ANALYSIS	Cntrl. No.	DATE:	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY **GENERIC**	WORK TYPE	WORK ACTIVITY (Description)	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES:
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING:	
☐ SAFETY GLASSES	☐ SAFETY SHOES		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment:

Commitment to LPS – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

EXCLUSION ZONE: A _ foot exclusion zone will be maintained around (indicate equipment).

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. [INSERT JOB STEP]	**1a. CONTACT:** [INSERT HAZARD]	1a.
	1b. CAUGHT: [INSERT HAZARD]	1b.
	1c. FALL: [INSERT HAZARD]	1c.
	1d. EXPOSURE: [INSERT HAZARD]	1d.
	1e. EXERTION: [INSERT HAZARD]	1e.
	1f. ENERGY SOURCE: [INSERT HAZARD]	1f.
2. [INSERT JOB STEP]	**2a. CONTACT:** [INSERT HAZARD]	2a.
	2b. CAUGHT: [INSERT HAZARD]	2b.

DRAFT

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

[2] A hazard is a potential danger. Break hazards into five types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

	2c. FALL: [INSERT HAZARD]	2c.
	2d. EXPOSURE: [INSERT HAZARD]	2d.
	2e. EXERTION: [INSERT HAZARD]	2e.
	2f. ENERGY SOURCE: [INSERT HAZARD]	2f.

DRAFT

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-023	DATE: 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)	
Generic	**Construction**	**Spotting Heavy Machinery**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Levi Curnutte	Project Scientist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ Particulate Respirator	☒ GLOVES: Cut resistant / leather
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☒ LONG SLEEVED SHIRT	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-/Composite-toe boots/shoes		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy Machinery (i.e. excavator, payloader, truck, forklift, etc.)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Prepare for machine activity.	**1a. CONTACT:** Obstructions in the work area may create contact hazards from machinery. **1b. Fall :** Slip/Trip/Fall	1a. Cordon off the work area with safety barrels/cones and a rigid barrier (snow fence, traffic bar, etc.). Communicate that only necessary personnel should be in the work area. Spotter and equipment operator shall enforce the **EZ.** Operator will not operate but shall remain in the hands-off mode while personnel are within the exclusion zone. 1b. Ensure that work area is flat, level and clear of any obstructions or debris before setting up work zone.
2. Spotting.	**2a. CONTACT:** Machine or load contact with personnel, property, or machinery.	2a. Discuss the specifics of the work with the operator and be clear about any hand signals that will be used. Clearly discuss the limits of the assigned work area and the machine's Exclusion Zone. Maintain Exclusion Zone. The Exclusion Zone shall be delineated by using 42-inch traffic cones/barrels and a fixed rigid barrier. 2a. The Minimum Heavy Equipment Exclusion zone is greater than the swing/tip radius of equipment. 2a. Both the spotter and equipment operators shall have 2-way radios/cellular devices on their persons to ensure audible communication in the event any changes or new hazards may arise. 2a. All workers should stay outside of the Exclusion Zone of all equipment unless operator is stopped and in "Hands Off" mode. **(This includes the spotter unless an exception has been established in the Site-specific JSA).** If the Exclusion Zone must be reduced due to work area restrictions then the spotter and operator shall enforce the reduced Exclusion Zone. 2a. Spotters must make eye contact with the machine operator or all movement ceases until visual contact can be reestablished. 2a. Spotter shall keep an eye out for any issues with the machine the operator may not see and communicate with other work crews and spotters on behalf of the operator. 2a. If the spotter needs to take a break, he must find a replacement before leaving or have the machine stop operations. **No heavy equipment shall operate without a spotter under any circumstances.** 2a. Wear fluorescent clothing/safety vest.

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[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2b. FALL: Slip/Trip/Fall	2b. Look where walking to identify and avoid slip/trip/fall hazards. Avoid icy and/or wet surfaces. Remove obstacles if possible. 2b. Use designated walkways during spotting whenever possible.
	2c. CAUGHT: Caught between machinery and nearby objects.	2c. **Maintain Exclusion Zone.** Do not stand between large, loose or fixed objects or structures and the machinery while it is in motion. Keep in sight of operator at all times while being aware of surrounding structures.
	2d. EXPOSURE: Inhalation of exhaust from machinery.	2d. The spotter will position him/herself upwind of the working machinery, when possible. Spotter will also inform others working within the vicinity of the EZ of proper positioning, if applicable.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Cntrl. No. GEN-027	DATE: 11/3/2020	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Drilling**	**Pre-Drilling Clearance, Vactron and Air Knife**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Courtney Rempfer	Staff Scientist	Joseph Midwig	Office Health & Safety Manager
Sara Redding	Senior Hydrogeologist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☒ FACE SHIELD (While Air Knifing) ☒ HEARING PROTECTION (As needed) ☒ SAFETY SHOES: Composite toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing; long-sleeve shirt	☒ GLOVES: Leather, Nitrile, cut-resistant ☒ OTHER: Dusk mask, insect repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Vac-Truck or Vac Drum, Compressor, Jack Hammer, Air Knife. Circular Saw, Hand Tools, Dust Mask, Photoionization Detector, Multi Gas Meter, 42 inch safety cones and flags, Retractable Cone Bars, Caution Tape, 20 lb. Fire Extinguisher, "Work Area" Signs, Pressurized Water Sprayer

Commitment to Safety – All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE: All non-essential personnel will maintain a distance of 10 feet from drilling equipment while equipment is moving/engaged

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Verify pre-clearance protocol	**1a. CONTACT:** Underground utility damage; property damage; personal injury	1a. Confirm that (if applicable) "Call Before You Dig" and local utility companies were contacted prior to starting work in order to confirm utility mark outs. Must have a case # before digging. 1a Walk the Site to evaluate utility markings and review maps (see Site Walk Inspection JSA). Utilities are not always properly marked out ensure use of observational skills through the pre-clearing checklist. 1a. Review pre-clearing checklist fromm and sub-surface clearance form. Pre-clearing protocol indicates that clearance must be conducted to a minimum of 5 vertical feet below ground surface or 10 vertical feet below ground surface in the critical zone using hand tools.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	1b. Pre-clearing of each soil boring/monitoring well location must be conducted to a minimum of 5 vertical feet below the ground surface (10 feet minimum for Critical Zone) using hand tools (shovel and non-metallic dig bar and hand auger) prior to drilling. Supervisor should be contacted to discuss appropriate pre-clearing depth. 1b. MUST Complete subsurface clearance checklist prior to pre-clearance.
	1c. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within established pathway avoiding uneven surfaces. Remove potential slip/trip/fall hazards.
2. Mobilize/demobilize and establish work area	**2a. SEE MOBILIZATION / DEMOBILIZATION JSA**	2a. See Mobilization / Demobilization JSA
3. Concrete saw cutting, jack hammer and hand clearance with hand tools, air knife	**3a. CONTACT:** Flying debris striking face or body	3a Maintain 10' minimum exclusion zone. Use the required PPE (i.e., leather/cut proof gloves, safety glasses/face shield). 3a. Use anti-whip devices on compressor hoses. 3a Wear a face shield to protect face from flying debris when using air knife. 3a. Utilize a traffic cone or physical barriers over the hole during air knife activities to keep flying debris close to ground.
	3b. EXPOSURE: Inhalation/exposure to hazardous vapors and/or concrete dust, noise exposure	3b. Monitor breathing zone with a calibrated PID and/or multi-gas meter. If meters sustain readings greater than recommeneded in the HASP for the specific contaminant of concerns (COCs) the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings. Contact PM. 3b. Wet concrete while using saw to minimize dust and wear dust mask to prevent inhalation. 3b. Stand upwind and keep body behind saw. Observers and helpers should avoid line of fire for saw blade. Always cut away from body. 3b. No open flames/heat sources. 3b. Wear hearing protection when saw, jackhammer or air compressor are in operation. Otherwise, if sound levels exceed 85 dbA, put on hearing protection.
	3c. ENERGY SOURCE/CONTACT: Property damage; Pressurized water	

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

	mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	3c. For air knifing, ensure extention/lance tip reaches the full 5 feet bgs. Air knife should be advanced **AT A MINIMUM** in all four corners of the expected boring location to find any possible arrangement of utilities. 3c. Ensure diameter of soil preclearance hole is at a **MINIMUM 2x** the diameter of any drilling or hard dig equipment that will be entering the hole. 3c. See Complete subsurface clearance protocol for information provided above.
	3d. ERGONOMICS/EXERTION: Muscle strain due to poor body positioning when handling equipment and materials	3d. Use body positioning and lifting techniques that minimizes muscle strain; keep back straight, lift with legs, keep load close to body, and never reach with a load. 3d. Ensure that loads are balanced to reduce the potential for muscle strain. 3d. Two people or a mechanical lifting aid are required when lifting objects over 50 lbs. or when the shape makes the object difficult to lift.
	3e. FALL: Tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at the Site	3e. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. Mob/Demob JSA. 3e. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3e. Use established pathways and walk on stable, secure ground. 3e. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e. tools should not be propped against walls or nearby equipment or vehicles). 3e. Equipment and tools that are not anticipated to be used will be returned to a storage area that is out of the immediate work area. 3e. Ensure power cords and compressed air lines are grouped when used within the work area. 3e. Pre-cleared location will be finished flush to grade as to prevent a slip/trip hazard or coned and taped off.
	3f. CAUGHT: Amputation points associated with the equipment and vacuum hose	3f. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3f. Inspect the equipment prior to use for potential pinch points. 3f. Test all emergency shutdown devices prior to using equipment. 3f. Inspect saw blade for worn surface or missing teeth; switch blade if damaged or blunt. 3f. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3f. All non-essential personnel shall maintain a 10 foot exclusion zone; position body out of the line-of-fire of equipment. 3f. Drillers and helpers will understand and use the “Show Me Your Hands Policy”.
4. Move drum to staging area using drum cart	**4a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, soil)	4a. Wear Nitrile chemical-resistant gloves under leather or cut proof gloves. 4a. Do not overfill drums. Ensure that the drum lids are attached securely. 4a. All drums will be staged in the designated storage area.
	4b. EXERTION: Muscle strain while maneuvering drums with drum cart/lift gate	4b. See 3d. Do not overfill drums. Use lift gate on back of truck to load and unload drums. Use drum dolly to move drum.
	4c. CAUGHT: Pinch points associated with handling drum lid	4c. Ensure that fingers are not placed under the lid of the drum. Wear leather gloves or cut proof gloves. Use appropriate ratchet while sealing drum lid.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors).	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b.
	5b. EXPOSURE: To chemicals in cleaning solution.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-003	DATE 4/10/2023	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Construction - Excavation**	**Backfilling Excavation & Compaction**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
David Kaiser	Project Engineer	Brian Hobbs	CHSD
Edward Lacina	Senior Construction Manager		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather/ cut-resistant level 2
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / BODY HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING: reflective DOT approved safety	
☒ SAFETY GLASSES	☒ SAFETY TOE BOOTS		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Payloader, Backhoe, Dump Trucks, Mechanical gas powered tampers, Excavator with hydraulic tamper. APR when tamping if dust present. Two-way radios.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone (HEEZ) around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Pre-construction meeting: Review proposed excavation locations	**1a. CONTACT:** Potential for contact with subsurface utilities and above ground utilities	1a. Call state 811 for mark out service and one call ticket. 1a. Obtain private utility mark out service as necessary. 1a. Review and mark proposed excavations w/white paint. 1a. Identify all "Critical" zones. A Critical zone is any area within 10 feet of any operating utility. 1a. Complete subsurface clearance checklist. 1a. Soft dig must be conducted within 2 lateral feet of any suspected underground utility. 1a. Protection of aboveground utilities identified as being located within the work zone must be coordinated w/ client and utility owner.
2. Secure Work Area	**2a. CONTACT:** Potential for personnel to enter the work area. Potential for equipment to contact, or crush personnel. **2b. EXERTION:** Potential for muscle strain or tear while installing traffic cones and barrel	2a. Ensure work area is secure and inform others of work activity. Establish a HEEZ using 42" traffic cones, barrels & snow fencing or telescoping poles. Use of flag persons to maintain clear traffic and to minimize motorist confusion during set-up of new traffic pattern. HEEZ to include tip/swing radius of equipment. 2a. Dump Truck/Excavator/Payloader/Backhoe equipment to be set-up by personnel who are familiar with machinery. Spotters shall be in place for all equipment. and to control access to the HEEZ 2a. Truck wheels are chocked when driver is not in truck and engine shut off. 2a. Personnel shall stay out of the exclusion zone (10' minimum or greater than the equipment boom) while equipment is maneuvering. 2b. Keep back straight, keep load close to the body and bend knees while lifting and working. If over 50 lbs., use 2 or more laborers for lifting or use of equipment.

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3. Backfilling excavation, and compaction	**3a. CONTACT:** Traffic and live equipment. . **3b. EXPOSURE:** Fumes from gas powered tamper **3c. FALL:** Slips, trips, fall hazards. **3d. OVEREXERTION:** Muscle strain, or tear. **3e. EXPOSURE:** Noise from tamper. Dust inhalation.	3a. Equipment and trucks shall be isolated from other workers, subcontractors and third party traffic with 42" traffic cones, barricades, snow fencing or telescoping poles, and/or Jersey barriers. Spotters shall direct dump truck for placement of fill near excavation. Pay loader/ Excavator, as directed by spotter, shall move fill into trench where it shall be placed in layers and compacted by mechanical means. 3a. Spotters will wear florescent vests at all times. 3a. Spotters will remain out of the exclusion zone, line-of-fire from equipment and third-party vehicles. 3a. Spotters and operators will have radios for communication, when other visual and/or hand signals are insufficient. 3a. Locate all overhead utilities. All personnel and machinery should maintain a minimum 10' distance from overhead electric lines. Refer to OSHA chart for distances and voltage. 3a. For excavations engineered (shored, sloped, benched} all personnel, equipment, and materials must remain a minimum of 2 feet from edge of excavation. 3b. Fueling of all equipment will be done outside of work area in a well-ventilated area. Refueling will be done only after a 2-5-minute cool down. 3c. Work area will be clean and free of any debris to remove slip, trip and fall hazards. All tools will be kept in designated areas. Insure work area is well illuminated. 3c. Workers should only be working in areas that have been leveled with a machine. 3c. All persons working at elevations over 6' shall use a guardrail system or personal fall arrest system while around excavation. 3d. Keep knees bent and back straight while transferring/ lifting/lowering tamper from elevated areas. Utilize a co-worker to avoid staining muscles. 3d. Keep knees bent and back straight while maneuvering tamper. Utilize a co-worker to avoid staining muscles. 3e. Workers will wear hearing protection during compaction tamper activities. 3e. Wear NIOSH approved dust mask for personal comfort. If dust is visible for extended time, limit by wetting down area. 3e. If dust continues stop work and evaluate if increase in APR is needed with approval and clearance.
4. Secure/leave site.	**4a. FALL:** Slip, trip, fall	4a. Clear work area of all debris and store all equipment in designated areas/containers before opening to traffic. 4a. Replace fencing and barricades as needed to secure path before opening roadway or area up to traffic(vehicle, pedestrian and/or bicycle).

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-004	DATE 4/10/2023	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Construction - Concrete and Asphalt**	**Concrete Form Assembly and Concrete Pouring**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
David Kaiser	Senior Engineer	Brian Hobbs	CHSD

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☒ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut resistant and Nitrile/Latex
☒ HARD HAT	☒ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: Chaps, dust mask
☐ LIFELINE / BODY HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING: reflective DOT approved safety	
☒ SAFETY GLASSES	☒ SAFETY TOE BOOTS: Steel /composite toe boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Wheel Barrow, Trowels, Concrete Floats and Hand Tools (Extension Poles), Waterproof Boot Covers, Traffic Cones, Caution Tape, Portable Eye Wash Station

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Set-up work zone	**1a. CONTACT:** Moving equipment, third party traffic.	1a. Secure work area using barricades/barrels/cones and caution tape/safety fence. Use flagmen to control third party traffic. **Maintain minimum heavy equipment exclusion zone (EZ)** around equipment and live loads. 1a. When machines are operating, all workers will remain outside of EZ unless operator is in "HANDS OFF" mode.
2. Assembly of concrete forms (i.e. plywood, lumber, rebar, etc.)	**2a. CONTACT:** Contacting materials being lowered into work area. Potential for cuts and abrasions and to be contacted by nails while assembling. **2b. EXERTION:** Muscle strain. **2c. EXPOSURE:** Noise, dust, fumes. **2d. CAUGHT:** Pinch points, caught between, Crushed	2a. Workers will keep fingers and limbs out of the line-of-fire of tools, equipment and live loads. Workers will use inspected rigging and only attach rigging to manufacturer installed lifting points. Loads will be controlled with non-conductive tag lines from outside the EZ. Wear hard hat. See JSA for applicable cutting tool. 2b. When transporting and working with forms, workers will keep backs straight, knees bent, and loads close to their body. Any load more than 50 lbs., will be lifted by two or more workers or a mechanical lifting device. 2c. Workers will wear hearing protection, face shields and chaps when using all power tools. Fuel powered tools will be fueled away from the work zone in a well-ventilated area. Refueling will be done after a minimum cool down period of 5 minutes. See JSA for applicable cutting tool. 2d. Keep hands away from rigging while hooking/unhooking materials; wear cut resistant gloves.
3. Setup concrete trucks and chute	**3a. CONTACT/CAUGHT:** Potential for truck to contact personnel, fingers to be pinched while setting up chutes. Contact with overhead power lines. **3b. OVEREXERTION:** Strain, pulled muscles.	3a. Spotters will guide concrete trucks into position; wheel chocks will be set before work begins when trucks are parked. Workers will stay out of exclusion zone until truck is parked and secured. Keep hands clear of potential pinch points when assembling chutes. 3a. A minimum clearance of 10 feet shall be maintained from all overhead power lines. That distance may be reduced if shielding is in place or it is determined that lines are low voltage. Refer to site-specific HASP. 3b. All workers will keep back straight and bend their knees when lifting. Two workers or mechanical means will be used when load exceeds 50 lbs.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Pour concrete into forms	**4a. CONTACT:** Splashing from wet concrete.	4a. Portable eye wash stations shall be set up nearby for easy access; wear safety glasses. Nitrile or latex gloves and water proof boots or boot covers shall be worn to eliminate skin contact with concrete. Any concrete splashed onto non-waterproof clothing shall be removed to avoid skin irritation.
	4b. EXPOSURE: Concrete dust.	4b. Stand upwind while mixing dry concrete. Use dust mask or air purifying respirator to avoid silica inhalation.
5. Concrete finishing work with hand tools and/or vibrate to settle and remove air from poured cement,	**5a. ENERGY SOURCE:** Potential for personnel to be exposed to live electricity.	5a. Electrical tools shall be inspected for defects prior to being used. Any extension cords shall be heavy duty rated and be free from defects (no exposed wires). All electrical connections shall be connected to GFCI outlets. Generators shall be run in well ventilated locations.
	5b. OVEREXERTION: Potential muscle strain while vibrating cement, stepping over forms/rebar reinforcements. During use of hand tools to finish concrete, worker can overextend to reach far end of poured area.	5b. Constantly check/observe where you are walking; wear composite or steel-toed boots. Keep back straight and knees bent while settling concrete with vibrator. 5b. If worker needs to reach the far end of a poured area with finishing tools, they shall use extension poles and not over reach to maintain balance. Maintain even footing while using finishing tools. Use spotter during extension pole use.
	5c. CONTACT: Potential hand tools with extension poles/handles to contact nearby workers/pedestrians/vehicles/overhead power lines.	5c. During use of hand tools to finish poured concrete workers will alert work crew. If utilizing extension poles/handles worker will use a spotter to make sure no contact is made with other workers, pedestrians, vehicles or overhead power lines.
6. Cleanup of work area and tools.	**6a. CONTACT/FALL:** Potential slip, trip, and fall on materials and tools left in the work area.	6a. Place additional materials and tools in designated storage areas. Remove any garbage from the work area.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-005	DATE 4/10/2023	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Construction**	**Cutting with Gas-powered Saw, Sawzall or Plasma Cutter**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Ray Greenidge	Sr. Compliance Manager	Brian Hobbs	CHSD

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☒ REFLECTIVE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☒ FACE SHIELD (gas powered saw and plasma cutter) ☒ HEARING PROTECTION ☒ SAFETY SHOES: Steel-toed boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent Long sleeved shirt and / or reflective safety vest	☒ GLOVES: Cut-resistant, leather, nitrile ☒ OTHER: Chaps for gas powered saw. Welding suit for plasma cutting.

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Sawzall/extension cord

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Set up/ Secure work area.	**1a. CONTACT:** Personnel could enter the work area	1a. Establish the work zone using 42" cones, caution tape, or fixed rigid barrier. Inform others of work activity.
2. Precutting procedure.	**2a. CONTACT:** Improper blade, malfunctioning guards, unsecured materials, flying debris	2a. Inspect all equipment for defects, replace or service if not functioning optimally. Check that all guards are working and in place, replace if missing. Ensure that blades are sharp and clean to avoid binding and/or burning. Cut on flat/secure work surfaces. Do not cut badly warped wood or boards with knots or nails. 2a. Unplug saw before handing it off to another person. 2a. Wear safety glasses, long-sleeved shirt and leather gloves. Utilize job specific PPE such as welding jacket or chaps when using gas powered saw or a plasma cutter.
	2b. EXPOSURE: Loud noises, dust, bright UV light	2b. When using gas powered saw, wet down area to be cut prior to cutting if high dust levels are anticipated. 2b. Wear hearing protection. Wear a dust mask if large amounts of dust are expected; cut upwind if possible. 2b. When plasma cutting, wear a face shield with shaded glasses rated to block UV light generated by the plasma cutter.
	2c. ENERGY SOURCE: Potential for electric shock	2c. Inspect extension cord for damage. If damaged, tag out and repair / replace. Do not operate saw while standing in water. Ensure GFCI protection at outlet or via attachment. 2c. Ensure all electrical equipment is rated for the task.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Saw Cutting.	**3a. CONTACT:** Fingers could be cut, lacerated or amputated by reciprocating blade; also flying debris and sparks	3a. Cut away from body. Keep fingers away from moving blade. No loose clothing. Never leave saw running unattended. Unplug saw before changing blades or making adjustments / repairs. Set-up barrier to contain sparks. Cut on flat/secure work surfaces. 3a. Wear Safety glasses 3a. Ensure that the saw blade stops rotating/reciprocating before placing saw on the ground.
	3b. CONTACT: Amputation and line of fire injury.	3b. Maintain a minimum 15-foot exclusion zone and ensure that operator and other personnel are kept out of the line-of-fire of the equipment.
	3c. FALL: Tripping hazards caused by cutting/grinding debris, extension cords.	3c. Keep debris generated in designated storage containers. Keep work area free of Slip, Trip and Fall hazards. 3c. Do not route extension cords through walking/working path.
	3d. EXERTION/ERGONOMICS: Lifting heavy or awkward materials may cause muscle strain.	3d. Maintain Proper Body Position while operating lifting and moving with equipment. Keep load close to body, knees bent, and back straight. 3d. Take frequent breaks or switch personnel if cutting for an extended period of time.
	3e. EXPOSURE: Personnel may be exposed to fire hazard during Hot Work Activities.	3e. Complete Hot Work Permit, Designate Fire Watch. 3e. Conduct work zone inspection: – Verify that all combustible or flammable materials or equipment fuel sources have been removed from within 35 feet of the proposed hot work. – If combustible or flammable materials or equipment fuel sources have not been removed from within 35 feet of the hot work, verify that engineering and procedural controls have been emplaced: curtains, blankets, wetting, ventilation. 3e. Two 20-lb. Type ABC Fire extinguishers required. 3e. Conduct continuous air monitoring / Lower Explosive Limit (LEL) screenings. Action Level: 10% of the LEL. 3e. If ambient air concentrations exceed LEL Action Levels, STOP WORK and contact supervisor. 3e. Wear hard hat, long sleeved-shirt and safety glasses. Utilize job specific PPE such as welding jacket or chaps and welding glasses when using gas powered saw or a plasma cutter.
4. Secure area when leaving tools unattended.	**4a. CONTACT:** Unauthorized personnel may enter the work area	4a. Unplug saw when not being used. Store equipment in designated storage areas when not being used.
	4b. FALL: Slip/trip/fall	4b. Store tool in designated storage location when it is not being used, secure all extension cords, keep all equipment out of walkways. 4b. Keep work area free of Slip, Trip and Fall Hazards.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-006	DATE 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):	
Generic	**Drilling**	**Direct Push Soil Borings / Well Installation**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Timothy Zei	Project Hydrogeologist	Raymond Olson	Office Health & Safety Manager
		Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing, Long Sleeve Shirt	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Geoprobe or Truck-Mounted Direct Push Drill Rig, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Macrocore liners, Liner Opening Tool, 20 lb. Type ABC Fire Extinguisher, 42" Cones & Flags, "Work Area" Signs, Water

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization of drilling rig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed)	**1a. CONTACT:** Equipment/property damage.	1a. The drill rig's tower/derrick will be lowered and secured prior to mobilization. 1a. A spotter should be utilized while moving the drill rig. If personnel move into the path of the drill rig, the drill rig will be stopped until the path is again clear. Use a spotter for all required backing operations. 1a. Set-up the work area and position equipment in a manner that eliminates or reduces the need for backing of support trucks and trailers. 1a. When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver visibility. 1a. Inspect the driving path for uneven terrain. Level or avoid if needed. 1a. Drill rig should have a minimum **exclusion zone which encompasses its tip radius** for non-essential personnel (i.e., driller helper, geologist) when the rig is moving/ in operation.
	1b. FALL: Slip/trip/fall hazards.	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 1b. Use established pathways and walk on stable, secure ground.
	1c. CONTACT: Crushing from roll-over.	1c Geoprobe should cross all hills/obstructions head on with the mast down to reduce risk of roll-over.
2. Raising tower/derrick of drill rig	**2a. CONTACT:** Overhead hazards.	2a. Prior to raising the tower/derrick, the area above the drilling rig will be inspected for wires, tree limbs, piping, or other structures, that could come in contact with the rig's tower and/or drilling rods or tools. 2a. Maintain a safe distance of 10' from overhead structures.
	2b. CONTACT: Pinch Points/Amputation Points when raising the rig and instability of rig	2b. Inspect the equipment prior to use and avoid pinch/amputation points. 2b. Lower outriggers to ensure stability prior to raising rig tower/derrick. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of drilling equipment and well installation	**3a. CONTACT:** Flying debris	3a. Be aware of and avoid potential lines of fire and wear required PPE such as eye, ear, and hand protection.
	3b. EXPOSURE: Noise and dust.	3b. Wet borehole area with sprayer to minimize dust. 3b. Stand upwind and keep body away from rig. 3b. Dust mask should be worn if conditions warrant. 3b. Wear hearing protection when the drill rig is in operation.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of drilling equipment and well installation (Continued)	**3a. CONTACT:** Flying debris **3b. EXPOSURE:** Noise and dust. **3c. FALL:** Slip/trip/fall hazards. **3d. CAUGHT:** Limb/extremity pinching; abrasion/crushing. **3e. CONTACT:** Equipment imbalance during advancement of drill equipment. **3f. EXPOSURE:** Inhalation of contamination/vapors. **3g. EXERTION:** Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags, and/or lifting rods.	3c. Contain drill cuttings and drilling water to prevent fall hazards from developing in work area. 3c. See 1b. 3d. Ensure all Emergency Safety Stop buttons function properly. 3d. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3d. Inspect the equipment prior to use for potential pinch/amputation points. Keep hands away from pinch/amputation points and use of tools is preferable compared to fingers and hands. 3d. Inspect drill head for worn surface or missing teeth; replace if damaged or blunt. 3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position body out of the line-of-fire of equipment. 3d. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3d. Spinning rods/casing have an **exclusion zone of tip radius** while in operation. 3e. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3e. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. 3e. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (**minimum exclusion zone**). 3f. Monitor ambient air for dangerous conditions using a calibrated photoionization detector (PID) to periodically monitor the breathing zone of the work area. 3f. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings and inform the Roux PM of the condition. The Roux PM will then recommend additional precautions in accordance with the site specific health and safety plan. 3f. Use a multi-gas meter to monitor ambient air for dangerous conditions (i.e. unsafe levels of carbon monoxide when drilling indoors or the presence of explosive vapors). 3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects over 50lbs. 3g. Use mechanical lifting device for odd shaped objects.
4. Remove sample liner.	**4a. EXERTION:** Potential for muscle strain/injury while removing liner from probe rod. **4b. CONTACT:** Pinch points and cuts **4c. EXPOSURE:** Inhalation and/or dermal contact with contaminants.	4a Utilize team lifting for objects over 50lbs. 4a. Use hydraulic liner extruder if available. 4b. Place liner on sturdy surface when opening. 4b. Don cut-resistant gloves and use appropriate liner cutter when opening liners. 4b. Always cut away from the body. 4c. Wear chemical-resistant disposable gloves when handling liners. 4c. See 3e.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors). **5b. EXPOSURE:** To chemicals in cleaning solution including ammonia.	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b. 5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-007	DATE 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**General Site Activity**	**Driving**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Valerie Sabatasso	Staff Scientist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT: when outside vehicle ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES: when outside vehicle	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION ☒ SAFETY TOE BOOTS: when outside vehicle	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: high visibility vest, when outside vehicle	☒ GLOVES: Leather/ cut-resistant level 2 ☐ OTHER _____

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Motor Vehicle (i.e. car, truck, SUV)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc. *Common factors that may lead to CONTACT incident, but not limited to: • distracted driving (cell phone, GPS, radio, billboards, "rubber necking") • lack of situational awareness • unfamiliarity with traffic patterns/road layout • weather conditions (wet/icy roads, hydroplaning, black ice) • weariness • high speeds • obstructed vision (solar glare, debris on windshield, blind spots) • changes in travel pathway (construction, snow banks, non-operational signals, potholes, detours, special events) • improper vehicle maintenance (non-operational signal light, worn tires, cracked windshield, ineffective wipers) • loose or unsecure objects	1a. PLAN AHEAD – review/make yourself familiar with maps and driving directions before beginning the drive to the Site. Do not attempt to drive and review maps/directions at the same time. Pull over and stop your vehicle before looking at maps/directions. 1a. Complete a basic vehicle inspection before driving. Verify Inspection and Registration are current, tires and wipers are in good condition, all lights are functional, all glass/mirrors are undamaged, the horn is functional, roof/hood/trunk are free from accumulated snow and visibility is not impaired due to snow/ice/frost/fog on windows. 1a. Do not hang items in car that can obstruct your view or become projectiles in a collision. 1a. Do not get distracted using touch screen radios or GPS units built into newer models. Keep your eyes on the road and stay alert. 1a. Follow posted speed limits and obey traffic signals and roadway signs. 1a. Always wear your seat belt and shoulder harness when driving. 1a. When driving around large vehicles and trucks, maintain extra space as these vehicles may not be able to see a smaller car too close. 1a. Follow the "Rules of the Road" including: using your turn signals, coming to a complete stop, and allowing vehicles the right of way (yield) when they are when traffic laws require. 1a. Apply the Smith Five Keys® of safe driving • Aim High in Steering® - Expand eye lead time to a minimum of 15 seconds • Get the Big Picture® - Maintain proper a 4 second minimum following distance at all times - Scan mirrors every 5-8 seconds to achieve a circle of awareness - Position your vehicle so you can see relevant/non-relevant objects • Keep Your Eyes Moving® - Try to maintain about 180 degrees of visibility - Avoid blank and fixed stares. Avoid focusing on one object for more than 2 seconds • Leave Yourself an Out® - Avoid traveling in traffic clusters - Surround yourself with space - Anticipate the actions of others

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site (cont'd)	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	• Make Sure They See You® - Maintain eye contact with on-coming vehicles/pedestrians - Use warning devices (e.g., hand signals, high-lights, horns etc.) - Proper timing is essential 1a. Do not perform reconnaissance or inspections while driving. Your vehicle should be parked in a safe location when viewing or surveying the Site and vicinity 1a. Avoid sudden turns and stops. Don't drive recklessly – be in control of vehicle at all times. 1a. In inclement weather, first determine if work can be POSTPONED. Otherwise, plan according to weather conditions including checking forecast along entirety of travel route (especially, for long distances). Reduce speed as road conditions warrant. Travelling with winter car equipment, in the winter, is strongly recommended (i.e., shovel, scraper, brush, blanket, extra clothing, flashlight, bag of sand). If your vehicle has 4-wheel drive, review to operators manual and understand operating procedure prior to engaging 4-wheel drive. If at any point on your drive weather becomes too severe to proceed safely pull over if safe to do so or seek nearest cover (e.g., overpass) 1a. If feeling drowsy or sleepy, do not drive. Pull over in a safe place to rest if you experience any signs of drowsiness. Make sure to get adequate sleep the night before an early drive. 1a. Never operate a vehicle under the influence of alcohol or illegal substances or medications affecting your performance. 1a. Keep your eyes on the road. Do not call or talk on cellular phones. Pull over to a safe location if you must answer or make a call. 1a. When parking, pull-through when possible. If backing is required visually inspect area to ensure it is free from obstructions prior to backing in and relying solely on mirrors; use spotters when available.
2. Entering/Exiting Vehicle.	**2a. CAUGHT:** Personal injury (broken fingers/hand) while entering or exiting vehicles **2b. FALL:** Personal injury (twisted ankle, deep contusion, concussion, broken wrist/arm, etc.) from slip/fall on uneven or unstable or slippery surface while exiting/entering vehicle **2c. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	2a. Open and close doors slowly. Never put hands or feet in between door and vehicle to avoid pinch points. 2b. When exiting the vehicle make sure your feet are on firm footing and weight is evenly distributed before exiting/standing. In inclement weather use hands to support yourself, by holding the car door and/or steering wheel, when exiting the vehicle. 2c. Check both directions for traffic before opening door. Do not exit vehicle if traffic does not permit you to exit safely 2c. Check anticipated path of door prior to opening, do not open door into any obstructions (e.g., bollards, high curbing)

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-009	DATE: 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 1

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**O&M**	**Movement of 55-Gallon Drums/Drum Handling with Mobile Carrier**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Michael Sarni	Technician	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant gloves
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent long sleeve shirt or long sleeve shirt and reflective safety vest.	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel or composite toe		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Mobile Drum Carrier, safety cones, and caution tape

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around heavy equipment (i.e. forklift).

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Preparing for and Inspection of Drum	**1a. FALL:** Tripping/falling due to uneven surface. Loose debris/garbage in work area.	1a. Clear area of loose garbage and debris. Inspect 55-gal drums for proper condition, labeling, check drum ring and bolts for tightness, inspect mobile drum carrier. 1a. Do a Test Lift to get a general sense of the weight of the drum. 1a. Inspect and use established pathways to avoid uneven terrain, weather-related hazards (i.e., debris, puddles, ice, etc.), and other obstructions. 1a. Secure work area and coordinate and communicate the planned work activities with other personnel working in the area. 1a. Delineate work area with 42" safety cones.
	1b. CONTACT/EXPOSURE: Drums could potentially be damaged or contain hazardous material. Mobile drum carrier could potentially be in poor working condition causing malfunctioning during operation.	1b. Prior to inspecting drums don cut-resistant gloves. If drum is not properly labeled, do not open and cease all drum transport activities. Immediately contact project manager and inform him/her of drum situation. 1b. Do not continue drum transport activities until further actions are determined by the project manager. 1b. If the drum is properly labeled, but leaking, improperly sealed or in poor condition, place drum in an over-pack drum. 1b. Inspect mobile drum carrier to ensure its overall integrity. Look for rust marks or potential weak points where the drum carrier could malfunction. Inspect the wheels to ensure that they easily turn and nothing is impeding their movement.
	1c. EXERTION/CAUGHT: Potential pinching/exertion hazards while securing ring/ tightening bolts	1c. Keep back straight and knees slightly bent while securing drum ring/tightening bolt. Wear cut-resistant gloves.
2. Position drum clamp tightly in between drum ribs, securing drum clamp to drum with chain	**2a. CAUGHT:** Pinching fingers between drum clamp and handle/chain.	2a. Attach drum clamp with chain and tighten until snug. Do not place hands between drum clamp and drum as the chain is tightened; wear cut resistant gloves. Keep face away from drum when handling in case of escaping vapors.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Disengage safety latches on handle, pull handle down until drum is lifted off ground and safety latches are reengaged; slightly suspending drum off the ground	**3a. EXERTION/ CONTACT:** Potential muscle strain associated with lifting/engaging drum/handle. Drum could shift/slip downward and crush toes.	3a. Ascertain whether the drum is overweight; if it is, then two people are needed to lower handle while drum is secured with clamp so that safety latches can be engaged. Keep body out of the line of fire of the handle (do not position head above handle) as it is being pushed down. Do not allow feet/toes to be positioned under the drum as it is being lifted; wear steel/composite toe boots.
	3b. CAUGHT: Fingers could be pinched while engaging/disengaging safety latches on handle	3b. Wear cut-resistant gloves while disengaging/reengaging safety latches. 3b. Avoid placing hands in pinch points.
4. Transport drums to designated location and disengage drum clamp (repeat Step 3 in reverse order)	**4a. FALL:** Tripping/ falling due to obstructions and uneven terrain. Potential for drum to fall during transport.	4a. Ensure transport path is free of potential obstructions that may cause the drum/carrier to become unstable. Position drum clamp between the ribs on the drum to prevent possible slipping.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-011	DATE: 4/10/2023	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Construction - Excavation**	**Excavation / Trenching**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
David Kaiser	Senior Engineer	Brian Hobbs	CHSD
Tim Unalp	SHSO		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather or cut resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☒ LONG SLEEVED SHIRT	☒ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility long sleeved clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Jackhammer, Excavator, Backhoe, Hand Tools, Photoionization Detector, barrels, 42" traffic cones, snow fencing, telescoping poles, temporary chain link fence, ladders, shovels, digging bars, power tools (cut-off saw), Two-way radios, Sheeting, Trench box, Retractable lanyard, Harness

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or footprint of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Pre-Clearance Protocol.	**1a. CONTACT:** Damage to underground utility.	1a. Confirm that (if applicable) "Call Before You Dig" and local utility companies were contacted prior to trenching in order to confirm utility mark outs. Must have a case # before digging.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	1b. Pre-clearing of the trenching location must be conducted to a minimum of 5 vertical feet below the ground surface (10 feet minimum for Critical Zone) using soft digging methods or hand tools (shovel and non-metallic dig bar) prior to trenching. Supervisor should be contacted to discuss appropriate pre-clearing depth. **1b. Complete subsurface clearance checklist**.
	1c. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within established pathway avoiding uneven surfaces. Remove potential slip/trip/fall hazards.
2. Set up work zone.	**2a. CONTACT/CAUGHT:** Cuts/lacerations from equipment. Broken bones from contact by vehicle.	2a. Isolate work area from hazards with cones, barricades, and snow fencing, telescoping poles or temporary chain link fence. Utilize a flag person when necessary (i.e., third party traffic in area). Install traffic signs in roadways and for detours. Spotters will maintain and enforce exclusion zone.
	2b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	2b. See 1c.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Trenching Activity.	**3a. CONTACT:** Serious injury including broken bones, muscle strains or tears, and possibly death due to contact with machine.	3a. Spotter(s) required for all heavy equipment operation. No worker shall be allowed inside the exclusion zone or along the trench/excavation area while any equipment is in operation. A minimum exclusion zone greater than the length of the equipment boom must be established. Workers only allowed in exclusion zone if the operator is in "Hands Off "mode. Operator will not operate equipment until worker is out of exclusion zone. Spotters and operators will have radios for communication, when either loses sight of one another, and/or in case of emergency.
	3b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones	3b. Any trench/excavation deeper than 3' must have a ladder within 25' of any worker in the excavation. At least 3'(rungs) of the ladder shall be above the top of the excavation. All spoil piles shall be maintained 2' minimum from edge of excavation. 3b. Any trench/excavation deeper than 6' must have fall protection, retractable lanyard for ladder use, and 42" high guardrails along the edge of the trench/excavation.
	3c. EXPOSURE: Noise, Dust, Concrete- Asphalt, petroleum hydrocarbon vapors may cause damage to ears and lungs	3c. Air monitoring using a calibrated photoionization detector (PID) will be used to monitor the breathing zone of the work area. If a reading of >5ppm is recorded, the oversight personnel must temporarily cease work and instruct all Site personnel to step away from the area of elevated readings.
4. Setting Trench protections if necessary.	**4a. CAUGHT:** Injury due to contact with failed trench, may include muscle strains or tears, abrasions or lacerations, broken bones and possibly death.	4a. To prevent cave-ins and avoid caught by/between, excavations over 4' in depth, unless working in stable rock, shall have engineer approved shoring, sheeting or trench box. Top of protection shall be at least 2' above top of excavation.
	4b. CONTACT/CAUGHT: Injury due to rigging activities and entering exclusion zone during lifting and/or transport of shoring/trench box/material may include muscle strains or tears, abrasions or lacerations, broken bones and possibly death.	4b. Use only inspected rigging with 2, 3 or 4 lift points; wear cut-resistant gloves. Rigging to be hooked up to factory installed hook up points on equipment. Control load with non-conductive tag lines with workers out of exclusion zone. Don't stand underneath suspended load; wear steel toed boots and hard hat.
	4c. FALL: Possible injury due to fall into excavation may include muscle strains or tears, abrasions or lacerations, or broken bones.	4c. Shoring to be set and sides will be backfilled to avoid fall hazards before workers are allowed to enter area. Operator will be in "HANDS OFF" mode before workers enter work area to unhook rigging. An inspected ladder extending 3' above top of the shoring will be used to enter and exit the excavation. Workers will use three points of contact when using the ladder.
5. Secure/Leave Site. If backfilling, see excavation backfilling and compaction JSA for potential hazards and critical actions.	**5a. FALL:** Potential Slip, Trip or Fall - may cause muscle strains or tears, abrasions or lacerations, or broken bones.	5a. See 1c. 5a. All open excavations must be backfilled or secured prior to departure with steel plates, orange construction fence or temporary chain link fencing.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-014	DATE: 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):	
Generic	**Drilling**	**Hollow Stem Auger Soil Borings / Well Installation**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Douglas Ferraiolo	Staff Geologist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☒ GOGGLES: Spoggles required if winds exceed 15 mph. ☐ FACE SHIELD ☒ HEARING PROTECTION: (as needed). ☒ SAFETY SHOES: Steel or Composite Toe.	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent long-sleeve shirt or long-sleeve shirt and reflective safety vest.	☒ GLOVES: Leather, Cut-Resistant, and Nitrile. ☒ OTHER: Insect Repellant, Sunscreen (as needed).

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Truck-Mounted Drilling Rig or Track Rig, Saw, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Interface Probe, 20 lb. Type ABC Fire Extinguisher, 42" Cones & Flags, "Work Area" Signs.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization / demobilization and establish a work area.	**1a. See Mobilization/ Demobilization JSA GEN-015.**	1a. See Mobilization / Demobilization JSA GEN-015.
2. Raising tower / derrick of drilling rig.	**2a. CONTACT:** Overhead hazards. **2b. CONTACT:** Amputation / crush points when raising the rig and instability of rig.	2a. Prior to raising the tower / derrick, the area above the drilling rig will be inspected for overhead hazards (wires, tree limbs, piping or other structures) that may be contacted by the rig's tower or drilling rods. 2a. The tower / derrick must not be raised beneath overhead power lines unless approved by the Roux PM. 2a. Maintain a minimum of 10' from all overhead structures. 2a. Do not move the rig while the tower / derrick is raised. 2b. Inspect the equipment prior to use and avoid any potential amputation points. 2b. Lower outriggers to ensure stability prior to raising rig tower derrick. Keep feet and body out of the line of fire when lowering out-riggers. 2b. Inspect the set-up location for uneven terrain. Level or avoid area if needed. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of augers for soil boring installation.	**3a. CONTACT:** Equipment imbalance during advancement of drill equipment. **3b. CONTACT:** Flying / spraying debris. **3c. CAUGHT:** Limb/extremity amputation, abrasion, and crushing.	3a. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and / or tip. 3a. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. **3a. Drillers will maintain the "Purple Zone" policy surrounding augers to ensure no personnel come into contact with augers while in use. Workers will spray paint a 3' semi-circle surrounding the augers to visually show that no personnel should enter the "Purple Zone" while drilling activities are being conducted.** 3a. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (minimum exclusion zone of 20 feet). 3b. Wear all required PPE (especially hand, eye, and ear protection). 3b. Maintain minimum EZ distance (i.e. swing/tip radius of rig) when rig is in operation to avoid potential line of fire hazards from flying materials or debris. 3c. Inspect the equipment prior to use for potential pinch points. 3c. Test all emergency shutdown devices prior to drilling. 3c. Inspect drill head for worn surface or missing teeth; replace if damaged or blunt. 3c. Inspect augers, do not use if auger flight is damaged or bent.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of augers for soil boring installation (Continued).		3c. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3c. All non-essential personnel should stay away from the immediate work area; position body out of the line-of-fire of equipment particularly when installing auger flights and steel override casings. 3c. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3c. Spinning augers should have an exclusion zone of 20 feet when in operation.
	3d. FALL: Slip/trip/fall hazards.	3d. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 3d. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3d. Use established pathways and walk on stable, secure ground. 3d. Use three points of contact when mounting or dismounting the rig. 3d. Remove soil cuttings to avoid a tripping hazard from developing near augers.
	3e. EXPOSURE: Inhalation of contamination / vapors.	3e. Air monitoring using a calibrated photoionization detector (PID) to periodically monitor the breathing zone of the work area. 3e. The Action Level for breathing zone air is five parts per million (sustained) as detected by the PID. 3e. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings and inform the Roux PM of the condition. The Roux PM will then recommend additional appropriate precautions in accordance with the site specific health and safety plan.
	3f. EXPOSURE: Noise and dust.	3f. Wet borehole area with sprayer to minimize dust. Stand upwind and keep body positioned away from rig. 3f. Wear hearing protection while drill rig is operating and / or the noise levels exceed 85 dBA.
	3g. EXERTION: Installing well casings and lifting augers.	3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects over 50lbs. 3g. Use mechanical lifting device for odd shaped objects.
4. Installation of well materials.	**4a. CONTACT:** Installing well materials while also pulling up augers. **4b. CAUGHT:** Possible pinch or crush hazard assembling PVC and sending down the borehole. **4c. FALL:** Slip/trip/fall hazards with hand tools and materials. **4d. EXPOSURE:** Potential contamination, harmful vapors, dust, and / or noise. **4e. EXERTION:** Lifting heavy bags of materials to backfill borehole.	4a. Potential contact with augers during installation of well materials. 4a. Keep distance from augers and do not place any materials while augers are in motion. 4b. Keep all body parts out of potential pinch points while placing PVC together and sending down borehole. 4c. See 3d. 4d. See 3e and 3f. 4d. Stand upwind to avoid exposure to dust generated from packing materials. 4e. Ergonomic hazard lifting bags of sand and bentonite while packing the well.
5. Cleaning the auger flights	**5a. CONTACT:** Cuts/scrapes or puncture wound from contacting auger.	5a. Follow "Show Me Your Hands" Procedure and make sure auger is out of gear before contacting auger with tool or hand. 5a. Pull cleaning tool across your body with handle away from body; do not push toward the auger. 5a. Do not clean more than ¾ turn around the auger at a time. 5a. Wear cut resistant and leather gloves. 5a. Always use two hands to operate cleaning tool. 5a. Inspect tool before use and remove from service if handle or metal are cracked/fatigued. 5a. Stand out of the line of fire.
6. Decontaminate equipment.	**6a. EXPOSURE / CONTACT:** To contamination (e.g., contaminated groundwater, vapors). **6b. EXPOSURE**: To chemicals in cleaning solution (including ammonia).	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Contain decontamination water so that it does not spill. 6a. Use an absorbent pad to clean spills, if necessary. 6b. See 3e. Wear all appropriate PPE and stand upwind of any exposed cleaning solutions.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-018	DATE: 4/10/2023	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description) :
GENERIC	**Construction**	**Installing and Working on Scaffolding**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Tom Henderson	Senior Scientist	Brian Hobbs	CHSD
Nick Cuomo	Senior Technician		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☒ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Safety-toed boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Reflective vest, Long sleeve shirt	☒ GLOVES: Leather, Level 2 Cut Resistant ☒ OTHER: Personal Fall Arrest System (PFAS) or Fall Prevention System (PFS)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Caution tape, 42"-high cones/barricades, scaffolding, ladders, signage, and hand tools.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure work zone.	**1a. CONTACT:** Struck By pedestrian and/or vehicular traffic entering the work area.	1a. Define work **EZ** around scaffold construction area excluding equipment staging areas. Expand EZ for tip over distance, if needed. Use 42" cones, barricades, "Caution" tape, and warning signage. Communicate task to surrounding workers. Only designated workers donned with required standard PPE (including Level 2 cut-resistant gloves) allowed entry to EZ.
	1b. FALL: Slip/trip/fall hazards in EZ.	1b. Remove material and equipment obstructions from walkways and store in designated staging areas.
	1c. EXPOSURE: Potential hazardous atmosphere.	1c. Conduct air monitoring using direct-reading instruments.
	1d. ENERGY SOURCE: Electrocution (if applicable).	1d. Conduct LO/TO procedures; Engage Public Utility to cover, relocate, or remove overhead electric lines prior to Work Zone entry. Follow HASP and OSHA Standard 1926.451(f)(6) for required specific clearance distances.
2. Unload scaffolding components.	**2a. CONTACT:** Lacerations, cuts, and abrasions.	2a. Wear ANSI Level 2 cut-resistant gloves if pre-work material inspection yields sharp edges.
	2b. CAUGHT-CRUSHED: Fingers / hands in pinch points.	2b. Position your fingers/hands where they can't be caught between a lifted load and adjacent objects. Wear leather gloves to protect from pinching/crushing.
	2c. FALL: Fall from height;	2c. Ascend/descend materials from/onto delivery truck-bed using 3-points of contact; If the truck bed does not have a built-in ladder, use an A-frame step ladder of sufficient height that the worker will not need to use the top 2 steps;
	Trip/fall while moving equipment into position.	2c. Keep materials, scaffolding, and hand tools in designated staging area(s) until needed to avoid clutter and trip hazards.
	2d. ERGONOMICS: Strain from moving material into position.	2d. Use buddy system or lifting-apparatus when lifting materials heavier than 50-lbs. Use proper lifting techniques including straight back, bent knees, load-weight near body, don't reach/extend load away while handling/moving components, avoid twisting.
3. Inspect scaffolding components prior to set-up.	**3a. FALL:** From damaged or malfunctioning scaffold components.	3a. Designate **Competent Person (CP)** for this task: _____ (insert name above). **CP** responsibilities**:** - Remains on-site for all phases of scaffold work. - Inspects scaffold components including wheels, brakes, connections, pins, framing, platforms, guard rails, and ladders per OSHA 1926 subsection L. - Trains workers to erect the scaffold structure, hazard-recognition, scaffold's safe use, fall prevention / protection, load capacities, falling objects, electrical hazards, access, maintenance, operation, repair, dis-assembly, use of ties/braces, inspection. - Uses only manufacturer-supplied braces and hardware (no substitutions). - Removes damaged components from service. - Tags scaffold to alert workers of its condition.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Scaffold assembly (erecting / moving scaffolding from ground level).	**4a. CONTACT:** STRUCK-BY materials/ tools/ equipment falling from scaffold platform causing bone fractures, lacerations, cuts, abrasions.	4a. **Maintain 10' EZ** minimum or tip-over radius (where possible) around the scaffold erection area; Set up scaffolding on firm, level surfaces. Use leveling jacks to provide stable base and eliminate scaffold movement. 4a. Wheeled-base scaffold wheels to remain locked except during relocation. Workers must disembark with tools during repositioning, and then relock wheels. 4a. While working over 6ft, ensure that hand tools and equipment are securely tied off using rated rope or a lanyard to prevent contact with ground workers. 4a. Use only manufacturer-supplied braces and hardware (no substitutions). 4a. When hoisting materials overhead to workers verify rope is free of rips or tears and has appropriate weight rating. Verify materials are securely fastened with rope. 4a. Wear required PPE including hard hat, safety glasses, reflective vest, safety-toe boots, long sleeve shirt, PFAS harness with lanyard attached to approved anchor points.
	4b. CAUGHT-CRUSHED: Pinch point during scaffold assembly.	4a. Use manufacturer-approved platforms (18"-width minimum) or marked, scaffold-grade planking so that the working platform surface is filled between the front uprights and the guardrails. 4a. Gaps between the uprights/platforms/planks not to exceed 1". 4" high toe-boards are required to prevent objects from falling from decking to lower levels. 4b. Keep fingers/limbs away from pinch points and frame-work connections during assembly. Wear leather gloves for hand protection.
	4c. FALL: From Ladder / End-frame / Stair access to platform while ascending / descending Fall due to Elevated Platform Failure Fall from elevation. Fall due to Scaffold failure.	4c. Use ladder / built-in scaffolding end-frame steps / stairs to ascend and descend scaffolding, ***NOT*** cross-bracing. Ladders must be inspected, clear scaffolding platform by a 3'-minimum, and be tied-off. Maintain 1:4 slope ratio, 3-points of contact while ascending/descending, with weight centered between rails. Install swing gates at scaffold staircases (if staircases are used). 4c. Use only "Scaffold-Grade" marked planking; Planking to overlap frame-work edges 6"-12" ***only***; Install cross braces in all sections except access and material-delivery points; Scaffolding to be tied into work-face for every 30' in elevation; Working platform must be within 14" from work-face. 4c. Personal Fall Arrest Systems (PFAS) to be used above 6'; Fall protection anchor point installations (excluding the scaffold being worked from) prioritized after platform assembly and used; Calculate that fully deployed PFAS will not allow user to touch the ground during potential falls. 4c. If scaffold tiers are erected above workers *and* OSHA compliant top-rails (42"), mid-rails (21"), toe-boards (4") are employed, safety harnesses are not required; CP conducts final inspection of completed scaffold structure prior to use verifying correct assembly/securement, pins are in "locked" position.
	4d. EXERTION: Muscle strain while moving/lifting materials.	4d. Employ buddy system or lifting-apparatus when lifting materials heavier than 50-lbs; Use proper lifting techniques including straight back, bent knees, load/weight near body, don't reach/extend/twist with load while handling components.
	4e. ENERGY SOURCE: Electrocution (if applicable)	4e. Verify that no energy sources (electric wires, cables) either contact scaffolding or come within OSHA/HASP specified distances of workers or scaffold. Use LO/TO to ensure that hazardous energy cannot be transmitted to the conductive scaffold framework prior to assembly.
5. Working on scaffolding.	**5a. CONTACT:** Struck-by objects falling from scaffolding / ladder.	5a. See JOB STEP 4a; Remove unnecessary tools/materials from scaffolding, returning them to designated staging areas. Inspect work zone for head-knocker and trip hazards.
	5b. FALL: Fall from elevation. Fall during scaffold collapse due to overloading. Slip/fall due to slick surfaces.	5b. See JOB STEP 4c; **CP** to conduct daily, pre-work, scaffold inspection; Workers climbing on scaffolding will use 3-points of contact; Ensure PFAS lanyards secured to approved anchor points (excluding the scaffold being worked from, or other scaffold-framework-struts). **CP** to review manufacturer's weight-loading specifications / restrictions for workers and materials, communicate limitations to the work crew, and periodically verify adherence to the specifications. **CP** and workers to inspect/assess for slick, wet, or iced (outdoor) surfaces continually during use due to changing conditions, mitigate hazards, and/or restrict access and post warnings.
6.Disassemble scaffolding.	**6a. CONTACT:** Struck-by falling tools / materials.	6a. Clear scaffolding of debris, tools, and materials prior to dismantling; Dismantle scaffolding by working backwards from the farthest point towards the access location; Plan/verify a route of egress prior to dismantling.
	6b. FALL: Slip/trip hazards resulting from inadequate house-keeping.	6b. Remove fall protection (mid-rail, top-rail) only after removing cross braces; Ensure that all personnel are aware that the particular tier of scaffolding is being dismantled; If fall protection anchor points have been removed, maintain safe distances from scaffolding platform edges, and only under a Supervisor's observation.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-019	DATE: 7/10/2020	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Site Walk and Inspection**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Sara Barrientos	Staff Geologist	Brian Hobbs	Corporate Health and Safety Manager
		Joe Duminuco	Vice President

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: ear plugs as necessary ☒ SAFETY SHOES: Steel or composite toed	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: High-visibility vest or high-vis outerwear	☒ GLOVES: Leather/cut-resistant/chemical resistant ☒ OTHER: Tyvek and rubber boots as necessary, dust mask as necessary

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Site map, emergency contact list, documentation of urgent care/hospital routes and / or guide familiar with Site, operating cell phone or walkie-talkie if Site allows.

Commitment to Safety – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

SITE SECURITY: Prior to site inspection verify appropriate method to address Site Security concerns as it relates to potential criminal activity, homeless population, and/or isolation concerns. Work with the Project Principal and/or Project Manager to address appropriately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with Site contact.	**1a. CONTACT/EXPOSURE/FALL:** Personal injury caused by lack of site specific hazards.	1a. Inquire about hazards and other activities taking place at the Site. 1a. Inform Site contact of work scope, timeline and location(s). 1a. Discuss emergency evacuation procedures and muster points with Site contact.
2. Traversing the Site	**2a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles or unauthorized personnel at remote Sites. **2b. FALL:** Uneven terrain and weather conditions. Overgrown shrubs and vines. Equipment in the work zone. **2c. OVEREXERTION:** Muscle strain while carrying equipment. **2d. EXPOSURE:** Biological hazards – ticks; bees/wasps; poison ivy; insects; (Ticks are most active any time the temperature is above freezing, typically from March to November.)	2a. All equipment must be stowed and secured prior to moving. 2a. Maintain speed limit as posted on-site. 2a. When possible drive on established roadways. 2a. Yield to all pedestrians. 2a. Use pull-through spots or back into parking spots. 2a. Don high visibility clothing/safety vest. If working at remote Site, add orange accessories during hunting season. 2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 2b. When possible, use established pathways and walk on stable, secure ground. 2b. Communicate traversing hazards with others. 2c. When carrying equipment to/from work area, use proper lifting techniques; keep back straight, lift with legs, keep load close to body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use mechanical assistance or make multiple trips to carry equipment. 2d. Inspect area to avoid contact with biological hazards. 2d. Ticks: • Treat outer clothing including pants, shirts, socks, boots and hats the evening before with Permethrin (allowing at least two hours before use). • Apply DEET to exposed skin before travelling to the Site and reapply after two hours. • Check for ticks during and after work. 2d. Bees: • Use bee spray as appropriate to deter/eliminate bees. • Protect exposed skin with insect repellent.

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	2e. EXPOSURE: Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	2d. Poison Ivy: • Identify areas of poison ivy and spray with weed killer. Don Tyvek and rubber boots while traversing poison ivy areas. • If skin contacts poison ivy, wash skin thoroughly with soap and water. 2e. Wear sunscreen with SPF 15 or greater on exposed skin whenever 30 minutes or more of sun exposure is expected. 2e. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 2e. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 2e. Wear appropriate rain gear as needed. 2e. Take frequent breaks if tired, wet, or cold/hot. Drink water. 2e. If lightning is observed, wait 30 minutes after last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
3. Walking near heavy equipment and machinery.	**3a. CONTACT:** Personal injury from Site and roadway traffic. Personal injury from flying debris **3b. OVEREXERTION:** Personal injury from lifting/moving/rotating equipment. **3c. EXPOSURE:** Hearing damage from noise generating equipment/processes. Inhalation/exposure to hazardous vapors and or dust. **3d. EXPOSURE:** Working in a remote area.	3a. See 2a. 3a. Maintain an exclusion zone of at least 10'-25' feet from all engaged equipment. 3a. Keep body parts out of the line of fire of pinch points. 3a. Wear appropriate PPE always. 3b. See 2c. 3c. Wear hearing protection if >85 dBA. (i.e. noise levels which require you to raise your voice to communicate) 3c. Always wear leather gloves when handling any tools or equipment. 3c. Always wear appropriate PPE based off chemicals present. 3d. Use the "buddy system" whenever possible. If working alone, contact PM upon arrival/departure, as well as during work activities prior to commencing work if applicable. 3d. Always carry a communication (i.e., cell phone, walkie-talkie) or directional (i.e., map, compass, etc.) device when traversing remote areas.
4. Working in adverse weather conditions.	**4a. EXPOSURE:** Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	4a. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 4a. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 4a. Wear appropriate rain gear as needed. 4a. Take frequent breaks if tired, wet, or cold/hot. Drink water. 4a. If lightning is observed, wait 30 minutes after last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
5. Departing Site.	**5a. EXPOSURE:** Exposure to unnecessary hazards should personnel believe Roux is on-Site during an emergency and conduct a search.	5a. Sign out or notify Site contact and Roux Project Manager of your departure.

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JOB SAFETYANALYSIS Ctrl. No. GEN-020	DATE: 8/6/2018	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY: **GENERIC**	WORK TYPE: **Gauging & Sampling**	WORK ACTIVITY (Description): **Soil Sampling**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
MaryBeth Lyons	Project Scientist	Brian Hobbs	Corporate Health and Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES ☒ FLAME RESISTANT CLOTHING (as needed)	☐ GOGGLES ☐ FACE SHIELD: ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Recommended Equipment: 42" traffic cones, caution tape, trowel

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around moving equipment, if present.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure location	**1a. CONTACT:** Personnel and vehicular traffic may enter the work area.	1a. If in an area with foot or vehicle traffic, delineate the work area with 42" traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 1a. Wear reflective vest and/or high visibility clothing. 1a. Face the direction of any vehicular traffic. Position vehicle to protect worker from traffic. 1a. Communicate work activity with adjacent work areas.
	1b. FALL: Tripping/falling due to uneven terrain or entry/exit from excavations.	1b. Inspect pathways and work area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions. 1b. Use established pathways and walk on stable, secure ground. 1b. Stage equipment and tools in a convenient, stable, and orderly manner. Store equipment at lowest potential energy. 1b. Roux employees should stay 5 feet from in-progress excavations and trenches. Should entry to an excavation be required (when stabilization is complete), ladders must be employed for steep embankments, excavations, pits, and trenches.
	1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion or heat stroke. Exposure to cold temperatures possibly causing cold stress. Skin burn as a result of fire, if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne dust due to high wind speeds. Biological hazards - ticks, bees/wasps, poison ivy, thorns, insects, etc.	1c. Wear sunscreen with an SPF 15 or greater whenever 30 minutes or more of exposure is expected. 1c. Use a tent to shade the work area from direct sunlight particularly when warm temperatures are expected. 1c. Be aware of the location of all Site personnel. 1c. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). 1c. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). 1c. Take breaks for rest and water as necessary. Move to an area that is well shaded or a climate controlled area (i.e., car, site trailer, etc.). 1c. No open flames/heat sources. 1c. Flame retardant clothing must be worn when specified by Site policy. 1c. Cell phones should be disabled when specified by Site policy. 1c. Pre-treat field clothing with Permethrin prior to site visit to kill ticks and insects. 1c. Wear long sleeved shirts and tuck in (or tape) pant legs into socks or boots to prevent ticks from reaching skin. 1c. Spray insect repellant containing DEET on exposed skin when working in overgrown areas of the Site. 1c. Inspect area to avoid contact with biological hazards. 1c. Wear cut-resistant gloves when handling branches, shrubs, etc. that may lie within the walking path. 1c. Wear spoggles if the average wind speeds are above 15 mph. 1c. Personnel shall examine themselves and co-worker's outer clothing for ticks periodically when onsite. 1c. If skin comes in contact with poison ivy, wash skin thoroughly with soap and water. If rash persists after washing, immediately notify your supervisor, the OM and OHSM for possible consultation with a physician at an approved Occupational Health Clinic.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Collect Soil Sample	**2a. CONTACT:** Personal injury from pinch points, cuts, and abrasions from sampling equipment tools, and material within soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. 2a. Where possible, use trowel or equivalent tool to avoid contact with soil. 2a. If sampling from bucket of heavy equipment, ensure all equipment is off and operator utilizes the “show me your hands” policy. 2a. See 1a.
	2b. EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. Wear chemical-resistant (nitrile) disposable gloves over cut resistant gloves to protect hands when handling samples; use containment material or plastic sheeting to protect surrounding areas. 2b. Wear safety glasses to protect eyes from dust or air-borne contaminants that may results from disturbing the soil. 2b. Where possible, remain upgradient from sample location if collecting soil sample from stockpile, drill rig, etc. to avoid breathing contaminant vapors, if they are present. 2b. When collecting soil sample from hand auger, put large zip lock bag over entire auger to prevent spillage of soil on to the ground. 2b. Open sample jars slowly and fill carefully to avoid contact with preservatives.
	2c. EXERTION: Exertion due to repetitive motion and ergonomics.	2c. Utilize a table or raised surface for soil sampling if multiple soil samples are going to be taken to minimize repetitive bending motion.
3. Decontaminate equipment	**3a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated vapors and/or soil).	3a. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3a. Use an absorbent pad to clean spills. 3a. Properly dispose of used materials/PPE in provided drums in designated drum storage area. 3a. Remain upwind of sample and avoid breathing contaminant vapors, if they are present.
	3b. EXPOSURE: Chemicals in cleaning solution including ammonia.	3b. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3b. Work on the upwind side of decontamination area. 3b. Use an absorbent pad to clean spills. 3b. Properly dispose of used materials/PPE in provided drums in designated drum storage area. Ensure that all drums are properly labeled and secured.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-021	DATE: 8/6/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE	WORK ACTIVITY (Description)	
GENERIC	**Gauging and Sampling**	**Soil Vapor Sampling (Permanent Monitoring Points)**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Jeff Wills	Project Hydrogeologist	Brian Hobbs	Corporate Health and Safety Manager
Julie Moriarity	Project Scientist		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant & Nitriles
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: Bug Spray, Sun Screen, Knee Pads or kneeling pad
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel-toe boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

9/16" Socket and Wrench, Non-Toxic Clay, Teflon-Lined Tubing, Masterflex Tubing, Air Pump with Low Flow, Dry Cal, Enclosure (Bucket with 2 holes), Helium Gas Canister, Summa Canisters and Flow Controllers, MultiRae Photo Ionization Detector (PID), Helium Detector, Tubing Cutter, 42-inch Safety Cones, Caution Tape or Retractable Cone Bars

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): A 5-foot exclusion zone will be maintained for non-essential personnel.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Define and secure work area.	**1a. FALL:** Potential tripping hazards.	1a. Ensure work area is secure and inform others (third party) of work activity. 1a. Remove tripping hazards and inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment.
	1b. CONTACT: Potential contact with moving vehicles or pedestrians.	1b. If working alongside roads, look both ways before entering roadways, face traffic, and utilize work vehicle to protect employees. 1b. Delineate work area (including vehicles) with traffic safety cones and caution tape or retractable cone bars. 1b. Maintain a 5-foot exclusion zone. 1b. Wear high visibility clothing or reflective safety vest.
	1c. EXERTION: Muscle strain while lifting and carrying equipment.	1c. When carrying equipment to/from work area, keep back straight, lift with legs, keep load close to body, never reach with a load. Ensure that loads are balanced. Use mechanical assistance/make multiple trips to carry equipment.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Remove well cover / close well cover.	**2a. CONTACT/CAUGHT:** Pinch points and scrapes associated with hand tools and well covers. **2b. FALL:** Potential tripping hazards associated with installing bolts. **2c. EXERTION:** Physical exertion to remove bolts that were over torqued or stripped.	2a. Keep hands away from pinch points. 2a. Use hand tools with extensions to remove and replace well covers. 2a. Wear cut-resistant gloves. 2a. Use knee pads or kneeling pad when repetitive kneeling on rough ground is anticipated. 2b. Place security bolts in secure location so not to create tripping hazards. Replace security bolts so that they fit flush with monitoring well covers. 2c. Replace any security bolts that show signs of stripping. Do not over tighten. 2c. Use body positioning and bending techniques that minimize muscle strain; keep back straight, bend at the knees. 2c. See 2a.
3. Screen vapor point with PID.	**3a. FALL:** Potential tripping hazards associated with equipment. **3b. EXPOSURE:** Inhalation of soil vapor	3a. Place equipment in one area close to the sampling location. 3b. Identify area where equipment is to be stored within the work area (away from main walking path). 3a. Don't leave equipment on the ground. Return equipment to storage area between uses. 3b. Replace brass caps immediately upon completion to avoid soil vapors migrating to the surface through sample tubing. 3b. Stand upwind of sample point during screening activities.
4. Remove / replace brass caps at the end of the sam`ple tubing.	**4a. CONTACT:** Pinch points associated with hand tools and brass caps. **4b. EXPOSURE:** Potential pathway for vapors to migrate to land surface.	4a. Use wrench to remove and replace brass caps. 4a. Wear cut-resistant gloves to protect against pinch points and scrapes. 4b. See 3b. 4b. Stand up wind of sample point location.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
5. Set up soil vapor sampling equipment and calibration of meters.	**5a. FALL:** Potential tripping hazards associated with equipment and tubing.5b. **5b. CONTACT:** Pinch points associated with handling equipment. **5c. EXPOSURE:** Inhalation of calibration gas and helium.	5a. See 3a. 5a. Keep tubing slack to a minimum and locate the summa canister as close to the sampling location as possible. 5a. Avoid stepping over equipment and tubing. 5b. Do not place fingers/hands under sampling equipment. 5b. Make multiple trips when unloading equipment in work area. 5b. Wear cut-resistant gloves to protect against pinch points while handling sampling equipment. 5c. Review SDS for each type of calibration gas used before calibrating. 5c. Calibrate meters in a well-ventilated area and keep air flow regulator away from face. 5c. Close valve on canisters after use to avoid inhalation of excess helium or calibration gas. 5c. Stand up wind of bucket during helium tracer gas test.
6. Cleaning Work Area.	**6a. FALL:** Potential tripping hazards associated with equipment and tubing. **6b. CONTACT:** Storing and transport of equipment in car.	6a. See 3a. 6a. See 3b. 6b. Ensure that equipment is placed securely in the vehicle. Do not stack equipment on top of each other. Secure equipment so that it will not slide while being transported. 6b. Wear cut-resistant gloves while handling/loading equipment.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-025	DATE: 04/11/2023	☐ NEW ☒ REVISED	PAGE 1 of 1

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**General**	**Trucking**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Lauren Dolginko	Project Geologist	Brian Hobbs	CHSD
Tim Unalp	SHSO		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather or cut resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LONG SLEEVED SHIRT	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility long sleeved clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy equipment (i.e. trucks)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in Hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Set up work zone.	**1a. CONTACT:** Personal injury/property damage caused by obstruction/vehicle.	1a. Establish work zone for manifesting/paperwork by communicating with workers before task begins. Maintain a minimum **Exclusion Zone (EZ)** around all heavy equipment.
2. Loading of truck.	**2a. CONTACT:** Rolling Vehicle could cause bodily harm.	2a. All commercial vehicles without an operator must have their engines off and wheels chocked. Truck and loading area should be on level and stable ground.
	2b. CONTACT: Machine or load may crush personnel, property or machinery.	2b. All machines (Excavator, Lull, Backhoe) must have a spotter. Spotter must communicate contact hazards such as other personnel in the work area, objects in the machine's blind spot, and overhead lines to the operator. Spotter and operator should have 2-way radios or established hand signals to communicate when needed. 2b. Loads must not be swung over other vehicles or personnel. 2b. Maintain **EZ** around all equipment.
	2c. CONTACT: Load shifting during travel.	2c. Secure all loads prior to moving the truck with chains or straps or cribbing. 2c. Any loose soil or debris should be cleaned off truck sides prior to truck mobilization. 2c. All truck beds must be secured prior to traveling.
3. Dumping loads.	**3a. CONTACT:** Truck may flip sideways or backwards.	3a. All workers must stay behind and away from the side of trucks that are dumping to avoid contact with flying debris and the truck potentially tipping sideways or backwards. EZ must be maintained equal to the height of bed while lifted.
4. Exchanging paperwork with truck driver.	**4a. CONTACT/CAUGHT:** Broken bones from contact by vehicle.	4a. Truck driver should exit truck with proper PPE, using the three-point stance, and enter the established work zone to complete paperwork. If Site-specific safety prohibits drivers from exiting the truck, wait until truck is finished loading, with engine turned off, before approaching truck. 4a. Always establish eye contact with driver prior to approaching truck. 4a. Confirm sides of truck have been cleaned/brushed off prior to approaching truck.
	4b. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions or lacerations, or broken bones.	4b. Survey walking route to identify slip/trip/fall hazards. Avoid icy/wet surfaces. Remove slip/trip/fall hazards if present. 4b. Communicate with driver and spotter prior to approaching truck. Maintain **EZ** around all heavy equipment.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-029	DATE: 8/18/2021	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Preclearing/Sampling**	**Hand Augering**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Sean Owens	Senior Health & Safety Specialist	Brian Hobbs	Corporate Health & Safety Director

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut Resistant / Leather / Nitrile / Chemical resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Long sleeve high visibility clothing	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel or composite toed		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Hand Auger Tools (buckets, rods), 5-gallon buckets, hand tools (hammer, etc)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Drive/walk to hand clearing/hand augering location	**1a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles	1a. Maintain speed limit on-site. 1a. All equipment must be stowed and secured prior to moving. 1a. Drive on established roadways. 1a. Do not back up vehicle without spotter where visibility is limited; use pull-through spots or back into parking spots; use an audible signal (horn/back-up alarm) when backing up vehicles.1c.
	1b. FALL: Personal injury from tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at portions of the Site	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Use established pathways and walk on stable, secure ground. 1b. Use established ramp when descending into/ascending from impoundment areas. 1b. Keep tools and equipment in a designated area. When not in use, tools and equipment must be returned to their proper storage location. Keep work area clear of obstructions.
	1c. EXERTION: Muscle strain/exhaustion while carrying equipment (i.e., hand auger, post-hole digger, shovel, pry bar)	1c. When carrying equipment to/from work area, use proper lifting techniques; keep back straight, lift with legs, keep load close to body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use mechanical assistance or make multiple trips to carry equipment.
	1d. EXPOSURE: Exposure to sun, possibly causing sunburn Biological hazards - bees/wasps, poison oak, thorns, insects, etc.	1d. Wear sunscreen with an SPF of at least 15 whenever 30 minutes or more of exposure is expected. 1d. Inspect area to avoid contact with biological hazards. 1d. Wear cut resistant gloves when handling branches, shrubs, etc. that may lie within the walking path. 1d. Avoid any areas onsite that have poison oak.
2. Secure location	**2a. CONTACT:** Personnel and vehicular traffic may enter the work area.	2a. Delineate the work area with traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 2a. Wear reflective vest and/or fluorescent clothing. 2a. Face the direction of vehicular traffic. Position vehicle to protect worker from traffic. 2a. Communicate work activity with adjacent work areas.
	2b. FALL: Tripping/falling due to uneven terrain, and materials /equipment stored within the work area	2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment to the impoundments. 2b. Equipment and tools will be staged in a convenient, stable, and orderly manner. 2b. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e. tools should not be propped against walls or nearby equipment or vehicles). 2b. Equipment and tools that are not anticipated to be used will be returned to an appropriate storage area that is out of the immediate work area.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Verify pre-clearance protocol; review completed Subsurface Utility Checklist and utility verification site walkthrough.	**3a. ENERGY SOURCE:** Underground utility damage; property damage; personal injury	3a. Confirm that "Call Before You Dig" and local utility companies were contacted prior to hand augering. 3a. Walk the Site to evaluate utility markings and review maps.
4. Augering/advancing borehole	**4a. EXPOSURE:** Contaminated soil/water/vapor **4b. EXERTION:** Muscle strain from lifting, bending, repetitive motion. **4c. CAUGHT:** Personal injury as a result of jewelry/loose clothing caught on equipment, well covers, machinery, hand auger, pry bar etc.. **4d. CONTACT/CAUGHT:** Pinch points, abrasions	4a. Monitor breathing zone with a PID when VOCs area concern. If vapors sustain > 5 ppm, upgrade PPE as per HASP. 4a. Wear chemical-resistant disposable gloves and safety glasses when handling impacted materials. 4a. Place excavated soil on plastic sheeting and store soil waste in designated area. 4a. Work on the upwind side of the boring. 4b. Body positioning and rotating with the auger to reduce strain. Don't twist back. 4c. No form of jewelry should be worn while on-site. 4c. Clothing must be appropriately sized so it is not loose fitting. 4d. Keep head and upper body clear when lifting hand auger, pry bar/post-hole digger. Ensure to not be overly aggressive when using pry bar. 4d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body.
5. Lithologic observation and soil sampling	**5a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives)	5a. Wear chemical-resistant disposable gloves to protect hands when handling samples; wear safety glasses when handling any preservatives; use containment material or plastic sheeting to protect surrounding areas. 5a. When collecting soil sample from hand auger, put large zip lock bag over entire auger to prevent spillage of soil on to the ground. 5a. Open sample jars slowly and fill carefully to avoid contact with preservatives.
6. Decontaminate equipment	**6a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives, decontamination solution) **6b. CONTACT/CAUGHT:** pinch points and cuts/abrasions	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills. 6a. Properly dispose of used materials/PPE trash bags. 6b. Keep fingers/hands out of pinch points when dis-assembling hand auger during decontamination.

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JOB SAFETY ANALYSIS Ctrl. No. GEN-013	DATE 1/4/2018	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Gauging and Sampling**	**Gauging and Sampling**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Brandon Tufano	Staff Geologist	Brian Hobbs	Senior Health & Safety Manager
		Joe Gentile	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☒ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather, Nitrile and cut resistant
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ OTHER: Knee pads, Insect Repellant, sunscreen (as needed)
☒ SAFETY GLASSES	☒ SAFETY SHOES: Composite-toe or steel toe boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

42-inch Safety Cones, Caution Tape, Interface Probe and/or Water Level Meter, 20-lb., Type ABC Fire Extinguisher, Buckets. Tools as needed: Socket Wrench, Screw Driver, Crow Bar, Mallet, and Wire Brush.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization to monitoring well(s).	**1a. FALL:** Personal injury from slip/trip/fall due to uneven terrain and/or obstructions.	1a. Inspect pathway and plan for most suitable designated pathway prior to mobilization. 1a. Use established pathways, walk and/or drive on stable, secure ground and avoid steep hills or uneven terrain. 1a. If working near open water with an unguarded edge, wear life vest.
	1b. CONTACT: With traffic/third parties.	1b. Identify potential traffic sources and delineate work area with 42-inch traffic safety cones. Position vehicle to protect against oncoming traffic. Use caution tape to provide a more visible delineation of the work area if necessary. 1b. Wear appropriate PPE including high visibility clothing or reflective vest. 1b. Face traffic, maintain eye contact with oncoming vehicles, and establish a safe exit route.
	1c. EXERTION: Muscle strain from lifting equipment	1c. Use proper lifting techniques when handling/moving equipment; bend knees and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 50 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	1d. EXPOSURE: To biological hazards.	1d. Inspect work area for bees and insects. 1d. Use insect/tick repellent as necessary.
2. Open/close well.	**2a. EXERTION:** Muscle strain.	2a. Use proper lifting techniques; keep back straight, lift with legs and bend knees when reaching to open/close well.
	2b. CAUGHT: Pinch/crush points associated with removing/replacing manholes and working with hand tools.	2b. Wear leather gloves or cut resistant gloves when working with well cover and hand tools. 2b. Use proper tools (ratchet and pry bar for well cover) and inspect before use. 2b. Do not put fingers under well cover.
	2c. CAUGHT: Pinch points associated with placing J-plug back onto PVC pipe.	2c. See 2b. 2c. Keep fingers out of line-of-fire when securing cap.
	2d. EXPOSURE: To potential hazardous vapors.	2d. No open flames/heat sources. 2d. To minimize exposure to vapors, allow well to vent after opening it and before sampling activities begin. 2d. Stand up-wind, if possible, to avoid inhaling vapors.
3. Gauge well.	**3a. CONTACT:** With contamination (e.g. contaminated groundwater).	3a. Wear chemical-resistant disposable gloves (over cut-resistant gloves) and safety glasses when gauging well. 3a. Insert and remove probe slowly to avoid splashing. 3a. Use an absorbent pad to clean probe.
	3b. CONTACT: With traffic.	3b. See 1b.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Purge and sample well	**4a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors) and/or sample preservatives.	4a. Open and fill sample jars slowly to avoid splashing and contact with preservatives. 4a. Wear cut-resistant gloves and chemical-resistant disposable gloves when sampling. 4a. Fill sample containers over purge container to avoid spilling water onto the ground. 4a. Use an absorbent pad to clean spills. 4a. When using a bailer to purge a well, pull the bailer slowly from the well to avoid splash hazards. 4a. When sampling or purging the water using a bailer, pour out water slowly to reduce the potential for splash hazards with groundwater. 4a. When using a tubing valve always remove the valve slowly after sample collection to release any pressure and avoid pressurized splash hazards. 4a. When collecting a groundwater sample always point sampling apparatus (tubing, bailer, etc.) away from face and body.
	4b. CONTACT: Personal injury from cuts, abrasions, or punctures by glassware or sharp objects.	4b. To avoid spills or breakage, place sample ware on even surface. 4b. Do not over tighten caps on glass sample ware. 4b. Wear chemical-resistant nitrile disposable gloves over cut-resistant (i.e., Kevlar) gloves when sampling and handling glassware (i.e., VOA vials) or when using cutting tools.
	4c. EXERTION: Muscle strain while carrying equipment.	4c. Use proper lifting techniques when handling/moving equipment, bend knees and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 50 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	4d. CONTACT: With traffic.	4d. See 1b.
	4e. CONTACT: Pinch points with groundwater pump components (i.e., wheel, line, clamps).	4e. Wear leather gloves when working with groundwater pumps. 4e. Never place hands on or near pinch points such as the wheel, clamps or other moving parts during pump operations. 4e. Use the correct mechanisms, such as a pump reel, to lower pump into well. 4e. Never attempt to manually stop any moving part of equipment including hose reels and/or tubing.
	4f. EXERTION: Muscle strain from repetitive motion of bailing and sampling a well.	4f. See 4c. 4f. Include a stretch break when repetitive motions are part of the task.
5. Management of purge water.	**5a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	5a. Do not overfill container and pour liquids slowly so that they do not splash. 5a. Properly dispose of used materials/PPE in appropriate container in designated storage area.
	5b. EXERTION: Muscle strain from lifting/carrying and moving containers.	5b. Use proper lifting techniques when lifting / carrying or moving container(s) (see 4c.). 5b. Do not overfill container(s).
6. Decontaminate equipment.	**6a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	6a. Work on the upwind side, where possible, of decon area. 6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills.
	6b. CAUGHT: Pinch points associated with handling hand tools	6b. See 2b. 6b. Inspect hand tools for sharp edges before decontaminating.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-015	DATE: 1/4/2018	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Mobilization/Demobilization**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Rebecca Lowy	Staff Assistant Geologist	Brian Hobbs	Senior Health & Safety Manager
Tally Sodre	OHSM	Joe Gentile	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION (as needed) ☒ SAFETY SHOES: Steel Toe or composite toe	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest of high-visibility clothing; long sleeve shirt; long pants	☒ GLOVES: Leather, nitrile, and cut resistant (as needed) ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: None

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): A 10-foot exclusion zone will be maintained around equipment in use..

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilize/demobilize and establish work area	**1a. FALL:** Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping.	1a. Use 3 points-of-contact/ensure secure footing when entering and exiting vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., ice, snow, and puddles) prior to mobilizing equipment. Use established pathways. Walk on stable/secure ground. 1a. Do not climb over stored materials/equipment; walk around. Practice good housekeeping; organize and store equipment neatly in one area at its lowest potential energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with 42” cones, caution tape and/or flagging.
	1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities.	1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking space and/or out of the way locations. Use parking brake on all vehicles and tire chocks on work trucks and trailers. 1b. Check in with Site Manager/Supervisor to ensure coordination with other Site activities and to discuss any special hazards. Ensure that short-service employees (SSE) are identified. 1b. Identify potential traffic sources. 1b. Wear PPE including high visibility clothing or reflective vest. 1b. Use a spotter while moving work vehicles; plan ahead to avoid backing whenever possible. 1b. Maintain a minimum 10’ exclusion zone when vehicles are in motion. When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 1b. Delineate work area with 42” cones, flags, caution tape, and/or other barriers. 1b. Position “Work Area” signs at Site entrances, if possible, or at either side of work area.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		1b. Position largest vehicle to protect against oncoming traffic. 1b. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route. 1b. Observe potential overhead and ground surface features that may interfere with moving equipment. Clear the path of physical hazards prior to initiating mobilization.
	1c. CAUGHT: Personal injury from pinch points and being in line-of-fire of vehicle and/or equipment.	1c. Make sure driver has engaged parking brake and placed wheel chocks in a position to prevent movement. Be sure that vehicle is parked in front/down gradient (positioned to best block oncoming traffic) of work area. 1c. Wear leather gloves when handling any tools or equipment. Wear cut-resistant gloves (Kevlar or similar) when handling sharp objects/cutting tools/glass. 1c. Keep body parts away from line-of-fire of equipment. 1c. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. 1c. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. 1c. Secure all items on the equipment, tighten up any items or features that have potential to shift or break during mobilization.
	1d. OVEREXERTION: Muscle strains while lifting/carrying equipment.	1d. Use body positioning and lifting techniques that avoid muscle strain; keep back straight, lift with legs, turn with whole body, keep load close to body, and never reach with a load. 1d. Ensure that loads are balanced. Use assistance (mechanical or additional person) to carry equipment that is either unwieldy or over 50 lbs.
	1e. EXPOSURE: Personal injury from exposure to biological and environmental hazards.	1e. Inspect area to avoid contact with biological hazards (i.e. poisonous plants, stinging insects, ticks, etc.). 1e. Wear long sleeved clothes treated with Permethrin, apply insect repellant containing DEET to exposed skin, and inspect clothes and skin for ticks during and after work. 1e. Apply sunscreen (SPF 15+) if exposure to sun for 30 minutes or more is expected.
	1f. EXPOSURE: Weather related injuries.	1f. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, nausea, rapid and shallow breathing). Take breaks in cool places and hydrate as needed. 1f. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks in warm areas as needed. 1f. Wear clothing appropriate for weather and temperature conditions (e.g., rain jackets, snow pants, multiple layers). 1f. If lightning is observed, wait 30 minutes in a sheltered location (car is acceptable) before resuming work.
	1g. EXPOSURE: Personal injury from noise hazards.	1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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APPENDIX B

Safety Data Sheets (SDSs) for Chemicals Used

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Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

1 Identification of the substance/mixture and of the supplier

1.1 Product identifier

Trade Name: Alconox
Synonyms:
Product number: Alconox

1.2 Application of the substance / the mixture : Cleaning material/Detergent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer
Alconox, Inc.
30 Glenn Street
White Plains, NY 10603
1-914-948-4040

Supplier
Not Applicable

Emergency telephone number:
ChemTel Inc
North America: 1-800-255-3924
International: 01-813-248-0585

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:
Tetrasodium Pyrophosphate
Sodium tripolyphosphate
Sodium Alkylbenzene Sulfonate

2.2 Label elements:

Skin irritation, category 2.
Eye irritation, category 2A.

Hazard pictograms:



Signal word: Warning

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

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Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): None

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization : None

3.2 Description : None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
CAS number: 7722-88-5	Tetrasodium Pyrophosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	2-16

3.4 Additional Information : None.

4 First aid measures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway.
Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.
Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.
Remove contact lens(es) if able to do so during rinsing.
Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.
Seek medical attention if irritation, discomfort, or vomiting persists.

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4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None

5.2 Special hazards arising from the substance or mixture :

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing.
Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.
Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures :

Ensure adequate ventilation.
Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.
Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None

7 Handling and storage

7.1 Precautions for safe handling :

Avoid breathing mist or vapor.
Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities :

Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

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8 Exposure controls/personal protection





8.1 Control parameters :

7722-88-5, Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work.
Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	White and cream colored flakes - powder	**Explosion limit lower**: **Explosion limit upper**:	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	**Vapor pressure at 20°C**:	Not determined or not available.
Odor threshold:	Not determined or not available.	**Vapor density**:	Not determined or not available.
pH-value:	9.5 (aqueous solution)	**Relative density**:	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	**Solubilities**:	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	**Partition coefficient (n-octanol/water)**:	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	**Auto/Self-ignition temperature**:	Not determined or not available.
Evaporation rate:	Not determined or not available.	**Decomposition temperature**:	Not determined or not available.

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Flammability (solid, gaseous):	Not determined or not available.	**Viscosity**:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
Density at 20°C:	Not determined or not available.		

10 Stability and reactivity

10.1 Reactivity : None

10.2 Chemical stability : None

10.3 Possibility hazardous reactions : None

10.4 Conditions to avoid : None

10.5 Incompatible materials : None

10.6 Hazardous decomposition products : None

11 Toxicological information

11.1 Information on toxicological effects :

Acute Toxicity:

Oral:

: LD50 > 5000 mg/kg oral rat - Product .

Chronic Toxicity: No additional information.

Skin corrosion/irritation:

Sodium Alkylbenzene Sulfonate: Causes skin irritation. .

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation .

Tetrasodium Pyrophosphate: Rabbit - Risk of serious damage to eyes .

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

12 Ecological information

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Trade Name: Alconox

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.
Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours.
Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
Tetrasodium Pyrophosphate: Fish, LC50 - other fish - 1,380 mg/l - 96 h.
Tetrasodium Pyrophosphate: Aquatic invertebrates, EC50 - Daphnia magna (Water flea) - 391 mg/l - 48 h.

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1 UN Number: None
ADR, ADN, DOT, IMDG, IATA

14.2 UN Proper shipping name: None
ADR, ADN, DOT, IMDG, IATA

14.3 Transport hazard classes:
ADR, ADN, DOT, IMDG, IATA

Class: None
Label: None
LTD. QTY: None

US DOT
Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Non Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

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Safety Data Sheet

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Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

	Comments: None	**Comments:** None
14.4	**Packing group:** ADR, ADN, DOT, IMDG, IATA	None
14.5	**Environmental hazards** :	None
14.6	**Special precautions for user:**	None
	Danger code (Kemler):	None
	EMS number:	None
	Segregation groups:	None
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:**	Not applicable.
14.8	**Transport/Additional information:**	
	Transport category:	None
	Tunnel restriction code:	None
	UN "Model Regulation":	None

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed.
Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable

Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed.
Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):
All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

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Trade Name: Alconox

Germany MAK: Not classified.

Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

NFPA: 1-0-0

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Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

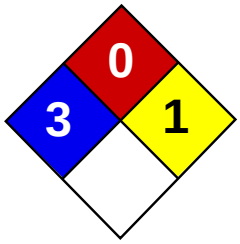
Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

HMIS: 1-0-0

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Material Safety Data Sheet
Hydrochloric acid MSDS

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Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid

Catalog Codes: SLH1462, SLH3154

CAS#: Mixture.

RTECS: MW4025000

TSCA: TSCA 8(b) inventory: Hydrochloric acid

CI#: Not applicable.

Synonym: Hydrochloric Acid; Muriatic Acid

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	20-38
Water	7732-18-5	62-80

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target

organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

Special Remarks on Explosion Hazards:

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Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

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Odor: Pungent. Irritating (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point:
108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 31% HCl in water) 50.5 C (for 37% HCl in water)

Melting Point:
-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water)

Critical Temperature: Not available.

Specific Gravity:
1.1- 1.19 (Water = 1) 1.10 (20%and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCl solutions)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, water

Incompatibility with various substances:
Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or

Special Remarks on Corrosivity:

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Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (fetoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

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Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

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References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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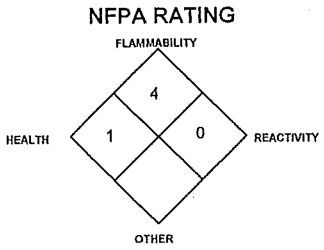
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MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards



PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS: **ISOBUTYLENE - C_4H_8**
Document Number: Isobutylene

PRODUCT USE: For general analytical/synthetic chemical uses.

SUPPLIER/MANUFACTURER'S NAME: MESA Specialty Gases & Equipment
ADDRESS: 3619 Pendleton Avenue, Suite C
Santa Ana, CA 92704

BUSINESS PHONE: 1-714-434-7102
EMERGENCY PHONE: INFOTRAC: 1-800-535-5053

DATE OF PREPARATION: May 10, 1999

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2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	OTHER
Isobutylene	115-11-7	> 99.0%	There are no specific exposure limits for Isobutylene. Isobutylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 1.0%	None of the trace impurities in this mixture contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

NE = Not Established C = Ceiling Limit See Section 16 for Definitions of Terms Used

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Isobutylene is a colorless, liquefied, flammable gas with an unpleasant odor similar to burning coal. The liquefied gas rapidly turns into a gas at standard atmospheric temperatures and pressures. Isobutylene is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Rapid evaporation of liquid from the cylinder may cause frostbite. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air and may travel to a source of ignition and flash back to a leak or open container. Flame or high temperature impinging on a localized area of a cylinder of Isobutylene can cause the cylinder to rupture without activating the cylinder's relief devices. Provide adequate fire protection during emergency response situations.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant route of overexposure for this gas is by inhalation. The following paragraphs describe symptoms of exposure by route of exposure.

INHALATION: High concentrations of this gas can cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of overexposure, death may occur. Isobutylene also has some degree of anesthetic action and can be mildly irritating to the mucous membranes. The effects associated with various levels of oxygen are as follows:

CONCENTRATION	SYMPTOMS OF EXPOSURE
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

OTHER POTENTIAL HEALTH EFFECTS: Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after such contact can quickly subside.

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	1
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For routine industrial applications

See Section 16 for Definition of Ratings

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. Overexposure to Isobutylene may cause the following health effects:

ACUTE: The most significant hazard associated with this gas is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, headache, dizziness, and nausea. At high concentrations, unconsciousness or death may occur. Contact with liquefied gas or rapidly expanding gases may cause frostbite.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to Isobutylene.

TARGET ORGANS: Respiratory system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO ISOBUTYLENE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

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4. FIRST-AID MEASURES (Continued)

Remove victim(s) to fresh air as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

5. FIRE-FIGHTING MEASURES

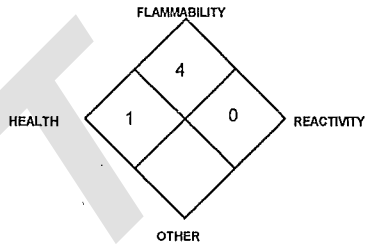
FLASH POINT (Closed Cup): -10°C (< 14°F)
AUTOIGNITION TEMPERATURE: 465°C (869°F)
FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): 1.8%
Upper (UEL): 9.6%

FIRE EXTINGUISHING MATERIALS: Extinguish Isobutylene fires by shutting off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material may ignite and produce toxic gases, including carbon monoxide and carbon dioxide.

NFPA RATING



See Section 16 for Definition of Ratings

DANGER! Fires impinging (direct flame) on the outside surface of unprotected pressure storage vessels of Isobutylene can be very dangerous. Direct flame exposure on the cylinder wall can cause an explosion either by BLEVE (Boiling Liquid Expanding Vapor Explosion), or by exothermic decomposition. This is a catastrophic failure of the vessel releasing the contents into a massive fireball and explosion. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the vessel. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Static discharge may cause Isobutylene to ignite explosively if released.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. The best fire-fighting technique may be simply to let the burning gas escape from the pressurized cylinder, tank car, or pipeline. Stop the leak before extinguishing fire. If the fire is extinguished before the leak is sealed, the leaking gas could explosively re-ignite without warning and cause extensive damage, injury, or fatality. In this case, increase ventilation (in enclosed areas) to prevent flammable or explosive mixture formation. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of vessel exposures, evacuate the area. Refer to the North American Emergency Response Guidebook for additional information. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel. Adequate fire protection must be provided. Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves resistant to tears, and Self-Contained Breathing Apparatus.**

Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut off with water spray. Allow the gas to dissipate. Monitor the surrounding area for combustible gas levels and oxygen. Combustible gas concentration must be below 10% of the LEL (LEL = 1.8%) prior to entry. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in place or remove it to a safe area and allow the gas to be released there.

THIS IS AN EXTREMELY FLAMMABLE GAS. Protection of all personnel and the area must be maintained.

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PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting Isobutylene IN YOU. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Isobutylene could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post "No Smoking or Open Flames" signs in storage or use areas.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated area, away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52°C (125°F). Isolate from oxidizers such as oxygen, chlorine, or fluorine. Use a check valve or trap in the discharge line to prevent hazardous backflow. Post "No Smoking or Open Flame" signs in storage and use areas. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Never tamper with pressure relief devices in valves and cylinders. Electrical equipment should be non-sparking or explosion proof. The following rules are applicable to situations in which cylinders are being used:

Before Use: Move cylinders with a suitable hand truck. Do not drag, slide, or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap, if provided, in place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Replace valve protection cap, if provided. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers. Earth-ground and bond all lines and equipment associated with Isobutylene. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, *Safe Handling of Compressed Gases in Containers*. Additionally, refer to CGA Bulletin SB-2 "*Oxygen Deficient Atmospheres*".

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (e.g., nitrogen) before attempting repairs.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents Isobutylene dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the presence of potentially explosive air-gas mixtures and level of oxygen.

RESPIRATORY PROTECTION: Maintain oxygen levels above 19.5% in the workplace. Maintain level of gas below the level listed in Section 2 (Composition and Information on Ingredients). Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of Isobutylene. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards.

EYE PROTECTION: Splash goggles or safety glasses, for protection from rapidly expanding gases and splashes of liquid Isobutylene.

HAND PROTECTION: Wear gloves resistant to tears when handling cylinders of Isobutylene. Use low-temperature protective gloves (e.g., Kevlar) when working with containers of liquid Isobutylene.

BODY PROTECTION: Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product, as well as fire retardant items.

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9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY @ 21.1°C (70°F): 2.396 kg/m^3 (0.1496 lb/ft^3)
SPECIFIC GRAVITY (air = 1): 1.997
SOLUBILITY IN WATER: Insoluble.
EVAPORATION RATE (nBuAc = 1): Not applicable.
ODOR THRESHOLD: Not established.
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.
pH: Not applicable.
FREEZING POINT: -140°C (-220.6°F)
BOILING POINT @ 1 atm: -6.9°C (19.6°F)
EXPANSION RATIO: Not applicable
VAPOR PRESSURE (psia): 39
SPECIFIC VOLUME (ft^3/lb): 6.7

APPEARANCE AND COLOR: Colorless gas with the unpleasant odor of burning coal. The liquid is also colorless and has the same unpleasant odor of burning coal.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide and carbon dioxide.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers (e.g., chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials and exposure to heat, sparks, and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following information is for pure Isobutylene.

ISOBUTYLENE:
LC_{50} (rat, inhalation) = 620 g/m^3/4 hours
LC_{50} (mouse, inhalation) = 415 g/m^3/2 hours

SUSPECTED CANCER AGENT: Isobutylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Isobutylene may be mildly irritating to the mucous membranes. In addition, contact with rapidly expanding gases can cause frostbite to exposed tissue.

SENSITIZATION TO THE PRODUCT: Isobutylene is not known to cause sensitization in humans.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of Isobutylene on the human reproductive system.

Mutagenicity: No mutagenic effects have been described for Isobutylene.
Embryotoxicity: No embryotoxic effects have been described for Isobutylene.
Teratogenicity: No teratogenic effects have been described for Isobutylene.
Reproductive Toxicity: No reproductive toxicity effects have been described for Isobutylene.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions may be aggravated by overexposure to Isobutylene.

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11. TOXICOLOGICAL INFORMATION (Continued)

RECOMMENDATIONS TO PHYSICIANS: Administer oxygen, if necessary. Treat symptoms and eliminate exposure.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) are not applicable for Isobutylene.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: This gas will be dissipated rapidly in well-ventilated areas.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Any adverse effect on animals would be related to oxygen-deficient environments. No adverse effect is anticipated to occur to plant life, except for frost produced in the presence of rapidly expanding gases. See Section 11, Toxicological Information, for additional information on effects on animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on the effects of Isobutylene on aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to MESA Specialty Gases & Equipment Do not dispose of locally.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

For Isobutylene Gas:

PROPER SHIPPING NAME:	Isobutylene
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1055
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

Alternate Description:

PROPER SHIPPING NAME:	Petroleum gases, liquefied
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1075
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

MARINE POLLUTANT: Isobutylene is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: Isobutylene is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

CANADIAN DSL/NDSL INVENTORY STATUS: Isobutylene is on the DSL Inventory.

U.S. TSCA INVENTORY STATUS: Isobutylene is listed on the TSCA Inventory.

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15. REGULATORY INFORMATION (Continued)

OTHER U.S. FEDERAL REGULATIONS: Isobutylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 lb. Depending on specific operations involving the use of Isobutylene, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Isobutylene is not listed in Appendix A; however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.

U.S. STATE REGULATORY INFORMATION: Isobutylene is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Liquefied Petroleum Gas.
California - Permissible Exposure Limits for Chemical Contaminants: Liquefied Petroleum Gas.
Florida - Substance List: Isobutylene.
Illinois - Toxic Substance List: No.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Isobutylene.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Liquefied Petroleum Gas.
Missouri - Employer Information/Toxic Substance List: No.
New Jersey - Right to Know Hazardous Substance List: Isobutylene.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: Isobutylene.
Rhode Island - Hazardous Substance List: Liquefied Petroleum Gas.
Texas - Hazardous Substance List: Liquefied Petroleum Gas.
West Virginia - Hazardous Substance List: Liquefied Petroleum Gas.
Wisconsin - Toxic and Hazardous Substances: Liquefied Petroleum Gas.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Isobutylene is not on the California Proposition 65 lists.

LABELING:

DANGER:

FLAMMABLE LIQUID AND GAS UNDER PRESSURE.
CAN FORM EXPLOSIVE MIXTURES WITH AIR.
MAY CAUSE FROSTBITE.

Keep away from heat, flames, and sparks.
Store and use with adequate ventilation.
Cylinder temperature should not exceed 52°C (125°F).
Do not get liquid in eyes, on skin, or clothing.
Close valve after each use and when empty.
Use in accordance with the Material Safety Data Sheet.

FIRST AID:

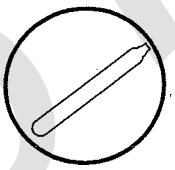
IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

IN CASE OF FROSTBITE, obtain immediate medical attention.

DO NOT REMOVE THIS PRODUCT LABEL.

CANADIAN WHMIS SYMBOLS:

Class A: Compressed Gas
Class B1: Flammable Gas





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16. OTHER INFORMATION

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. MESA Specialty Gases & Equipment assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, MESA Specialty Gases & Equipment assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV** - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration. **PEL** - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration **(OSHA)**. NIOSH issues exposure guidelines called Recommended Exposure Levels **(RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]. Reactivity Hazard: **0** (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury).

NATIONAL FIRE PROTECTION ASSOCIATION (Continued): Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association **(NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m^3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo, LDLo**, and **LDo**, or **TC, TCo, LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act **(SARA)**; the Canadian Domestic/Non-Domestic Substances List **(DSL/NDSL)**; the U.S. Toxic Substance Control Act **(TSCA)**; Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act **(CERCLA or Superfund)**; and various state regulations.

Manufactured for

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MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS: NON-FLAMMABLE GAS MIXTURE

Containing One or More of the Following Components in a Nitrogen Balance Gas: Oxygen, 0.0015-23.5%; Propane, 0-1.1%; n-Pentane, 0-0.75%; n-Hexane; 0-0.48%; Carbon Monoxide, 0.0005-1.0%; Hydrogen Sulfide, 0.001-0.025%

NOTE: MIXTURES COMPRISED OF AN AIR BALANCE GAS CONTAIN BETWEEN 19.5-23.5% OXYGEN.

SYNONYMS: Not Applicable

CHEMICAL FAMILY NAME: Not Applicable

FORMULA: Not Applicable

Document Number: 50016 (Replaces ISC MSDS No.1810-2187, 1810-2343, 1810-3366, 1810-3937 1810-7219, 1810-7599, 1810-6179)

Note: The Material Safety Data Sheet is for this gas mixture supplied in cylinders with 33 cubic feet (935 liters) or less gas capacity (DOT - 39 cylinders). This MSDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 2 (Composition and Information on Ingredients). Refer to the product label for information on the actual composition of the product.

PRODUCT USE:	Calibration of Monitoring and Research Equipment
SUPPLIER/MANUFACTURER'S NAME:	CALGAZ
ADDRESS:	821 Chesapeake Drive Cambridge, MD 21613
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	1-410-228-6400
General MSDS Information	1-713/868-0440
Fax on Demand:	1-800/231-1366

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIHTLV		OSHA		IDLH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm	ppm	ppm
Oxygen	7782-44-7	0.0015 - 23.5%	There are no specific exposure limits for Oxygen. Oxygen levels should be maintained above 19.5%.					
Propane	74-98-6	0 - 1.1%	2500	NE	1000	NE	2100	NIOSH REL: 1000 DFG MAK: 1000 ppm
n-Pentane	109-66-0	0 - 0.75%	600	750	1000 600 (Vacated 1989 PEL)	750 (Vacated 1989 PEL)	1500	NIOSH REL: TWA = 120 STEL = 610 (ceiling) 15 minutes DFG MAKs: TWA =1000 PEAK = 2•MAK, 60 min., momentary value
n-Hexane	110-54-3	0 - 0.48%	50	NE	500 50 (Vacated 1989 PEL)	NE	1100	NIOSH REL: 50 DFG MAK: 50
Hydrogen Sulfide	7783-06-4	0.001-0.025 %	10 NIC = 5	15 NIC = 5	10 (Vacated 1989 PEL)	20 (ceiling), 50 (10 min. peak, once per shift) 15 (Vacated 1989 PEL)	100	NIOSH REL: STEL = 10 (ceiling), 10 minutes DFG MAKs: TWA = 10 PEAK = 2•MAK, 10 min., momentary value
Carbon Monoxide	630-08-0	0.0005 - 1.0%	25	NE	50 35 (Vacated 1989 PEL)	200 (ceiling) (Vacated 1989 PEL)	1200	NIOSH RELs: TWA = 35 STEL = 200 ceiling DFG MAKs: TWA = 30 PEAK = 2•MAK, 15 min., average value, 1 hr interval DFG MAK Pregnancy Risk Classification: B
Nitrogen	7727-37-9	Balance	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					

NE = Not Established. NIC = Notice of Intended Change See Section 16 for Definitions of Terms Used.

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas mixture has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This gas mixture is a colorless gas which has a rotten-egg odor (due to the presence of Hydrogen Sulfide). The odor cannot be relied on as an adequate warning of the presence of this gas mixture, because olfactory fatigue occurs after over-exposure to Hydrogen Sulfide. Hydrogen Sulfide and Carbon Monoxide (another component of this gas mixture) are toxic to humans in relatively low concentrations. Over-exposure to this gas mixture can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. The Propane, n-Pentane, and n-Hexane components can cause anesthetic or peripheral neuropathy effects. Additionally, releases of this gas mixture may produce oxygen-deficient atmospheres (especially in small confined spaces or other poorly-ventilated environments); individuals in such atmospheres may be asphyxiated.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for this gas mixture is by inhalation.

INHALATION: Due to the small size of an individual cylinder of this gas mixture, no unusual health effects from over-exposure to the product are anticipated under routine circumstances of use. A significant health hazard associated with this gas mixture is the potential of inhalation of Hydrogen Sulfide, a component of this gas mixture. Such over-exposures may occur if this gas mixture is used in a confined space or other poorly-ventilated area. Over-exposures to Hydrogen Sulfide can cause dizziness, headache, and nausea. Exposure to this component can result in respiratory arrest, coma, or unconsciousness. Continuous inhalation of low concentrations of Hydrogen Sulfide may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence of this gas. A summary of exposure concentrations and observed effects are as follows

CONCENTRATION OF HYDROGEN SULFIDE	OBSERVED EFFECT
0.3-30 ppm	Odor is obvious and unpleasant.
50 ppm	Eye irritation. Dryness and irritation of nose, throat.
Slightly higher than 50 ppm	Irritation of the respiratory system.
100-150 ppm	Temporary loss of smell.
200-250 ppm	Headache, vomiting nausea. Prolonged exposure may lead to lung damage. Exposures of 4-8 hours can be fatal.
300-500	Swifter onset of symptoms. Death occurs in 1-4 hours.
500 ppm	Headache, excitement, staggering, and stomach ache after brief exposure. Death occurs within 0.5 - 1 hour of exposure.
> 600 ppm	Rapid onset of unconsciousness, coma, death.
> 1000 ppm	Immediate respiratory arrest.
NOTE:	This gas mixture contains a maximum of 250 ppm Hydrogen Sulfide. The higher concentration values here are presented to delineate the complete health effects which have been observed for humans after exposure to Hydrogen Sulfide.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD	(BLUE)	3
FLAMMABILITY HAZARD	(RED)	0
PHYSICAL HAZARD	(YELLOW)	0

PROTECTIVE EQUIPMENT

EYES	RESPIRATORY	HANDS	BODY
See Section 8			

For Routine Industrial Use and Handling Applications

Inhalation over-exposures to atmospheres containing more than the Threshold Limit Value of Carbon Monoxide (25 ppm), another component of this gas mixture, can result in serious health consequences. Carbon Monoxide is classified as a chemical asphyxiant, producing a toxic action by combining with the hemoglobin of the blood and replacing the available oxygen. Through this replacement, the body is deprived of the required oxygen, and asphyxiation occurs.

Since the affinity of Carbon Monoxide for hemoglobin is about 200-300 times that of oxygen, only a small amount of Carbon Monoxide will cause a toxic reaction to occur. Carbon Monoxide exposures in excess of 50 ppm will produce symptoms of poisoning if breathed for a sufficiently long time. If this gas mixture is released in a small, poorly ventilated area (i.e. an enclosed or confined space), symptoms which may develop include the following:

CONCENTRATION OF CARBON MONOXIDE	OBSERVED EFFECT
All exposure levels: ..	Over-exposure to Carbon Monoxide can be indicated by the lips and fingernails turning bright red.
200 ppm:	Slight symptoms (i.e. headache) after several hours of exposure.
400 ppm:	Headache and discomfort experienced within 2-3 hours of exposure.
1,000 -2000 ppm:	Within 30 minutes, slight palpitations of the heart occurs. Within 1.5 hours, there is a tendency to stagger.
200-2500 ppm:	Within 2 hours, there is mental confusion, headaches, and nausea. Unconsciousness within 30 minutes.
> 2500 ppm:	Potential for collapse and death before warning symptoms.

Another hazard associated with this gas mixture is the potential for anesthetic and peripheral neuropathy effects after inhalation over-exposures to the Propane, n-Pentane and n-Hexane components of this gas mixture. Specific human over-exposure data are available for n-Pentane and n-Hexane, as follows:

CONCENTRATION OF n-PENTANE	OBSERVED EFFECT
Brief (10 minute) up to 5,000 ppm:	No symptoms.
Higher than 5,000 ppm:	Exhilaration, dizziness and headache can occur.
Long term:	Can cause chronic neurological disorder causing damage to the nerves in the hands and feet (peripheral neuropathy)

CONCENTRATION OF n-HEXANE	OBSERVED EFFECT
Brief (10 minute) at 1,500 ppm:	Irritation of the respiratory tract, nausea and headache.
5000 ppm:	Dizziness and drowsiness can occur.
Long term at 500 ppm:	Can affect the nerves in the arms and legs. Effects include numbing or tingling sensations in the fingers and toes, tiredness, muscle weakness, cramps and spasms in the leg, difficulty in holding objects or walking, abdominal pains, loss of appetite, weight loss. More serious exposures can cause damage to the nerves in the hands and feet (peripheral neuropathy).
Eyes and Vision:	Abnormal color perception and pigment changes in the eyes have been reported among industrial workers exposed to 423-1280 ppm for 5 years or more.
Blood Cells:	Mild forms of anemia have also been associated with exposure to hexane. These are of temporary nature.

Additionally, if mixtures of this gas mixture contain less than 19.5% Oxygen and are released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

CONCENTRATION OF OXYGEN	OBSERVED EFFECT
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea, vomiting, collapse, or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

SKIN and EYE CONTACT: The Hydrogen Sulfide component of this gas mixture may be irritating to the skin. Inflammation and irritation of the eyes can occur at very low airborne concentration of Hydrogen Sulfide (less than 10 ppm). Exposure over several hours may result in “gas eyes” or “sore eyes” with symptoms of scratchiness, irritation, tearing and burning. Above 50 ppm of Hydrogen Sulfide, there is an intense tearing, blurring of vision, and pain when looking at light. Over-exposed individuals may see rings around bright lights. Most symptoms disappear when exposure ceases. However, in serious cases, the eye can be permanently damaged.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. However, the Hydrogen Sulfide and Carbon Monoxide components of this gas mixture are toxic to humans. Over-exposure to this gas mixture can cause nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Due to the presence of Hydrogen Sulfide, over-exposures to this gas mixture can also irritate the skin and eyes; severe eye contamination can result in blindness.

Inhalation over-exposures to Propane, n-Pentane, and n-Hexane can cause anesthetic effects and motor neuropathy (i.e. pain and tingling in feet and hands).

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3. HAZARD IDENTIFICATION (Continued)

CHRONIC: Abnormal color perception and pigment changes in the eyes have been reported among persons exposed to 420 -1300 ppm of n-Hexane for five years. Additionally, long-term exposure to low levels of n-Hexane or n-Pentane can affect the nerves in the arms and legs. Effects include numbing or tingling sensation, tiredness, cramps, spasms in legs, difficulty holding objects or walking, loss of appetite and weight loss. Pentane isomers, such as n-Pentane, and Propane can cause sensitization of the heart to epinephrine. Refer to Section 11 (Toxicology Information) for additional information on the components of this gas mixture.

TARGET ORGANS: ACUTE: Respiratory system, blood system, central nervous system, cardiovascular system. CHRONIC: Reproductive system, cardiovascular system.

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn.

No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary.

Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

SKIN EXPOSURE: If irritation of the skin develops after exposure to this gas mixture, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If irritation of the eye develops after exposure to this gas mixture, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory conditions may be aggravated by over-exposure to this gas mixture. Carbon Monoxide, a component of this gas mixture, can aggravate some diseases of the cardiovascular system, such as coronary artery disease and angina pectoris. Because of the presence of Hydrogen Sulfide, n-Hexane or n-Pentane in this gas mixture, central nervous system conditions, eye disorders, or skin problems may be aggravated by over-exposure to this gas mixture.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. Hyperbaric oxygen is the most efficient antidote to Carbon Monoxide poisoning, the optimum range being 2-2.5 atm. A special mask, or, preferably, a compression chamber to utilize oxygen at these pressures is required. Avoid administering stimulant drugs. Be observant for initial signs of pulmonary edema in the event of severe inhalation over-exposures.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

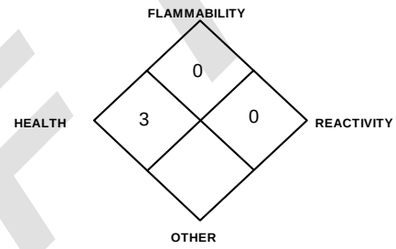
UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture contains toxic gases, Hydrogen Sulfide and Carbon Monoxide, and presents an extreme health hazard to firefighters. This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Not Sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

NFPA RATING



6. ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of over-exposure to Hydrogen Sulfide and Carbon Monoxide, the toxic components of this gas mixture, and other safety hazards related to the remaining components of this gas mixture, than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

For emergency disposal, secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors. Allow the gas mixture to dissipate. If necessary, monitor the surrounding area (and the original area of the release) for Hydrogen Sulfide, Carbon Monoxide, and Oxygen. Hydrogen Sulfide and Carbon Monoxide level must be below exposure level listed in Section 2 (Composition and Information on Ingredients) and Oxygen levels must be above 19.5% before non-emergency personnel are allowed to re-enter area.

If leaking incidentally from the cylinder, contact your supplier.

7. HANDLING and USE

WORK PRACTICES AND HYGIENE PRACTICES: Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Do not attempt to repair, adjust, or in any other way modify cylinders containing a gas mixture with Hydrogen Sulfide or Carbon Monoxide. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Eye wash stations/safety showers should be near areas where this gas mixture is used or stored. All work operations should be monitored in such a way that emergency personnel can be immediately contacted in the event of a release. All work practices should minimize releases of Hydrogen Sulfide and Carbon Monoxide-containing gas mixtures.

STORAGE AND HANDLING PRACTICES: Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C, 70°F). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage.

Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.**

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: WARNING! Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Oxygen, Hydrogen Sulfide, and Carbon Monoxide.

RESPIRATORY PROTECTION: No special respiratory protection is required under normal circumstances of use. Use supplied air respiratory protection if Carbon Monoxide levels exceed the exposure levels given in Section 2 (Composition and Information on Ingredients) or if oxygen levels are below 19.5%, or if either level is unknown during emergency response to a release of this gas mixture. If respiratory protection is required for emergency response to this gas mixture, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards. The following NIOSH respiratory protection recommendations for Hydrogen Sulfide and Carbon Monoxide are provided for further information.

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8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN SULFIDE CONCENTRATIONS IN AIR:

Up to 100 ppm: Powered air-purifying respirator with cartridge(s) to protect against hydrogen sulfide; or gas mask with canister to protect against hydrogen sulfide; or SAR; or full-facepiece SCBA.

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA

NOTE: The IDLH concentration for Hydrogen Sulfide is 100 ppm.

NIOSH/OSHA RECOMMENDATIONS FOR CARBON MONOXIDE CONCENTRATIONS IN AIR:

Up to 350 ppm Supplied Air Respirator (SAR)

Up to 875 ppm Supplied Air Respirator (SAR) operated in a continuous flow mode.

Up to 1200 ppm Gas mask with canister to protect against carbon monoxide; or full-facepiece SCBA; or full-facepiece Supplied Air Respirator (SAR).

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece Supplied Air Respirator (SAR) with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against carbon monoxide; or escape-type SCBA.

NOTE: End of Service Life Indicator (ESLI) required for gas masks.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: No special protection is needed under normal circumstances of use. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Nitrogen, the main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: 0.072 lbs/ ft^3 (1.153 kg/m^3)

FREEZING/MELTING POINT @ 10 psig: -210°C (-345.8°F)

BOILING POINT: -195.8°C (-320.4°F)

SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 0.906

pH: Not applicable.

SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm: 0.023

MOLECULAR WEIGHT: 28.01

EVAPORATION RATE (nBuAc = 1): Not applicable.

EXPANSION RATIO: Not applicable.

ODOR THRESHOLD: Not applicable.

SPECIFIC VOLUME (ft^3/lb): 13.8

VAPOR PRESSURE @ 70°F (21.1°C) psig: Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

The following information is for the gas mixture.

APPEARANCE AND COLOR: This gas mixture is a colorless gas which has an rotten egg-like odor, due to the presence of Hydrogen Sulfide.

HOW TO DETECT THIS SUBSTANCE (warning properties): Continuous inhalation of low concentrations of Hydrogen Sulfide (a component of this gas mixture) may cause olfactory fatigue, so that there are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. Wet lead acetate paper can be used for leak detection. The paper turns black in the presence of Hydrogen Sulfide. Cadmium chloride solutions can also be used. Cadmium solutions will turn yellow upon contact with Hydrogen Sulfide.

10. STABILITY and REACTIVITY

STABILITY: Normally stable in gaseous state.

DECOMPOSITION PRODUCTS: The thermal decomposition products of Propane, n-Hexane, and n-Pentane include carbon oxides. The decomposition products of Hydrogen Sulfide include water and sulfur oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Titanium will burn in Nitrogen (the main component of this gas mixture). Lithium reacts slowly with Nitrogen at ambient temperatures. Components of this gas mixture (Hydrogen Sulfide, Propane, n-Pentane, n-Hexane) are also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Carbon Monoxide is mildly corrosive to nickel and iron (especially at high temperatures and pressures). Hydrogen Sulfide is corrosive to most metals, because it reacts with these substances to form metal sulfides.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are available for the components of this gas mixture:

NITROGEN: There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant, which acts to displace oxygen in the

n-PENTANE:

LD_{50} (intravenous, mouse) = 446 mg/kg.

LC_{50} (inhalation, rat) = 364 g/m^3/4 hours

LCLo (inhalation, mouse) = 325 g/m^3/2 hours

n-HEXANE:

Eye, rabbit = 10 mg/ mild

TCLo (inhalation, rat) = 10,000 ppm/7 hr.

TCLo (inhalation, rat) = 5000 ppm/20 hours; teratogenic effects

LD50 (oral, rat) = 28710 mg/kg

LDLo (intraperitoneal, rat) = 9100 mg/kg

LCLo (inhalation, mouse) = 120,000 mg/kg

LD50 (rat, oral): 28,710 mg/kg

ACUTE INHALATION (mouse): 30,000 ppm, narcosis within 30 to 60 minutes; 35,000-40,000 ppm, convulsions and death.

DERMAL (rabbit): 2 to 5 ml/kg for 4 hours resulted in restlessness and discoordination,; death occurred at 5 ml/kg.

HYDROGEN SULFIDE:

LCLo (inhalation, human) = 600 ppm/30 minutes

LDLO (inhalation, man) = 5.7 mg/kg; central nervous system, pulmonary effects

n-HEXANE (continued):

CHRONIC INHALATION (rat): 400-600 ppm, 5 days/week, peripheral neuropathy in 45 days; 850 ppm for 143 days, loss of weight and degeneration of the sciatic nerve. (mouse): 250 ppm, peripheral neuropathy within 7 months; no effects at 100 ppm.

PROPANE:

Long-Term Inhalation: No toxicity or abnormalities were observed when monkeys were exposed to approximately 750 ppm for 90 days. Similar results were obtained when monkeys were exposed to an aerosol spray containing 65% propane and isobutane.

CARBON MONOXIDE:

TCLo (inhalation, mouse) = 65 ppm/24 hours (7-18 preg): rep. effects

TCLo (inhalation, mouse) = 8 pph/1 hour (female 8D post): ter. effects

HYDROGEN SULFIDE (continued):

LCLo (inhalation, human) = 800 ppm/5 minutes

LC_{50} (inhalation, rat) = 444 ppm

CARBON MONOXIDE (continued):

TCLo (inhalation, human) = 600 mg/m^3/10 minutes

LCLo (inhalation, man) = 4000 ppm/30 minutes

TCLo (inhalation, man) = 650 ppm/45 minutes: central nervous system and blood system effects.

LCLo (inhalation, human) = 5000 ppm/5 minutes

LCLo (inhalation, dog) = 4000 ppm/46 minutes

LCLo (inhalation, rabbit) = 4000 ppm

LC_{50} (inhalation, rat) = 1811 ppm/4 hours

LC_{50} (inhalation, guinea pig) = 2450 ppm/4 hours

LC_{50} (inhalation, guinea pig) = 5718 ppm/4 hours

LCLo (inhalation, mammal) = 5000 ppm/5 minutes

LD_{50} (inhalation, wild bird) = 1334 ppm

HYDROGEN SULFIDE (continued):

LC_{50} (inhalation, mouse) = 673 ppm/1 hour

LCLo (inhalation, mammal) = 800 ppm/5 minutes

SUSPECTED CANCER AGENT: The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: The Hydrogen Sulfide component of this gas mixture, is irritating to the eyes, and may be irritating to the skin.

SENSITIZATION OF PRODUCT: The components of this gas mixture are not known to be skin or respiratory sensitizers. Pentane isomers (i.e. n-Pentane) and Propane can cause cardiac sensitization to epinephrine.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for the components of this gas mixture.

Embryotoxicity: This gas mixture contains components that may cause embryotoxic effects in humans; however, due to the small total amount of the components, embryotoxic effects are not expected to occur.

Teratogenicity: This gas mixture is not expected to cause teratogenic effects in humans due to the small cylinder size and small total amount of all components. The Carbon Monoxide component of this gas mixture which exists up to 1%, can cause teratogenic effects in humans. Severe

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11. TOXICOLOGICAL INFORMATION (continued)

exposure to Carbon Monoxide during pregnancy has caused adverse effects and the death of the fetus. In general, maternal symptoms are an indicator of the potential risk to the fetus since Carbon Monoxide is toxic to the mother before it is toxic to the fetus.

Reproductive Toxicity: The components of this gas mixture are not expected to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES (BEIs): Biological Exposure Indices (BEIs) have been determined for the components of this gas mixture, as follows:

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
CARBON MONOXIDE • Carboxyhemoglobin in blood • Carbon monoxide in end-exhaled air	 • End of shift • End of shift	 • 3.5% of hemoglobin • 20 ppm
n-HEXANE • 2,5-Hexanedione in urine • n-Hexane in end-exhaled air	 • End of shift	 • 5 mg/g creatinine

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture.

OXYGEN: Water Solubility = 1 volume Oxygen/32 volumes water at 20°C. Log K_{ow} = -0.65

PROPANE: Log K_{ow} = 2.38. Water Solubility = 62.4 ppm, 25°C. Propane is readily degraded by soil bacteria.

PENTANE: Log K_{ow} = 3.39. Water Solubility = 38.5 mg/L. LOG BCF (n-pentane) = calculated, 1.90 and 2.35, respectively. Photolysis, hydrolysis, and bioconcentration are not anticipated to be important fate processes. Biodegradation and soil adsorption are anticipated to be more important processes for this compound.

n-HEXANE: Log K_{ow} = 3.90-4.11. Water Solubility = 9.5 mg/L. Estimated Bioconcentration Factor =2.24 and 2.89. Bioconcentration in aquatic organisms is low. Hexane is volatile. Rapid volatilization from water and soil is anticipated for this compound. Hexane will float in slick on surface of the water

HYDROGEN SULFIDE: Water Solubility = 1 g/242 mL at 20°C.

CARBON MONOXIDE: Water solubility = 3.3 ml/100 cc at 0 °C, 2.3 ml at 20°C.

NITROGEN: Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C; 1.6 volumes Nitrogen/100 volumes water at 20°C.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this gas mixture's effects on plant and animal life. The Hydrogen Sulfide and Carbon Monoxide components of this gas mixture, can be deadly to exposed animal life, producing symptoms similar to those experienced by humans. This gas mixture may also be harmful to plant life.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on the effects of this gas effects on aquatic life. The presence of more than a trace of Carbon Monoxide is a hazard to fish. The following aquatic toxicity data are available for the Hydrogen Sulfide component of this gas mixture.

TLm (Asellussp) = 0.111 mg/L/96 hour
TLm (Cranfgonyx sp) =1.07 mg/L/96 hour
TLm (Gammarrus) = 0.84 mg/L/96 hour
LC_{50} (fly inhalation) = 380 mg/m^3/960 minutes
LC_{50} (fly inhalation) = 1500 mg/m^3/7 minutes
TLm (Lepomis macrochirus, bluegill sunfish) = 0.0478 mg/L/96 hour
TLm (Lepomis macrochirus, bluegill sunfish) = 0.0448 mg/L/96 hour at 21-22 °C
TLm (Pimephlaes promelas, fathead minnow) = 0.0071-0.55 mg/L/96 hour
TLm (Salvenilis foninalis, brook trout) = 0.0216-0.038 mg/L/96 hour at 8-12.5 °C

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

DOT LABEL(S) REQUIRED: Class 2.2 (Non-Flammable Gas)

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

MARINE POLLUTANT: The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

Note: DOT 39 Cylinders ship in a strong outer carton (overpack). Pertinent shipping information goes on the outside of the overpack. DOT 39 Cylinders do not have transportation information on the cylinder itself.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This gas is considered as Dangerous Goods, per regulations of Transport Canada.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

HAZARD LABEL: Class 2.2 (Non-Flammable Gas)

SPECIAL PROVISIONS: None

EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX: 0.12

ERAP INDEX: None

PASSENGER CARRYING SHIP INDEX: None

PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX: 75

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

NOTE: Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: This gas is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:

COMPONENT	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
n-Hexane	NO	YES	YES
Hydrogen Sulfide	YES	YES	YES

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15. REGULATORY INFORMATION (Continued)

U.S. SARA THRESHOLD PLANNING QUANTITY: Section 302 EHS TPQ = Hydrogen Sulfide = 500 lbs (227 kg);
U.S. TSCA INVENTORY STATUS: The components of this gas mixture are listed on the TSCA Inventory.
U.S. CERCLA REPORTABLE QUANTITY (RQ): Hexane = 5000 lb (2270 kg); Hydrogen Sulfide = 100 lbs (45.4 lb)
OTHER U.S. FEDERAL REGULATIONS:

- Hydrogen Sulfide, Carbon Monoxide, Propane, n-Pentane and n-Hexane are subject to the reporting requirements of CFR 29 1910.1000.
- Hydrogen Sulfide, Propane and n-Pentane are subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for each of these gases is 10,000 pounds and so this mixture will not be affected by the regulation.
- Depending on specific operations involving the use of this gas mixture, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Hydrogen Sulfide is listed in Appendix A of this regulation. The Threshold Quantity for Hydrogen Sulfide under this regulation is 1500 lbs.
- This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Nitrogen, Oxygen and n-Hexane are not listed Regulated Substances, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Hydrogen Sulfide is listed under this regulation in Table 1 as a Regulated Substance (Toxic Substance), in quantities of 10,000 lbs (4,553 kg) or greater. Carbon Monoxide, Propane and n-Pentane are listed under this regulation in Table 3, as Regulated Substances (Flammable), in quantities of 10,000 lbs (4,553 kg) or greater, and so this mixture will not be affected by the regulation.

U.S. STATE REGULATORY INFORMATION: The components of this gas mixture are covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
California - Permissible Exposure Limits for Chemical Contaminants: Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Florida - Substance List: Oxygen, Carbon Monoxide, n-Pentane, n-Hexane, Hydrogen Sulfide.
Illinois - Toxic Substance List: Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Oxygen, Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Missouri - Employer Information/Toxic Substance List t: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
New Jersey - Right to Know Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrogen Sulfide.
Pennsylvania - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Rhode Island - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Texas - Hazardous Substance List: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
West Virginia - Hazardous Substance List: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
Wisconsin - Toxic and Hazardous Substances: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Carbon Monoxide component of this gas mixture is on the California Proposition 65 lists as a chemical known to the State of California to cause birth defects or other reproductive harm.
ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: The components of this gas mixture are on the Canadian DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances List.
CANADIAN WHMIS CLASSIFICATION: This gas mixture is categorized as a Controlled Product, Hazard Classes A and D2A, as per the Controlled Product Regulations.

16. OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures.

For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. CALGAZ will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders involves some preparation before the metal dealer may accept them. We perform this operation as a service to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about the handling of compressed gases can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

P-1 *"Safe Handling of Compressed Gases in Containers"*
AV-1 *"Safe Handling and Storage of Compressed Gases"*
"Handbook of Compressed Gases"

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
619/670-0609

Fax on Demand: 1-800/231-1366

AIR LIQUIDE™

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this gas mixture. To the best of CALGAZ knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

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APPENDIX C

Heat Illness Prevention Program

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HEAT ILLNESS
PREVENTION PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**10/2019**
REVISION DATE	:	**03/2025**
REVISION NUMBER	:	**4**

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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux"), have established this heat illness prevention program to assist in preventing workplace accidents, injuries, and illnesses associated with temperature extremes. Roux is committed to taking every precaution to protect employees who might be exposed to heat stress, including establishing safe work practices, heat illness prevention controls, and emergency preparedness, which will be detailed in this plan.

2. SCOPE AND APPLICABILITY

Roux's Heat Illness Prevention Program applies to all employees and subcontractors who may be exposed to heat stress in the field.

3. ROLES AND RESPONSIBILITIES

The Heat Illness Prevention Program Administrator for Roux is the Corporate Health and Safety Director (CHSD), Brian Hobbs, CIH, CSP. The daily administration of the program is delegated to the Operations Manager (OM) , Office Health and Safety Manager (OHSM), and Site Health and Safety Officer (SHSO). The CHSD has the authority, responsibility, and overall accountability for the comprehensive implementation of this program.

All managers and supervisors shall implement and maintain the heat illness prevention program in work areas where there is a potential for heat stress.

Management Responsibilities

Management (i.e., Project Managers, Project Principals, OM) must provide the following to promote compliance and foster a good safety culture:

- Comply with applicable standards.
- Inform employees of the provisions of the heat illness prevention program and ensure understanding.
- Provide sufficient water, shade, rest areas, and other heat illness controls for employees.
- Assist with establishing work practices to minimize heat stress risks, such as acclimatization, required rest periods, employee monitoring, and strategic scheduling.
- Encourage employees to report hazardous conditions or heat illness symptoms.
- Provide training to any employee who could possibly be exposed to the risk of heat illness.

Employee Responsibilities

Employees are expected to actively participate in the organization's heat illness prevention program, which includes the following responsibilities:

- Receive appropriate training with regard to heat stress.
- Understand core concepts of heat illness prevention and follow guidelines to mitigate risks.
- Recognize the signs and symptoms of heat illness and immediately report them.
- Cooperate with workplace inspections and incident investigations.

Effective Communication

All Roux employees shall be accountable for ensuring there is effective communication with both the field team and their subcontractors. Communication between Roux employees, project leads (e.g., Project Principal, Project

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Managers), and subcontractors (if applicable) will be established and maintained so that employees can quickly contact should there be a change in condition or someone at the Site exhibits signs/symptoms of heat stress. These types of incidents would follow Roux's Incident Investigation and Reporting Management Program 2.12 and Roux's Injury Illness Prevention Program 2.22.

4. HAZARD IDENTIFICATION AND ASSESSMENT

Prior to scheduled fieldwork, the project team shall ensure a hazard assessment is conducted as it relates to heat stress. This will include a determination of how much heat and exertion employees are likely to be exposed to based on the work activity.

Factors that can increase heat stress include the following:

- Temperatures at the work site;
- Humidity;
- A lack of air movement or exchange;
- The amount of time employees spend working in the heat;
- The time of day work takes place;
- Sources of radiant heat (e.g., sunlight, fire, or hot furnace);
- Work activities that produce heat (e.g., welding);
- Physical contact with warm or hot objects or liquids;
- The clothing and PPE employees are required to wear; and/or
- Physically strenuous work.

Results of the hazard analysis should be used to determine appropriate controls for mitigating heat stress, whenever possible, for planning acclimatization, and for developing work schedules that rotate workers to limit employee exposure. Typically, the Site Supervisor (SS) or Site Health and Safety Officer (SHSO) shall conduct worksite observations to ensure all employees follow heat illness prevention procedures and that hazards are sufficiently controlled. However, all employees should be continuously evaluating work site conditions and be able to recognize heat stressors in order to prevent heat illnesses.

5. TRAINING

All Roux employees shall be trained on the topics listed below prior to beginning work, which may potentially expose workers to heat stress.

Training Topics

- The environmental, behavioral, and personal risk factors for heat illness, such as radiant heat sources, exertion, clothing and PPE, and use of alcohol or drugs.
- Types of heat illnesses, common symptoms, and appropriate emergency response for each.
- The knowledge that mild symptoms may quickly become more severe or life-threatening.
- The importance of immediately reporting any signs or symptoms of heat illness to the supervisor.
- The employer's responsibility to provide shade, water, access to first aid, and cool-down rests during work and the employee's freedom to exercise their rights under this standard without fear of retaliation.

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- The employer's heat stress plan and its procedures:
  - Procedures for employees who are newly assigned to work in high-heat areas.
  - The organization's acclimatization methods, as applicable.
  - Heatwave procedures.
  - Heat illness and emergency response, including contact information.
- The importance of frequent consumption of water and the taking of rest breaks.
- How heat illness prevention applies to employees' specific tasks.

Increasing Training Effectiveness:

- The SS/SHSO will hold daily tailgates with the field team to go over daily work tasks and basic safety information, including Job Safety Analysis (JSA) review, as well as incorporate elements such as current weather and effects on the work activities for the day.
- If a heat wave or high heat is anticipated, OHSMs and/or OMs will provide communications to Roux employees prior to their shifts and remind them of any special high heat procedures.

6. DRINKING WATER

Employees shall be given access to potable drinking water. Access to water will be provided as near as possible to where employees are working, and there shall be enough locations so employees will have sufficient water. Water should be fresh and pure, free of taste or smell that would discourage employees from drinking, comfortably cool, and obtained from an approved source.

The recommendation is that during warm or hot weather, employees drink four 8-ounce glasses of water, or a total of one quart per hour, throughout the entire work shift. Easy access to sufficient potable drinking water throughout the work shift encourages employees to drink.

During a heat wave, water shall be replenished more often to keep it available and cool. Water containers (and all spouts and levers) must be kept clean. If able, provide single-use drinking cups with appropriate waste receptacles. Accessible sanitation facilities shall also be maintained at work Sites as appropriate.

SS/SHSO is responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration.
- Encourage frequent drinking of small amounts of water throughout the shift. In high-heat environments, remind field staff and subcontractors that drinking extra water may be necessary.
- Discourage the choice of drinks with caffeine or sugar that may possibly dehydrate employees instead of water. Also, discourage the drinking of alcohol.
- Monitor the water supply.
- If employees become dehydrated and are unable to alleviate symptoms with the steps below, get them immediate medical attention.

Field Staff/Subcontractors are responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration. Drink up to 4 cups of water per hour, especially during hot weather.
- Be aware that in high-heat situations, you may need to drink more water.

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- Monitor yourself and others for signs of dehydration. If you feel dehydrated:
  - Follow Roux's Incident Notification Flowchart;
  - Rest in the shaded resting area; and
  - Drink water in small amounts, but frequently.

7. ACCESS TO SHADE

Access to shaded areas will be provided to Roux staff, as needed. Employees are encouraged to use these areas when they feel overheated. Roux's SS/SHSO shall oversee the proper implementation of shaded areas and will communicate these locations on a daily basis with the Field Team.

Depending on the Site, shaded areas can include the following:

- Pop-up Tents
- Canopies
- Umbrellas
- Structures mechanically ventilated or open to air movement
  - Garage
- Conex-mounted RV canopies
- Full and thick tree canopies that block direct sunlight
- Buildings
- Enclosed areas only if they provide cooling comparable to shade in open-air
  - Vehicles with air conditioning

Shaded Area Requirements

The shade shall be strong enough to cool employees down and other shadows should not be visible in the shade. The shade will be provided by Roux when the air temperature exceeds 80°F. If the temperature is less than 80°F, shade will be available and provided upon request. The SS/SHSO will monitor conditions to determine when the air will exceed (and is exceeding) 80°F. For most Sites, air will be monitored hourly and shade will be set up immediately if 80°F is exceeded.

Shade shall be located as close as practical to areas where employees are working and is easily accessible. These areas will be considered safe and free from other hazards. Shaded areas should be large enough to accommodate all employees who are on a break, resting, or recovering without crowding. Should natural vegetation be used for shade, the SS/SHSO will evaluate shade for effectiveness.

Field Staff Responsibilities

Field Staff should take ordinary rest breaks in the shaded areas and monitor themselves for signs of heat stress, and go to the shaded area when they need to cool down. Any issues or problems with shaded areas should be reported to the SS/SHSO for the Site.

If shaded areas are used for a preventative cool-down, the SS/SHSO will ensure the affected employees will remain in the shade until they begin to feel better. The SS/SHSO will continue to monitor the employees and ask them if

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they are experiencing symptoms of a heat illness. Employees shall not be sent back to work before symptoms have ended and at a minimum at least 10 minutes of rest.

8. MONITORING AND SCHEDULING

Monitoring

The SS/SHSO and Field Team will continue to monitor themselves and others for signs of heat illness. The SS/SHSO will monitor when the air temperature exceeds 80°F. Throughout the summer, weather and temperature will be monitored at least two weeks ahead, and the work schedule will be planned to accommodate the expected weather.

Scheduling

Scheduling accommodations may include:

- Working during cooler hours of the day
- Working at night
- Stopping work early
- Rescheduling work activities
- Increasing frequency of breaks

In general, strenuous work activities shall be rescheduled to the coolest parts of the day.

Special precautions are required for temperatures above 80°F, 95°F, and heat waves. These precautions are provided in the sections below.

9. ACCLIMATIZATION AND NEW EMPLOYEE PROCEDURES

Roux requires employees to be acclimatized in order for them to better tolerate heat in the workplace. Acclimatization is the physical process of adapting to a different thermal environment, allowing a better toleration of heat. Acclimatization procedures require gradual exposure that gives the employee time to adjust to each level of exposure. Acclimatization is essential for new employees but is necessary for all employees when the temperature significantly changes. Heat stress is much more likely if these procedures are not followed.

The SS/SHSO is responsible for observing new employees during their first 14 days of employment in high-heat areas.

Re-acclimatization is necessary if employees are absent from high-heat environments for a week or more or the temperature increases significantly.

10. HEATWAVE AND EXTREME HEAT PROCEDURES

Heat Wave Procedures

A heat wave is defined as consistent temperatures over 80°F or if the temperature is 10° higher than the average daily temperatures in the preceding 5 days.

SS/SHSO and Project Management (e.g., PP, PM) shall closely observe and monitor employees during a heat wave. The Field Teams should institute a ratio of one SS to 20 or fewer employees, a mandatory buddy system, or

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a consistent practice for supervisors to check on employees. Pre-shift meetings to review high-heat procedures with employees will be carried out to emphasize work-rest schedules, drinking water, shade, etc.

Extreme Heat Procedures

When work-site temperatures equal or exceed 95°F, the employer will enact extreme heat procedures:

- Employees will be closely observed by the SS/SHSO for signs of heat illness. New employees will be supervised for acclimatization.
- Effective communication and monitoring will be ensured through the use of periodic check-ins via phone with the SS/SHSO. Communications between employees and Project Management (e.g., PP/PM) will be established and maintained. Mandatory 10-minute break periods are required for every two hours worked. SS/SHSO must enforce this rule.
- Pre-shift safety tailgate meetings will occur to review procedures and to remind employees to drink water and take cool-down rests if needed. SS/SHSO shall remind employees to rest and drink water. Employees should drink more water than usual.

11. EMERGENCY RESPONSE PROCEDURES

Roux is dedicated to providing prompt appropriate care for all employees who report or show symptoms of heat illness. If an employee shows signs of heat illness, they will be monitored and shall not be left alone or sent home without being offered first aid or emergency medical services. If on-site personnel require any medical treatment, the following steps will be taken:

1. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, AllOne Health (AOH), immediately following the notifications provided above.
2. Based on discussions with the Project Team, Corporate Management, and the AOH evaluation, if medical attention beyond onsite First Aid is warranted, transport the injured/ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with locations and directions is provided within Site Specific Health and Safety Plans.
3. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).
4. The SHSO and Project Manager will perform a Loss Investigation (LI), and the Project Team will complete the final Loss Report.

12. HEAT-RELATED ILLNESSES

Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment (PPE) in hot-weather environments. For these reasons, the company will provide potable drinking water and access to shade or other areas of relief (i.e., air-conditioned vehicles and work trailers). Supervisors, prior to supervising personnel in the field as well as all personnel involved with the fieldwork of a project, are trained in this HASP that includes preventing heat-related illnesses and the below procedures in response to heat-related symptoms and illness. Since much of our work is dependent upon environmental factors beyond our control, we must closely monitor air temperature and humidity and be aware of avoiding radiant heat sources and providing as much air circulation as possible wherever we work. Physical factors that need to be evaluated as part of our Job Safety Analysis (JSA) reviews include the level of physical activity and duration of work

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and the type (i.e., color, weight breathability) of the clothing we select. In addition, personal factors such as age, weight, fitness, drug/alcohol use, and prior history of heat-related illness need to be considered.

Heat cramps are brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body, resulting in painful muscle cramps. The signs and symptoms of heat stress are as follows:

- Severe muscle cramps, usually in the legs and abdomen;
- Exhaustion, often to the point of collapse; and
- Dizziness or periods of faintness.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

Heat Exhaustion

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids. If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot red skin;
- Body temperature approaching or above 105 degrees F;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

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First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling is worn in hot-weather environments.

13. OTHER HEAT CONTROLS

Clothing and PPE

Employees should choose clothing that is reflective, light-colored, lightweight, loose-fitting, and breathable. Clothing should cover the exposed parts of the body. In direct sun, hard hats with a brim or bill may be helpful. Should specialized cooling garments be applicable, please consult with your OM/OHSM/CHSD.

Managing Employee Risk Factors

It is recommended that employees are aware of how their health can affect their risk of heat stress. The following increases personnel's risk for a heat-related illness:

- A poor level of physical fitness
- Obesity
- Chronic or acute illnesses
- Conditions such as diabetes, heart disease, or high blood pressure
- Certain medications, such as diuretics
- Age (60+)

Employees should:

- Maintain their health outside of work
- Be aware of the effects of medications
- Drink adequate amounts of water
- Eat light, cool meals during work shifts and save heavy meals until after the shift is over
- Do not skip meals: food helps replace electrolytes when sweating
- Take breaks as needed
- Do not consume alcohol prior to working in a hot environment

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APPENDIX D

Personal Protective Equipment (PPE)
Management Program

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PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/2019**
REVIEW DATE	:	**03/2025**
REVISION NUMBER	:	**6**

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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux"), have instituted the following program to establish guidelines for the selection of personal protective equipment (PPE) for use by Roux personnel performing field activities in hazardous environments. PPE is not meant to be a substitute for engineering, work practice, and/or administrative controls, but PPE should be used in conjunction with these controls to protect employees in the workplace. Clothing, body coverings, and other accessories designed to prevent worker exposure to workplace hazards are all types of PPE. To ensure adequate PPE,, employee-owned PPE is assessed on a case-by-case basis to ensure its adequacy, maintenance, and sanitation.

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to implement the Roux program. The foundations for this program are the numerous Occupational Health and Safety Administration (OSHA) standards related to PPE cited in 29 CFR 1910 Subpart I, 29 CFR 1926 Subpart E, and the hazardous environment work employee protection requirements under the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at 29 CFR 1910.120 and 1926.65 as well as California OSHA (Cal/OSHA) Title 8 5192 HAZWOPER. To ensure hazard assessments are documented, the levels of protection, types of protection, and tasks requiring protection are covered in site-specific Health and Safety Plans (HASPs) and Job Safety Analyses (JSAs).

3. PROCEDURES

Due to the varied nature of site activities and the different potential hazards associated with different sites, several aspects must be considered when selecting PPE. The following text describes PPE selection logic and provides guidelines and requirements for the appropriate selection and use of PPE.

3.1 Introduction

To harm the body, chemicals must first gain entrance. The intact skin and respiratory tract are usually the first body tissues that are exposed to chemical contaminants. These tissues provide barriers to some chemicals but, in many cases, are damaged themselves or are highly permeable by certain chemical compounds. PPE, therefore, is used to minimize or eliminate chemical compounds from coming into contact with these first barrier tissues.

Proper PPE selection is essential in preventing exposure. The Project Manager (PM) or health and safety personnel making the selection will have to consider several factors. The level of protection, type, and kind of equipment selected depends on the hazardous conditions. In some cases, additional selection factors include cost, availability, compatibility with other equipment, and performance. All these factors must be accurately assessed before work can be safely carried out.

3.1.1 Training

Training shall be provided to all field-based employees on how to properly use and care for PPE. Training shall include, but not be limited to, the initial 40-hour HAZWOPER training, annual 8-hour HAZWOPER refresher training, and site-specific PPE training. The training program includes when PPE is necessary, what types of PPE are required; how to don, doff, adjust, and wear PPE; the limitations of PPE; the proper care, maintenance, useful life, signs of PPE failure and emergency procedures to follow in the event of PPE failure and disposal of PPE. In addition, retraining shall be conducted when workplace changes require a change in PPE when an employee demonstrates a lack of knowledge or improper use of PPE is identified.

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3.2 Types of PPE

The type and selection of PPE must meet certain general criteria and requirements as required under OSHA 29 CFR 1910.132 (General Industry) and 1926.95 (Construction). In addition to these general requirements, specific requirements and specifications exist for some types of PPE that form the basis of the protective clothing scheme. All manufacturer's recommendations for PPE care and use shall be followed. All PPE shall be maintained in a sanitary and reliable condition. Additionally, proper fit and size shall be evaluated to ensure adequate employee protection. Should PPE become defective, it shall be immediately removed from service and discarded.

The following is a list of the common types of specific PPE and the specific requirements for the PPE type, where applicable:

1. Hard Hats - Regulated by 29 CFR 1910.135 and 1926.100; and specified in ANSI Z89.1.
2. Face Shields and Safety Glasses - Regulated by 29 CFR 1910.133 and 1926.102; and specified in ANSI Z87.1.
3. Respiratory Protection - Regulated by 29 CFR 1910.134 and 1926.103.
4. Hand Protection - Regulated by 29 CFR 1910.138
5. Foot Protection - Regulated by 29 CFR 1910.136 and 1926.96; and specified in ANSI Z41.1.
6. Protective Clothing (e.g., fully encapsulated suits, aprons) - Specified in NFPA 1991/1992/1994.

3.2.1 PPE Inspection, Cleaning Maintenance, and Storage

The Office Health and Safety Manager (OHSM) or their designee is responsible for procuring PPE, in accordance with this management program. Single-use/disposable PPE should be purchased and used whenever practicable.

3.2.1.1 PPE Inspection

Roux employees must inspect PPE regularly, before and after each use, to check for defects and damage. Garments and other PPE in central storage must be inspected at least annually or as recommended by the manufacturer by the OHSM, Equipment Manager, and/or their designee. Defective or damaged equipment must be tagged as out-of-service, immediately removed from the work site, and discarded.

3.2.1.2 PPE Cleaning and Maintenance

All Roux employees are responsible for routine cleaning of their assigned PPE. Decontamination of PPE is addressed within Roux's Site Control and Decontamination Program as specified within site-specific health and safety plans. As appropriate, Roux employees should be issued single-use PPE when practicable to minimize the requirement for decontamination. When performing routine cleaning of reusable PPE:

- Always follow the manufacturer's recommendations to avoid damaging the PPE. For example, some cleaning solutions compromise the integrity of protective helmets shell.
- Clean and maintain PPE according to the manufacturer's recommendations. Before being re-issued, PPE should be thoroughly sanitized.
- Disassemble, wash and sanitize reusable respirators after each use. For more information, refer to Roux's Respiratory Protection Management Program.

Employees are not authorized to repair PPE without prior approval from the Health and Safety Department. Reusable PPE may require maintenance by the manufacturer to maintain integrity and certification. Many

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manufacturers specify which repairs, if performed by the end-user, will void the product warranty. Therefore, Roux employees are not authorized to perform such maintenance or repairs.

3.2.1.3 PPE Storage

Certain equipment failures can be directly attributed to improper storage. The OHSM or Equipment Manager (or another designated person) is responsible for implementing procedures for appropriate PPE storage, for equipment that is centrally stored. Both central storage and dedicated PPE provided to employees should be stored using the following:

- Store goggles and safety glasses in protective cases.
- Store PPE (such as helmets, boots, etc.) in clean, dust-proof containers or bags out of direct sunlight.
- PPE should ideally be stored under climate-controlled conditions. PPE, stocked gear bags, and/or go-kits should not be stored in hot, cold, or other extreme environmental conditions, and they should not be stored in vehicles (government-owned or rentals) for even short periods of time. Do not store helmets on the rear window shelf of a vehicle.
- Store different kinds of clothing and gloves separately to prevent errors in selection.
- Hang or fold protective clothing in accordance with manufacturers' recommendations.
- Never store contaminated PPE near new protective clothing or street clothing. Potentially contaminated, reusable clothing must be stored (usually bagged) away from new PPE in a well-ventilated area with good airflow around each item until the garment is decontaminated or disposed.
- See Roux's Respiratory Protection Management Program for detailed respirator storage procedures.

3.3 Fitting, Donning, and Doffing PPE

Roux shall provide appropriately sized PPE for Roux employees. Improper fitting such as tight-fitting garments, can tear, especially at the knees, crotch, shoulders, back, and elbows due to movement. Protective clothing that is too large can easily snag and/or limit a user's dexterity. The Roux PM shall ensure site/project-specific PPE is kept in a sufficient stock of appropriately sized PPE (e.g., Level C ensembles). The OHSM, Equipment Manager, and/or their designee shall maintain a sufficient stock of appropriately sized PPE in central storage locations.

The Site Supervisor (SS)/Site Health and Safety Officer (SHSO) is responsible for ensuring that site-specific procedures for donning and doffing PPE are incorporated into site-specific HASPs. Donning and doffing procedures may differ depending on the type of PPE and clothing (e.g., Level D, Modified Level D, Level C) utilized. Site-specific conditions may warrant adjustments to such procedures. Consult the CHSD for additional information. Roux's Site Control & Decontamination Management Program can be referenced for the development of such procedures, which provide additional information on doffing and decontamination procedures related to Level A-D work.

Site-specific donning and doffing procedures should include using an assistant where necessary. Donning and doffing certain types of PPE without assistance could risk failure or damage. Care must be taken to prevent the spread of contaminants on the PPE. Decontamination procedures should limit the potential for cross-contamination and may include gross decontamination of outer boots, gloves, and suits as necessary to prevent contaminants from tracking into the contamination reduction zone (CRZ) and clean zone(s).

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3.4 Controlling Hazards Associated with PPE Use

PPE use can pose potential health and safety hazards, which range from minor discomfort to life-threatening height stroke. The magnitude of the potential hazard can vary and will depend on various factors, including an individual's fitness level, the type of PPE worn, the work demands, individual work practices, duration of work, and environmental conditions. The use of PPE can also lead to reduced efficiency and work performance.

Among hazards associated with PPE use, heat stress emerges as a prevalent and significant hazard. Particularly, the use of substantial and/or impermeable attire, such as heavy coveralls, Tyvek suits, splash suits, or Level A or B suits, alongside strenuous work, amplifies the risk of heat stress. Regular monitoring for indications of heat stress is imperative for workers operating in such conditions. Roux's Heat Illness Prevention Program lays out requirements for signs and symptoms as well as preventative measures to mitigate the potential for heat illness. In addition, cold environments can pose adverse risk, such examples include use of non-insulated steel-toe safety shoes in frigid conditions which has the potential to increase the risk of frostbite, while safety gloves worn for chemical protection may inadequately insulate hands from the cold.

It is the responsibility of Project Teams to integrate site-specific protocols to manage PPE hazards into such site-specific HASPs. These protocols can encompass considerations like work/rest ratios, crew rotations, and other accommodations for exceptionally demanding conditions.

The following measures are recommended for controlling hazards posed by PPE use:

- Prioritize through the hierarchy of controls with a focus on elimination, substitution, engineering, work practice and administrative control implementation rather than sole reliance on PPE. PPE shall be considered the last line of worker protection.
- Workers should maintain physical fitness to be able to withstand the potential physical strain of PPE use. A physically fit individual will endure less physiological strain, manifesting in a lower heart rate, reduced body temperature (indicating diminished retained body heat), more effective sweating, slightly lower oxygen consumption, and carbon dioxide production. Furthermore, acclimatization to extreme environmental conditions, such as high temperatures, can influence work performance and physical capacity.
- Understand the symptoms of PPE failure. Workers encountering any of these symptoms while donning PPE should promptly notify their onsite SHSO and/or SS:
    - Perception of odors when wearing a respirator
    - Skin irritation
    - Acute discomfort
    - Difficulty breathing
    - Unusual fatigue
    - Dizziness
    - Inability to see, hear, or speak clearly
    - Uncomfortable restriction of movement
    - Rapid pulse, nausea, or chest pain
- Implement a buddy system. Especially in situations where there is a need for increased level of protection (e.g., Level A-C) workers should work in pairs or teams, and are instructed to monitor the integrity of their team/partners gear and remain alert for symptoms of PPE failure.

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3.5 PPE Selection

For site-specific work, the Project Manager, in consultation with the Health and Safety Department, has overall responsibility for coordinating the selection and distribution of PPE to field staff and for ensuring that the selected PPE is appropriate for the site-specific hazards. Generally speaking, Roux employees are not engaged in emergency response or perform work at uncontrolled hazardous waste sites; if this is the case, the CHSD shall be made aware of the work and consult with the Project Team on appropriate PPE selection. Most work falls under environmental sampling of low-concentration contaminants in water/soil/perimeter air. Therefore work is carried out in Level D PPE. Upgrades would be based on more information as it becomes available. The United States Environmental Protection Agency (EPA) has created Guidelines for PPE Ensemble Selection to assist workers in selecting PPE ensembles for specific activities and tasks and determining which ensembles and air monitoring equipment should be used to address specific chemicals. Guidelines to Ensembles for Specific Activities/Tasks Where Chemical Exposure is Possible is provided as a reference in Appendix A.

3.6 Protective Clothing Selection Criteria

3.6.1 Chemicals Present

The most important factor in selecting PPE is the determination of what chemicals the employee may be exposed to. The number of chemicals on field investigations may range from a few to several hundred. The exact chemicals or group of chemicals present at the site (certain groups tend to require similar protection) can be determined by collecting and analyzing air, soil, water, or other site media samples. When data are lacking, research into the hazardous materials used or stored at the site can be used to infer potential chemical exposures on the site.

The most appropriate clothing shall be selected once the known or suspected chemicals have been identified and considered based on the type of work to be performed.

Protective garments are made of several different substances for protection against specific chemicals. There is no universal protective material. All will decompose, permeate, or otherwise fail to protect under given circumstances. Fortunately, most manufacturers make guides to using their products (i.e., Dupont's Tyvek™ Permeation Guide). These guides are usually for gloves and coveralls and typically provide information regarding chemical degradation rates (failure of the material to maintain structural integrity when in contact with the chemical) and may provide information on the permeation rate (whether or not the material allows the chemical to pass through). When permeation tables are available, they shall be used with degradation tables to determine the most appropriate protective material for the specific chemical hazard(s).

During most site work, chemicals are usually in mixed combinations, and the protective materials are not in continuous contact with pure chemicals for long periods; therefore, the selected material may be adequate for the particular chemical of most concern and the type of work being performed, yet not the "best" protecting material for all site chemicals and activities. Selection shall depend upon the most hazardous chemicals based on their hazards and concentrations. Sometimes, layering (i.e., using several layers of protective materials) affords the best protection.

3.6.2 Concentration of the Chemical(s)

One of the major criteria for selecting protective material is the concentration of the chemical(s) in air, liquid, and solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards, American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines to determine the level of skin or other absorptive

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surface (e.g., eyes) protection needed. While these standards are not designed specifically for skin exposed directly to the liquid, they may provide skin designations indicative of chemicals known to have significant skin or dermal absorption effects. For example, airborne levels of PCBs on-site may be low because they are not very volatile, so the inhalation hazard may be minimal; however, PCB-containing liquid coming in direct contact with the skin may cause overexposure. Thus, PCBs have been assigned a skin designation in the OSHA and ACGIH exposure limit tables.

3.6.3 Physical State

The characteristics of a chemical may range from nontoxic to highly toxic, depending on its physical state. Inorganic lead in soil would not be considered toxic to site personnel unless it became airborne since it is generally not absorbed through the intact skin. However, organic lead in a liquid could be readily absorbed through the skin. Soil is frequently contaminated with hazardous materials. Concentrations will vary from a few parts per million to nearly one hundred percent by volume. The degree of hazard depends on the type of soil and concentration of the chemical. Generally speaking, “dry” soils that have not become airborne do not pose a hazard to site personnel if they take minimal precautions, such as wearing lightweight gloves.

3.6.4 Length of Exposure

The length of time a material is exposed to a chemical increases the probability of a breakthrough. Determinations of actual breakthrough times for short-term exposures indicate that several materials that would be considered inadequate under long-term exposures can be used. Different materials that would be considered inadequate under long-term exposures can be used. It should be kept in mind that during the manufacturer’s permeation testing, a pure (100% composition) liquid is usually placed in direct contact with the material, producing a worst-case situation.

3.6.5 Abrasion

When selecting protective clothing, the job the employee is engaged in must be taken into consideration. Persons moving drums or performing other manual tasks may require added protection for their hands, lower chest, and thighs. Using leather gloves and a heavy apron over other normal protective clothing will help prevent damage to the normal PPE and thus reduce worker exposures.

3.6.6 Dexterity

Although protection from skin and inhalation hazards is the primary concern when selecting PPE, the ability to perform the assigned task must be maintained. For example, personnel cannot be expected to perform work that requires fine dexterity if they must wear thick gloves. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that maintain dexterity while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.6.7 Ability to Decontaminate

If disposable clothing cannot be used, the ability to decontaminate the materials selected must be taken into consideration. Once a chemical makes contact with the material, the PPE must be cleaned before reusing it. If the chemical has completely permeated the material, the clothing cannot be adequately decontaminated, and the material should be discarded.

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3.6.8 Climactic Conditions

The human body works best with few restraints from clothing. Protective clothing adds a body burden by increasing weight, restricting movement, and preventing the body's natural cooling process. In severe situations, a modified work program must be used.

Some materials act differently when they are very hot and very cold. For example, PVC becomes almost brittle in frigid temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted before using PPE in the field.

3.6.9 Work Load

Like climactic conditions, the type of work activity may affect work duration and personnel's ability to perform certain tasks. Similarly, the amount of protective materials a person wears will affect their ability to perform certain tasks. For example, a person in a total encapsulating suit, even at 72°F, cannot work for more than a short period of time without requiring a break.

The work schedule should be adjusted to maintain the health of the employees. Modified work practices may include allowing more time for individual job tasks and implementing work/rest cycles per NIOSH and ACGIH thermal stress recommendations. Special consideration should be given to the selection of clothing that protects the worker and adds the least burden when personnel are required to perform strenuous tasks. Excessive bodily stress frequently represents the most significant hazard encountered during fieldwork.

3.6.10 Types of Protective Materials

1. Cellulose or Paper: suitable for nuisance dust and coarse fibers.
2. Natural and Synthetic Fibers
    a. Tyvek™: suitable small-sized hazardous particles, including lead, asbestos, and mold.
    b. Tychem™: is suitable for a variety of hazards, from light liquid splashes to heavy exposures to industrial chemicals and agents.
    c. Nomex™: is suitable for flame-resistance, radiation resistance, acids, alkalis, fluorocarbon refrigerants (CFCs), and non-polar solvents.
3. Elastomers
    a. Polyethylene: suitable for polar substances and solvents.
    b. Saran™ : suitable for flame-resistance, acids, alkalis, oils, and organic solvents.
    c. Polyvinyl Chloride (PVC): suitable for alcohols, oils, inorganic acids, alkalis, and salts.
    d. Neoprene: suitable for polar/non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
    e. Butyl Rubber: suitable for polar substances and solvents.
    f. Viton: suitable for non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
    g. Nitrile: suitable for polar/non-polar substances and petroleum mixtures.

3.7 Protection Levels

3.7.1 Level A Protection

Level A protection (a fully encapsulated suit) is used when skin hazards exist or when no known data positively rule out skin and other absorption hazards. Per the Roux Respiratory Protection Management Program, Roux employees are not authorized to enter an IDLH atmosphere; therefore, the program does

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not allow supplied air respirators (SARs) or self-contained breathing apparatus (SCBA). At no time will Level A work be performed without the consent of the CHSD and OM.

The following conditions warrant the use of Level A protection:

- Hazardous substances have been identified and require the highest level of protection for skin, eyes, and the respiratory system;
- The atmosphere contains less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH) that have not been ruled out;
- Site operations involve a high potential for splash, skin immersion, or exposure to suspected skin hazards;
- Direct-reading instruments indicate high levels of unidentified but potentially hazardous vapors or gases in the air (e.g., Total atmospheric readings on the Photoionization Detector (PID), Flame Ionization Detector (FID), and similar instruments indicate 500 to 1,000 ppm of unidentified substances); and
- Direct-reading instruments are not available to test the air and suspected highly toxic substances may be present.

It may be necessary to base the decision to use Level A protection on indirect evidence. Other conditions that may indicate the need for Level A protection include:

- Confined spaces;
- Sites containing known skin hazards;
- Sites with no established history to rule out skin and other absorption hazards;
- Site exhibiting signs of acute mammalian toxicity (e.g., dead animals, illnesses associated with past entry into the site by humans);
- Sites at which sealed drums of unknown materials must be opened;
- Visible indicators such as leaking containers or smoking chemical fires; and
- Extremely hazardous substances (e.g., cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens, and infectious substances) are known or suspected to be present, and skin contact is possible.

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Table 1: Recommended Level A Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full-facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Totally encapsulated chemical- and vapor-protective suit	DuPont® Tychem™ or Responder CSM™	Other material types may be substituted based on known contaminants.
Inner Gloves	Lightweight	Nitrile, Neoprene, PVC, or Viton®	Other material types may be substituted based on known contaminants.
Outer Gloves	An integral part of the suit	See Appendix A for additional information	Confirm chemical performance rating for suspected contaminants. Glove material may have different performance ratings than suit material. All fully-encapsulating suit materials must be compatible with substances involved.
Inner Boot	Integral Part of Suit	-	-
Outer Boot	HazMat boot[2]	–	Confirm chemical performance rating of outer boot for suspected contaminants. Provides slip/abrasion resistance.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

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3.7.2 Level B Protection

Level B protection is utilized when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body is unlikely. At no time will Level B work be performed by Roux personnel without the consent of the CHSD and OM.

The following conditions suggest a need for Level B protection:

- The type and atmospheric concentration of toxic substances have been identified, and they require the highest level of respiratory protection;

- IDLH atmospheres where the substance or concentration in the air does not present a severe skin hazard;
- The type and concentrations of toxic substances do not meet the selection criteria permitting the use of air-purifying respirators and
- It is highly unlikely that the work being done will generate high concentrations of vapors, gases, particulates, or splashes of materials that will affect personnel's skin.

Table 2: Recommended Level B Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full- facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Chemical-resistant clothing (liquid-splash protective suit with integral boot and hood)[2]	DuPont® Tychem® CPF 3	Other material types may be substituted based on known contaminants.
Inner Gloves	Light/medium weight	Nitrile, Neoprene, PVC, Viton®, or PE/EVAL	Other material types may be substituted based on known contaminants.
Outer Gloves	Medium/heavy weight	Butyl MIL-G12223, Nitrile, Neoprene, PVC, Viton®, PE/EVAL, or heavy weight Nitrile or Neoprene	Confirm chemical performance rating. Other material types may be substituted based on known contaminants.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA-rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants/anticipated tasks.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.3 Level C Protection

Level C protection is utilized when skin and respiratory hazards are well defined, and the criteria for using negative pressure respirators have been fulfilled (i.e., known contaminants and contaminant concentrations, acceptable oxygen levels, approved filter/cartridge available, known cartridge service

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life, etc.). Level C protection may require an emergency escape respirator during specific initial entry and site reconnaissance situations or when applicable after that.

Table 3: Recommended Level C Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Full-face air-purifying respirator with appropriate cartridge[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program for information about the brand, model, acceptable configurations, and specific care instructions for the standard issue respirator. Half-faced respirators may be donned if hazard assessment warrants.
Suit	Puncture/tear resistant suit material with boot and hood[2]	DuPont® Tychem® CPF 2/CPF 3 or Saranex	Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Gloves	Light weight	Nitrile, Neoprene	Other material types like Neoprene, PVC, Viton®, or PE/EVAL may be substituted based on known contaminants, if considered more appropriate.
Outer Gloves	Medium/heavy weight	Butyl, Nitrile, or other work glove	Confirm chemical performance rating. Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants.
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3],[4]	-	-

1 Must be NIOSH approved.
2 Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
3 Must comply with the applicable ANSI standard.
4 In the case a ½ face respirator is worn eye protection is required.

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3.7.4 Level D Protection

Level D is the basic work uniform. Level D is worn when the atmosphere contains no known hazard. Work functions preclude splashes, immersion, potential for inhalation, or direct contact with hazard chemicals. For most Roux field jobs Level D is the standard minimum level of protection worn.

Table 4: Recommended Level D Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	None	-	-
Suit	Coveralls, street clothes, or disposable Tyvek suit	–	Other types may be substituted as appropriate.
Inner Gloves	N/A		
Outer Gloves	As appropriate for physical hazards and for comfort	–	-
Boot	Safety work boot	–	Roux's standard safety boot is 6", steel/composite safety toe, and electrical hazard (EH) rated.
Outer Boot Covering	As appropriate	–	–
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3]	-	-
High Visibility Clothing	High Visibility Vest /Jacket[3]	-	ANSI Class 2 Safety Vests/Jackets are the standard. Class 3 Safety vests/jackets shall be worn in worksites with 50+ MPH traffic.
Hearing Protection	Ear muffs/plugs	-	Workers exposed to excessive noise shall don hearing protection. Refer to Roux's Hearing Conservation Program for more information.

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.5 Level E Protection

Level E protection is used when radioactivity above 10 millirems per hour (mrems/hr) is detected at the site. Personal protective equipment for Level E includes:

- Coveralls;
- Air purifying respirator (i.e., P100 or equivalent);
- Time limits on exposure;
- Appropriate dermal protection for the type of radiation present, and

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- Radiation dosimetry and ambient monitoring.

3.7.6 Additional Considerations

Fieldwork will contain a variety of situations due to chemicals in various concentrations and combinations. These situations may be partially ameliorated by following the work practices listed below:

1. Foot protection is needed on every site. If the ground to be worked on is contaminated with liquid, and it is necessary to walk in the chemicals, some sort of protective shoe coverings or "booties" can be worn over the boots. Shoe coverings should be designed with soles to help prevent slips. Using disposable shoe coverings when contacting liquid contamination can on and reduce overall decontamination requirements. If non-liquids are to be encountered, a Tyvek™ bootie could be used. The advantage of booties is questionable if the ground contains any sharp objects. Boots should be worn with either cotton or wool socks to help absorb perspiration.
2. If the site requires hard hats, chin straps should be used if a person is stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats, as this will affect the respirator's fit.

   Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under protective clothing. Protective clothing should be removed before allowing a person "to get warm." Applying heat, such as with a space heater, to the outside of the protective clothing may drive contaminant permeation. In hot weather, under clothing will absorb sweat. It is recommended that workers use all cotton undergarments.
3. Body protection should be worn and taped to prevent anything from running into the top of the boot. Gloves should be worn and taped to prevent substances from entering the top of the glove. Duct tape is preferred, but masking tape can be used. When aprons are used, they should be taped across the back for added protection. However, this should be done so that the person has mobility.
4. Atmospheric conditions such as precipitation, temperature, wind direction, humidity, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile materials to become airborne. These parameters should be considered in determining the need for and the level of protection.
5. A program must be established for periodic air monitoring during site operations. Without an air monitoring program, any changes to air quality would go undetected and might jeopardize on-site personnel. Monitoring can be done with various types of air pumps and filtering devices, followed by laboratory analysis of the filtration media, personnel dosimeters, and periodic walk-throughs by personnel carrying real-time direct-reading survey instruments.
6. For operations in the exclusion zone, different levels of protection may be selected, and various types of chemical-resistant clothing may be worn. This selection should be based on the job function, reason for being in the area, and the potential for skin contact with, or inhalation of, the chemicals present.
7. Escape masks must be readily available when levels of respiratory protection do not include an SCBA and the possibility of an IDLH atmosphere exists. The use and placement of escape masks should be made on a case-by-case basis. Escape masks should be strategically located at the site in areas with a higher potential for vapors, gases, or particulates.

3.8 Decontamination of PPE

Roux prefers the use of single-use PPE to minimize the requirement for significant decontamination. The following procedures shall be considered should a field project require the need for decontamination of PPE. Roux has also developed a Site Control and Decontamination Management Program.

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3.8.1 Site-Specific Decontamination Plans

The Project Manager (or another authorized individual) is responsible for formulating the site-specific PPE decontamination plan as an integral part of the Health and Safety Plan (HASP). The SHSO/SS' responsibilities include ensuring the plan's implementation and adapting it as site conditions evolve. Refer to Roux's Site Control and Decontamination Management program for additional requirements.

The decontamination plan, often created in conjunction with PPE selection, must be established prior to workers entering potentially contaminated areas. The plan should address the following key aspects:

- Decontamination Hazard Evaluation and Risk Assessment: Assessing risks associated with decontamination processes.
- PPE for Decontamination Line Assistants: Specifying appropriate PPE for personnel involved in decontamination.
- Roles and Responsibilities During Decontamination: Defining tasks and duties during the decontamination process.
- Layout and Quantity of Decontamination Stations: Determining the number and arrangement of decontamination stations, along with the designated PPE decontamination procedures at each station.
- Decontamination Equipment: Identifying the necessary equipment for effective decontamination.
- Decontamination Methods: Describing the methods and protocols for decontaminating personnel and equipment.
- Preventing Contamination of Clean Areas: Outlining procedures to prevent contamination of uncontaminated zones.
- Minimizing Contact with Contaminants During CPC Removal: Providing guidelines to reduce wearer exposure during the removal of Chemical Protective Clothing (CPC).
- Disposal Procedures for Inadequately Decontaminated Clothing and Equipment: Ensuring proper disposal practices for items that have not been adequately decontaminated.

The initial decontamination plan, which is developed in conjunction with the initial site hazard assessment, should be based on worst-case assumptions about the extent and type of contamination.

3.8.2 Emergency Decontamination of PPE

The designated SHSO/SS (or another authorized individual) assumes responsibility for addressing emergency decontamination within the site-specific Health and Safety Plan (HASP). Emergency decontamination may become necessary due to events such as fires, explosions, sudden violent storms, or medical emergencies. The emergency decontamination plan must clearly delineate emergency egress routes, as well as procedures for both decontamination and egress.

Some key points to consider regarding emergency decontamination.

- Immediate Notification: The SHSO/SS (or their designated counterpart) must be promptly informed of any circumstances requiring emergency decontamination. Additionally, they are accountable for tracking all personnel during the process.
- Urgent Medical Treatment: If urgent medical attention is necessary, decontamination of PPE may be delayed until the victim's condition stabilizes.
- Balancing Priorities: When feasible, decontamination should occur without hindering essential first aid. However, if a worker is exposed to an extremely toxic or corrosive substance, immediate decontamination is crucial to prevent severe injury or fatality.

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- Heat-Related Illness: In cases of heat-related illness, protective clothing must be promptly removed (refer to Roux's Heat Illness Prevention Program).

Emergency Facilities:

- For workers potentially exposed to corrosive materials, quick drenching or flushing facilities must be provided in accordance with 29 CFR 1910.151(c) and 1926.50(g).
- Similarly, if workers face other hazards (such as splash or dust) that could harm the eyes or body, readily accessible wash stations are essential. These stations should be properly located and maintained, including regular water changes, as per the manufacturer's instructions.

3.8.3 Protection of Decontamination Line Assistants

Should work require a decontamination corridor the following shall be used as guidance. The SHSO/SS (or other designated person) must for ensuring that decontamination line assistants receive appropriate PPE and addressing their protection within the site-specific HASP. Key zones—namely, the Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Clean Support Zone—must be clearly marked both in the field and within the site-specific HASP. The following should be considered when preparing for protection of decontamination line assistants.

1. Task Hazard Analysis: A thorough analysis must be conducted for line assistants to determine the optimal PPE level required. Factors influencing this decision include:
    - Expected or Visible Contamination on Responders
    - Type of Contaminant and associated respiratory and skin hazards
    - Total Vapor/Gas Concentrations in the CRZ
    - Presence of Particulates and specific inorganic or organic vapors in the CRZ
    - Results of Wipe Tests (refer to Section 5.4)
    - Slope and Configuration of the CRZ
2. PPE Levels: Depending on the situation:
    - Line assistants may need to wear the same PPE level as workers in the EZ.
    - Alternatively, line assistants may be adequately protected by using PPE one level lower (e.g., wearing Level C protection while decontaminating workers who are wearing Level B)."

3.8.4 Procedures to Minimize PPE Contamination

Proper work practices and procedures should be implemented at sites to minimize the potential for contact with chemicals of concern while onsite. The following guidance should be considered when developing site-specific procedures:

- Opt for single-use Personal Protective Equipment (PPE) when feasible to minimize decontamination needs.
- Ensure complete sealing of PPE closures and interfaces, including pockets, zippers, and other potential openings.
- Position gloves and boots underneath the sleeves and pant legs of outerwear to reduce exposure.
- Place hoods outside the collar if they are not already attached.
- Utilize disposable outerwear and equipment when suitable to facilitate easy disposal and reduce decontamination efforts.
- Secure all junctions with tape to block contaminants from entering gloves, boots, jackets, and suits.

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- Adopt work practices that limit contact with hazardous substances, such as avoiding unnecessary exposure.
- Employ remote techniques for sampling, handling, and opening containers, like using drum grapples and pneumatic impact wrenches.
- Store monitoring and sampling devices in bags designed with openings for sample ports and sensors.
- Cover contaminant sources with plastic sheeting or overpacks to shield PPE from contamination.

3.8.5 PPE Disposal

The PM, in coordination with the field team, shall ensure the safe disposal of all wastes generated from PPE use. PPE must be placed in appropriate containers, labeled, and prepared for disposal separately from other forms of waste. Refer to Roux's General Waste Corporate Management Program for further guidance.

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APPENDIX A
EPA's Emergency Responder Health and Safety Manual

GUIDELINES TO ENSEMBLES FOR SPECIFIC ACTIVITIES/TASKS WHERE CHEMICAL EXPOSURE IS POSSIBLE

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GUIDELINES TO ENSEMBLES FOR SPECIFIC ACTIVITIES/TASKS
WHERE CHEMICAL EXPOSURE IS POSSIBLE

IMPORTANT: READ FOOTNOTES AND ASSUMPTIONS/JUSTIFICATIONS PRIOR TO USING TABLE

Notes:

1. This table is for use by trained environmental professionals only. To use this table:
   a. Scan the activity description to find activities (bolded) that most closely matches those you plan to engage in.
   b. Review Hazard/Conditions section to make sure the hazards of the planned activity match those listed. Note the Required Work Practices and be ready to follow them.
   c. For those activities most likely to be conducted as part the response, select Targeted Minimum PPE (Personal Protective Equipment).
   d. Necessary equipment needs to be available and used unless other information becomes available which necessitates an upgrade or allows a downgrade in the protection level. The work area must be continuously re-evaluated to ensure workers have the proper safety equipment.
   e. When working in hazardous environments, workers must always be aware of their surroundings. In addition to this Table, workers entering these environments need to use "common sense" prior to proceeding.
2. These ensembles focus on chemical protection and may not be adequate for all hazards. This Table can be used as a starting point but does not circumvent proper evaluation by an industrial hygienist in appropriate situations. See Table 2 for more specific chemical agents.
3. Suits, gloves, boots listed in the Minimum PPE column will not be appropriate for all activities, hazards and conditions. The listings should be used as a guide only. Confirm PPE compatibility with specific chemical contaminants.
4. A comprehensive Task Hazard Analysis must be performed prior to final selection of ensembles/PPE material types.
5. Hardhat (Class A or C), safety glasses/other eye protection are typically required but may not be specified here. In noisy environments (above 85dB) hearing protection is required. In areas where there is traffic, heavy machinery, or other hazards involving worker visibility problems a Class 2 High Visibility Vest must be worn. Activities requiring vests include natural disaster responses, demolitions, and excavations.
6. PPE makes and models referenced in these tables are only suggestions. Other comparable, adequate makes and models may be used.

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment – Low Hazard Expected (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Suspected low hazard based on site history/visual evidence. • No CBRN suspected. • No visible/suspected vapors. • No potential for IDLH atmosphere. • Unknown physical hazards. • Some site background information. • No intrusive work expected. • Low potential for chemical splash/contact (based on expected tasks/ known conditions). • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem CPF-3 (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON**: Dry or soap & water

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment of Unknown – Potential Moderate Hazard (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Possible high hazard chemicals based on site history/visual evidence (spills, corrosion, industrial practices, etc.). • No CBRN suspected. • No visible/suspected vapors. • **No** reasonable potential for **IDLH** atmosphere. • Unknown physical hazards. • Little/ no site background information. • No intrusive work expected. • Low potential for chemical splash/contact. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Downgrade/upgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem Responder (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON**: Dry or soap & water

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Emergency Response and/or Initial Entry/Assessment of Unknown - Suspected High Hazard (Sites/Facilities): • Air and Radiation Monitoring Sweep • Visual Assessment • Note Taking • Photo-documentation	• Potential for high hazard chemicals/ IDLH based on site history/visual evidence (visible/expected reactions, spills, vapors, fumes, smoke, known releases, etc.). • No CBRN suspected. • Potential for chemical reactions. • Unknown physical hazards. • Little/ no site background information or information suggesting high hazard. • Intrusive work possible. • Potential for chemical splash/contact. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level A** (Downgrade/upgrade (Trelleborg, etc.) based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** Encapsulating [I]Tychem Responder/Responder CSM (with boot, hood, gloves)/ChemTape **Inner Glove:** [II]Nitrile (6 mil min recommended) **Outer Glove:** [II]Neoprene, Nitrile, (28 mil min recommended) **Outer Steel Toe/Steel Shank Boot:** [IV]Tingley HazProof Model 82330 and rely on suit boot material for permeation protection. (ASTM F-2413/ANSI Z41) **DECON**: Dry or soap & water: water source for emergency DECON; other DECON agents on hand.

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Drum/Tank Sampling • Container opening • Continuous air monitoring • Product sampling	• Unknown chemicals. • No CBRN. • Potential splash hazard. • Physical hazard controls in place. • Assumes no initial hazardous atmosphere. • Ensure availability of water source for emergency DECON/shower/eyewash. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem Responder (with boot, hood)/ChemTape **Inner Glove:** [II]Nitrile, Neoprene, Viton, PVC **Outer Glove:** [II]Heavy Duty Butyl, Nitrile, **Other:** ANSI Approved Splash Shield **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON or soap and water; water source for emergency DECON and eyewash suggested.

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Hazardous Categorization Testing (**HAZCAT**) • Opening sample containers in controlled environment • Working with small sample quantities in well ventilated area • Conducting HAZCAT testing with appropriate lab equipment	• Assumes known chemical classes and site situation/background. • No CBRN suspected. • Assumes immediate suit removal if contaminated and frequent glove changes. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Level B** (Upgrade/Downgrade based on knowledge of contaminants and monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs) **Respirator: Scott or MSA Full Face** **Suit Type:** [I]Tychem CPF4 (with hood, boot) **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Viton or 4-H (use surgie over the 4-H for dexterity) **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry or soap and water; water source for emergency DECON and eyewash suggested

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Oil Spill Response/Recovery Operations – Fresh Product: • Recovery operations (vac truck, skimmers, boom deployment where direct contact expected) • Product sampling • Continuous air monitoring at/near source of spill	• Crude oil/diesel/kerosene/gasoline spill. • Assumes fresh/ongoing spill, close proximity to source. • Assumes early phase while evaporation of light organics, benzene/other aromatics is still occurring (24-48 hours or if spill is on-going). • Assumes down-wind location. • Continuous air monitoring required for %LEL, Organics, $\%O_2$ (and H_2S as necessary for sour crude). • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level C:** 1/2 face respirator w/safety glasses/goggles as needed for splash protection. Downgrade as appropriate based on air monitoring. **Respirator: Scott or MSA ½ Face** **Respirator Cartridge:** [III] Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent). **Suit Type:** [I]Tychem CPF4 w/boot [jet fuel use Tychem BR] **Inner Glove:** [II]Neoprene (for protection at DECON line only, not for prolonged contact) **Outer Glove:** [II]Viton-Butyl Rubber (assumes potential for direct contact with fresh material – based on benzene/aromatic constituents) SEE NEXT ROW FOR WEATHERED PRODUCT. **Outer Steel Toe Boot:** [IV]Tingley HazProof Model 82330 **or** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty and rely on suit boot material for permeation protection. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/ Soap and water as feasible

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Oil Spill Response Assessment/Recovery – Weathered Product • Shoreline clean-up assessment (SCAT) • Environmental sampling/weathered product sampling • Recovery Operations for weathered material • Assessment via boat/on or near water – use appropriate flotation device with ensemble.	• Crude oil/diesel/kerosene/gasoline spill. • Assumes weathered oil (over 24-48 hours, depending on spilled material and ambient temperatures). • Assumes operations are remote from source of spill. • Assumes no other potential for airborne aromatics/benzene/flammable vapors.	**Modified Level D** (Upgrade/Downgrade based on potential for contact and air monitoring with FID/PID, LEL/O_2 Meter. **If contact with material suspected, use following:** **Suit Type:** [I]Tychem F w/boot [jet fuel-Tychem BR] (Tychem SL may be an option for weathered crude/diesel – see manufacturer's information) **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) **Outer Boot Cover:** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Demolition/Excavation Operations: • Heavy equipment operation • Excavation/Trenching • Continuous air monitoring when soil is disturbed or demolition activities conducted. • Fuel Oil underground tank removal. • Drum Excavation activities EXCLUDED.	• Demolition activities generating potentially hazardous particulates (asbestos, lead, silica, etc.). • Excavation activities that could expose soil contaminated with low levels of known hazardous chemicals to the surrounding area /in the trench/ excavation. • No potential for IDLH atmosphere. • Site background information available. • Known physical hazards. • Workers will have minimal/ no contact with contaminants (i.e., operators in a cab, inspectors/ observers at a safe distance). • Continuous air monitoring required in trench for %LEL, Toxics, and $\%O_2$ when workers are in trench and for particulate when activities generating particulate are conducted. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level C:** 1/2 face respirator w/safety glasses. Downgrade or upgrade as appropriate based on air monitoring. **Respirator: Scott or MSA ½ Face** **Respirator Cartridge:** [III] Multi-Phase Cartridge (Scott 642 Multi-purpose P-100; MSA with/GME P-100 or equivalent). **Suit Type:** [I]Proshield Next Gen **Inner Glove:** NA **Outer Glove:** Leather **Outer Steel Toe Boot: NA** **Steel Toe Boot Cover**: [V]Latex HazMaster Booty (if chemical in soil is possible) **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/ Soap and water as feasible

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery: • Routine hand collection/pick-up of small containers from debris piles/lines • Land based operations - conducted on foot **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown materials – confident identification based on visual observations. • **Required Work practice:** re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level D:** Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs **Suit Type:** [I]Tychem CPF-3 w/boot **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) or Leather **Outer Boot Cover:** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) - Orphan Container Recovery: • Routine Drum recovery from debris lines/piles/ other – conducted on land **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown materials – confident identification based on visual observations. • **Required Work practice:** re-evaluate prior to moving suspicious containers. Air monitoring and PPE upgrade may be required. • **Required Work Practice:** Immediate PPE Change-out (i.e., gloves, etc.) upon contact with chemicals. • **Required Work Practice:** Must follow standard air monitoring protocol.	**Modified Level D:** Upgrade/downgrade based on suspicious containers (not easily identified visually) and air monitoring with PID/FID, radiation detector, LEL/O_2 per HASP/ SOSGs **Suit Type:** [I]Tychem CPF-3 w/boot **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) or Leather **Outer Boot Cover** [V]Latex HazMaster Booty **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible

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Activity Description	Hazards/Conditions	Targeted Minimum PPE
Natural Disaster Response (Hurricane, Tornado, Flood, Earthquake) – Flood water sampling: • Water Sampling of flood waters where potential for contact with hands/feet is high **Note:** Physical Hazards may necessitate PPE modifications.	• Unknown contaminants • Potential for pathogens suspected • Low potential for acute exposure to hazardous chemicals • Assumes open air/well ventilated areas **Required Work Practice:** Monitor all poorly ventilated areas in appropriate PPE/Respiratory Protection for organic vapors (PID & FID), %LEL/flammable atmospheres, H_2S prior to entry	**Modified Level D:** Upgrade based on more information as it becomes available. **Suit Type:** [I]Proshield Next Gen **Inner Glove:** [II]Nitrile **Outer Glove:** [II]Nitrile (Best Nitri-solv 727) **Outer Boot**: Waders (butyl, neoprene) as needed. **Steel Toe/Steel Shank Boots:** ASTM F-2413/ANSI Z41 **DECON:** Dry DECON/Soap and water as feasible
Environmental Sampling (Low Concentration Water/Soil/Perimeter Air): • Multi-media Sampling • Documentation (written/photo) • Inspection of clean-up operations	• Known Chemical Contaminants. • Airborne concentrations well below PELs. • Minimal chance of skin exposure to chemicals. • Insects possible.	**Level D:** Upgrade based on more information as it becomes available. **Suit Type:** [I]Proshield 1 (if ticks, etc. maybe a problem) **Inner Glove:** [II]Nitrile **Outer Glove:** NA **Outer Boot:** NA **Steel Toe Boots:** ASTM F-2413/ANSI Z41 **DECON:** NA

i. Tychem and Proshield suits can be purchased from Safeware: 800-331-6707, http://www.safewareinc.com , (see also LSS, http://www.labsafety.com, Dupont: 1-800-931-3456, http://www2.dupont.com/Personal_Protection/en_US/index.html)

ii. Nitrile Inner/Outer Gloves; Viton; Butyl Rubber; 4-H (polymeric) can be purchased from Safeware: 800-331-6707, http://ww.safewareinc.com ; Airgas: 1-866-718-0685, http://www.airgas.com (see also North Safety, http://www.northsafety.com); Best Gloves, http://www.bestglove.com ; Lab Safety Supply (LSS), http://www.labsafety.com; Airbill, http://www.airbill.com)

iii. Multi-Phase Cartridge (Scott 642 Multi-purpose; MSA with/GME P-100 or equivalent) can be purchased from LSS: 1-800-356-0673, http://www.labsafety.com (see also Safeware, http://www.safewareinc.com; Scott Safety, http://www.scotthealthsafety.com/; MSA, http://www.msanet.com/)

iv. Tingley HazProof Overboots or similar can be purchased from LSS: 1-800-356-0673, http://www.labsafety.com; National Safety, Inc.: 1-800-213-7092, http://www.nationalsafetyinc.com

v. Latex Hazmaster Booties, Nuke Boot or similar can be purchased from Safeware: 800-331-6707, http://www.safewareinc.com; Airbill: 1-215-632-2000, http://www.airbill.com; (see also Airgas, http://www.airgas.com; LSS, http://www.labsafety.com

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APPENDIX E

Subsurface Utility Clearance
Management Program

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SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**01/2019**
REVIEW DATE	**:**	**03/2025**
REVISION NUMBER	**:**	**5**

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APPENDICES

Appendix A – Roux Subsurface Utility Clearance Checklist/ Utility Verification/Site Walkthrough Record

Appendix B – Private Utility Technology Applications and Considerations

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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux"), have instituted the following program for completing proper utility mark-outs and for conducting subsurface clearance activities. This establishes a method to ensure, to the greatest extent possible, that utilities have been identified and contact and/or damage to underground utilities and other subsurface structures will be avoided. For the purpose of this program, a structure is defined as any underground feature that may present a potential source(s) of energy, such as, but not limited to, utility vaults, bunkers, piping, electrical boxes, wires, conduits, culverts, utility lines, underground tanks, and ducts.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, as well as their contractors and subcontractors. Employees are expected to follow this program for all intrusive work involving Roux or other personnel (e.g., contractors, subcontractors) working for Roux, unless the client's requirements are more stringent. Intrusive work activities can include, but are not limited to, digging or scraping the ground surface, including, but not limited to, excavation; test pitting or trenching; soil vapor sampling or the installation of soil borings, soil vapor monitoring points and wells, or monitoring wells; and drilling within concrete slabs on grade.

Deviation from the program, regardless of the specific work activity or location, must be pre-approved based on the client's site knowledge, experience, site conditions, and additional documentation on the site. Any exceptions shall be documented through the Roux Subsurface Utility Clearance Variance Form, located within the Roux Health & Safety Online Application or via OKTA. Approval is required from the Project Principal (PP) and the Operations Manager (OM), in consultation with the Office Health and Safety Manager (OHSM) or Corporate Health and Safety Director (CHSD), prior to mobilization. Depending on the work location, more stringent federal, state, local, or client requirements may apply. It is the responsibility of the Project Team to identify such requirements prior to mobilization.

3. PROCEDURES

3.1 Before Intrusive Activities/Job Planning Process

Prior to intrusive work at a site, the Project Manager (PM) shall ensure that the notification of the State One Call or equivalent service (Nationwide-811) is completed a minimum of 48-72 hours (One-Call State Law Directory) before intrusive work activities (this timeline excludes Saturdays, Sundays, Legal Holidays and 811 observed holidays). This notification is required by law for all states. State-specific or local laws related to utility location may vary. The project team is responsible for understanding requirements that may affect their work site.

Obtain, review, and field verify relevant historical site data that may include: as-builts/site plans; easement/right-of-way information; historical aerial photos/development plans; local/state permitting records; previous site investigation/boring logs; and/or interviews with site representative/client. Interviews with site or client personnel should ask the following:

- Employee(s) Name and Relationship with the site;
- Types of utilities, including structure and location of utilities on-site;
- Depth of known utilities; and
- Any other relevant information as it pertains to the site.

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Prior to intrusive work activities, information pertaining to the site should be included in Roux's Subsurface Utility Clearance Checklist and Utility Verification/Site Walkthrough forms. This form is located within the Roux Health & Safety Online Application or through OKTA.

If there is the potential for unexploded ordnances or munitions, consultation with your OM and CHSD is required prior to site operations.

3.1.1 Project Kick-Off Meeting

During the project kick-off meeting for intrusive activities, the PM will review the Roux Subsurface Utility Clearance Checklist, Utility Verification / Site Walkthrough Record (Appendix A) and the below bullet points with the project field team:

- Confirm that the State One Call or equivalent is received and that the ticket number is confirmed, reviewed, and valid for the time of work. If intrusive work activities are not conducted during this valid time period, the One Call ticket must be renewed, and the site must be remarked;
- Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
- Determine the need for utility owner companies to be contacted or to have their representatives on site;
- Where mark-outs terminate at the property boundary, consider the use of private utility locating / (e.g., Radio Frequency Detection, Electromagnetic Induction), Ground Penetrating Radar (GPR) , and other applicable geophysical inspection services. The use of private utility locating firms, however, does not eliminate the legal requirement for the subcontractor (e.g., driller, excavation firm) to submit a request for Public Utility Mark-outs. Also, the information provided by the service may be inaccurate and unable to locate subsurface utilities and structures in urban areas, landfills, urban fill areas, below-reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
    - A mark-out is defined as the process of contracting with a competent and qualified company to confirm the presence or absence of underground utilities and structures. This process will clearly mark out and delineate identified utilities so that intrusive work activities can be performed without causing disturbance or damage to the subsurface utilities and structures. After utility mark-outs are completed, soft Digging must completed prior to intrusive work. Section 3.4 Preferred Methods of Clearing the Subsurface (Pre-Clearing) outlines requirements for pre-clearing techniques in order of preference.
- Documented description of the dig site, which is included in the project's Health and Safety Plan (HASP), and one call report will be maintained in the field and distributed amongst Roux personnel, its contractors, and subcontractors; and
- Documentation of the actual placement of mark outs in the field shall be collected using dated pictures, videos, and/or sketches with distance from markings to fixed objects. All documentation shall be maintained within the project file.

3.2 Utility Mark Out

- Ensure the Mark-out / Stake-out Request Information Sheet (or one-call report) is complete and accurate for the site, including address and cross streets, and review for missing utilities. Ensure ticket life is still valid for work.
    - Note: Utility mark-out organizations do not have contracts with all utilities, and it is often necessary to contact certain utilities separately, such as the local water and sewer authorities, local transportation departments, and railroad operators. In the event the Project Teams

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anticipate subsurface work will impact public utilities, railroad operations, or public roadways, coordination with the utility owners/operators is required.

- Have written confirmation prior to mobilizing to the site that the Project Team or Roux personnel performing the intrusive activity has correctly completed the mark-out notification process, including requesting mark-outs, waiting for mark-outs to be applied to ground surfaces at the site, and receiving written confirmation of findings (via fax or email) from utility operators for all known or suspected utilities in the proposed area of intrusive activity, and provided utility owner written confirmation to Roux personnel for review and project files documentation.
- Do not begin any intrusive activity until all utility mark-outs have been completed (i.e., Did all utilities mark-out the site?) and any unresolved mark-out issues are finalized. Perform a site walk to review the existing utilities and determine if the utility locators have located said utilities.

  (Note: The Tolerance Zone is defined as three feet from the outside edge of any subsurface structure.)
- For non-subscribing utility owners or if public one-call service is not available, perform due diligence and request further information regarding utility type, construction details, location, and burial depth directly from public service providers/utility owners. Request utility mark-out by each public service provider/utility owner as applicable. Confirm contact and response by each public utility owner on the Subsurface Utility Clearance Checklist.
- If utilizing a Private Mark out, ensure the contractor has a plan regarding what types of technology will be used based on Table 1 in Appendix B: Private Utility Technology Applications and Considerations. If possible, it is recommended that multiple technologies be used to sweep each location/work area. Use a tracer wire to locate the utility (when tracer wires are present). Record the results of the private utility mark-out on the Utility Verification/Site Walkthrough Record form.

3.3 Site Visit/Utility Walkthrough

Before mobilization with the subcontractor or during the pre-work safety tailgate with the subcontractor, perform a site walkthrough after utility mark-outs have been completed to determine whether additional potential hazards are present and look for visible signs of utilities that may be present. Outlined below are considerations regarding a site walk before intrusive activities. Before initiating any intrusive work, verify that the utilities marked on-site align with the information provided in the One Call response notification/ticket and with site plans and documents. If any discrepancies arise, address them promptly to ensure accuracy and do not start intrusive work until they are rectified.

- Identify overhead utilities that may impede equipment mobilization or work zones to ensure adequate Occupational Safety and Health Administration (OSHA) clearance distance(s), as specified within the site-specific Health and Safety Plan (HASP) and 29 CFR 1926.1408 Table A.

The presence of any of the following may indicate potential subsurface structures:

- Locations of buildings, equipment, and features like area lights, signs, sprinkler systems, phones, drains, natural gas meters, manholes, etc.;
- Warning tape, which is often a sign of underground services;
- Material like pea gravel, sand, or other non-native materials can indicate the presence of tanks or lines or any deviations from the established native soil or backfill conditions;
- Red concrete that is often used for electrical duct banks;
- Evidence of damaged utilities, such as piping materials, insulation, or odors present in the work area; and

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- Other utilities, including fire hydrants, electrical transformers, pipeline markers, valve covers, steam lines, valve box covers, clean-outs, etc.

By observing the path between the main service line and the connection point (e.g., a utility meter at the exterior of the site building), it may be possible to determine the likely routing of on-site utilities. However, this method should not be relied upon solely, and proper risk mitigation strategies should be in place before proceeding with any ground disturbance activities. Look outside your work zone for other potential utilities that may cross through it.

For sites with potential underground storage tanks present (UST), the following guidance applies:

- Identify if the product piping is either rigid or flexible.
- Conduct a visual examination of the tank field, observation wells, dispensers, vent stacks, and UST fill points to determine their location.
- Locate and become familiar with the emergency shutoff button/switch, if present.
- Determine the orientation, arrangement, and location of the tanks, as well as their size and capacity, through the examination of visible features at grade, such as fill ports and extractor covers, and by consulting any available as-built drawings.

Before commencing any subsurface intrusive work, field staff should thoroughly address any discrepancies in utility company mark-outs or the absence of mark-outs.

3.3.1 Project Management - Field Personnel

Whenever possible, it is advisable to assign the same project personnel to both utility location and clearance tasks as well as intrusive activities. This continuity ensures that site knowledge and utility information gathered during the clearance phase remain up-to-date. Having this historical perspective helps minimize the risk potential of utility strikes.

In cases where maintaining the same personnel throughout the project is not feasible, a thorough knowledge transfer regarding site utilities, locations, clearance results, and proposed intrusive activities becomes essential. The PM must ensure that there is a successful handoff of information when there is a change in field personnel.

3.3.2 Utility Markings

The utility marking color code includes various uniform colors. The following APWA uniform color code (ANSI Z535.1) is provided below. While certain government agencies or large industrial facilities may use additional colors, Roux's policy is to consider any unlisted paint marking or pin flag color as a subsurface utility marking unless proven otherwise.

If utilities or subsurface anomalies are identified but their type or classification remains uncertain, it is advised to employ pink paint or pin flag (Temporary Survey Marking) for marking. Once the utility type is definitively established, the pink marks should be updated to represent the correct type of utility accurately.

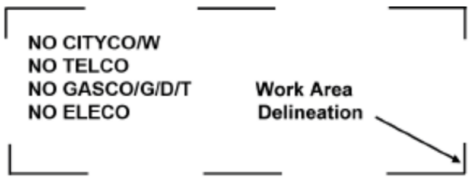
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White	Proposed Excavation
Pink	Temporary Survey Markings
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials
Orange	Communication, Alarm or Signal Lines, Cables, or Conduit
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

Understanding the markings left by locators during the 811 process is crucial for avoiding utility-related issues. Typically, these markings are done when Roux staff members are not physically present on-site. To enhance understanding/accuracy, it is advisable for staff to be present during the 811 process or engage in conversations with locators, both public and private, while on-site. Additionally, utility marks must adhere to the proper standards outlined in the Uniform Color Code.

Common Abbreviations *(Source: Common Ground Alliance)*

Facility Identifier		Underground Construction Descriptions		Infrastructure Materials	
CH	Chemical	C	Conduit	ABS	Acrylonitrile - Butadiene - Styrene
E	Electric	CDR	Corridor	ACP	Asbestos Cement Pipe
FO	Fiber Optic	D	Distribution Facility	CL	Cast Iron
G	Gas	DB	Direct Buried	CMC	Cement Mortar Coated
LPG	Liquefied Petroleum	DE	Dead End	CML	Cement Mortar Lined
PP	Petroleum Products	JT	Joint Trench	CPP	Corrugated Plastic Pipe
RR	Railroad Signal	HP	High Pressure	CMP	Corrugated Metal Pipe
S	Sewer	HH	Hand Hole	CU	Copper
SD	Storm Drain	MH	Manhole	CWD	Creosote Wood Duct
SS	Storm Sewer	PB	Pull Box	HDPE	High Density Polyethylene
SL	Street Lighting	R	Radius	MTD	Multiple Tile Duct
STM	Steam	STR	Structure (vaults, junction inlets, lift station)	PLA	Plastic (conduit or pipe)
SP	Slurry System	T	Transmission Facility	RCB	Reinforced Concrete Box
TEL	Telephone			RCP	Reinforced Concrete Pipe
TS	Traffic Signal			RF	Reinforced Fiberglass
TV	Television			SCCP	Steel Cylinder Concrete Pipe
W	Water			STL	Steel
W	Reclaimed Water "Purple"			VCP	Vitrified Clay Pipe



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3.4 Preferred Methods of Clearing the Subsurface (Pre-Clearing)

At least one of the methods listed below shall be carried out during pre-clearing activities. The Project Team is responsible for evaluating risks associated with the Scope of Work to determine which method is selected.

If none of the following pre-clearing activities are performed, a Subsurface Utility Clearance Variance must be submitted to the OM. This Subsurface Utility Clearance Variance must provide clear lines of evidence that there are no utilities present within the intrusive work zone. Examples include demolition permits of the site, utility closure documents indicating no live utilities on-site, as-builts, site history, etc.

The following approaches shall be considered and implemented based on the Scope of Work.

- ***Soft Digging***
  - This is the preferred method of utility clearance when clearing higher-risk utilities. Soil should be cleared through the use of a vacuum truck/equivalent, an accompanying air knife (preferred), or a water lance to break up and loosen the soil for removal with the vacuum.
- ***Hand Digging***
  - Soil should be broken up and removed using a shovel or other appropriate hand tools without excessive force. Limit the use of dig bars or other tools that, if used incorrectly, can significantly damage utilities.
- ***Hand Augering***
  - The hand auger must be turned slowly using even hand pressure without excessive force. Rounded-edge augers are preferred. Hand augers should not be used in pea stone/pea gravel where utilities may be present and could potentially be damaged by the hand auger. The abrupt absence of soil recovery in a hand auger could indicate utilities as pea gravel or sand may have spilled out of the auger (exception: native soil conditions that typically result in poor hand auger recoveries). If any resistance is encountered while operating the hand auger for pre-clearance, the equipment will be removed, and the exploratory test hole will be visually inspected by onsite personnel for any obstructions or indications of subsurface structures.

3.4.1 Guidance for Tools and Equipment

Personnel performing pre-clearance activities shall keep tools and equipment in safe working order and be properly inspected before use. If tools or equipment are broken, they will be tagged and removed from service. The following specify additional guidelines regarding tools and equipment:

- Hand-digging tools must have a non-conductive handle, such as fiberglass, wood, or composite, or fully insulated handles and potential contact surfaces.
- Blades on shovels and post-hole diggers should have rounded or blunt edges.
- Pick axes or pointed spades should not be used for physical clearance.
- Crowbars, pinch-bars, or pry bars should not be used to break hardened soil or backfill except when authorized by the Site Supervisor (SS). This should only be used to loosen materials like bricks or larger stones.
- Electric-powered equipment must have ground-fault protection.
- Should there be refusal or difficulty with advancing hand tools, the contractor shall stop work and notify the Roux SS or Site Health and Safety Officer (SHSO) immediately.

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3.5 During Intrusive Activities

3.5.1 Concrete/Paving Surface Removal

Remove any surface coverings (i.e., pavement, brush, debris, etc.) to ensure workers have clear visibility of the work area and subsurface conditions. Avoid mechanical jackhammering over known lines unless they are de-energized, locked-out/tagged-out, and potential repairs are planned or if the utility has been completely disconnected prior. When cutting or coring, go only as far as needed to penetrate the surface cover. When removing a large surface area, begin at the perimeter of the removal zone. This initial step helps identify any utilities passing through the work zone. For extensive areas, using a concrete saw might not be practical. Instead, heavy equipment is often employed. During this process, a designated spotter should guide the heavy equipment. Their role is to watch for warning signs of utilities. It is crucial that the heavy equipment does not have “teeth” that could potentially pass through the surface and damage utilities.

3.5.2 Pre-Clearance Procedures

Install pre-clearance exploratory test holes using one of the techniques, as outlined in Section 3.4, for the first 5-ft below land surface (BLS) at each location before conducting intrusive mechanized activities. Should utilities be located at a greater depth than 5-ft BLS consult with the OM, OHSM and CHSD regarding adjustments to the pre-clearance requirements to go greater than 5-ft BLS. Some Clients may require greater than 5-ft BLS for pre-clearance test holes; Project teams should be aware of such Client requirements prior to work.

Pre-clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for the PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM through a Subsurface Utility Clearance Variance.

Both single-point and three-point clearance are acceptable as long as the following criteria are met below. For single-point clearance, the exploratory test hole is advanced at the exact location of the proposed borehole. If three-point clearance is performed, it must be done in a triangular pattern around the proposed borehole and in a configuration that would not allow utilities to enter the borehole.

- The size of the pre-clearance exploratory test hole should be, at a minimum, twice the diameter of any downhole tool or boring device.
- For direct push applications (CPT, Geoprobe®, etc.), the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth.
- For excavations, all utilities need to be marked and then exposed by soft-digging or by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the “moat” technique (i.e., soft Digging around the perimeter). In these cases, dig in small lifts (<12” for first 5 feet using a dedicated spotter.
- For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of pre-clearance test holes specified in Section 3.4 to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment. If considered a high-risk utility, additional requirements may be necessary and required by the Operator of the utility. Consultation with the OM and CHSD may be appropriate.

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The PM, field team lead, or personnel performing oversight is to:

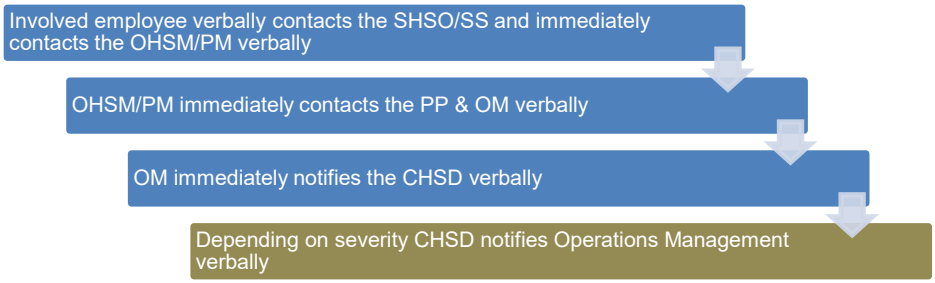
- Ensure the mark-out remains valid. (In certain states, there are limits regarding the duration of time after the mark-out was applied to the ground surface work can be started or interrupted.) Additionally, the mark-outs must be maintained, documented, and in many cases, refreshed periodically to be considered valid. This will be accomplished through calls to the one call center.
- Ensure intrusive activities are only performed within the safe boundaries of the mark-out as detailed in the One-Call Report.
- Halt all work if intrusive activities have resulted in the discovery of an unmarked utility. Roux personnel shall notify the facility owner/operator and the one call center. All incidents such as this will be reported as per Roux Incident Investigation and Reporting Management Program.
- Halt all work if intrusive activities must take place outside of the safe boundaries of a mark-out and only proceed after new mark-outs and subsurface utility clearance are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Complete any loss reports associated with subsurface utility strikes, as necessary.
- If a utility cannot be found as marked, Roux personnel shall notify the facility owner/operator directly or through the one-call center. If the facility operator is not responsive, then the one-call center must be notified. Following notification, the excavation/mechanical intrusive work may continue unless otherwise specified in state law.
- Contractors/subcontractors must contact the one-call center to refresh the ticket when the excavation continues past the life of the ticket. State law dictates ticket life. Project teams must be aware of their state-specific requirements.

3.6 Stop Work Authority

Each Roux employee has Stop Work Authority that he or she will execute upon determination of any imminent safety hazard, emergency situation, or other potentially dangerous situation, such as hazardous weather conditions. This Stop Work Authority includes subsurface clearance issues such as the adequacy of a mark-out or identification during intrusive operations of an unexpected underground utility. Authorization to proceed with work will be issued by the PM/PP in consultation with the OHSM after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact emergency facilities and personnel when this action is appropriate.

3.7 Reporting Utility Incidents

Roux field personnel engaged in any utility strike (e.g., subsurface/aboveground) must promptly stop work, shutdown any equipment and get to a safe location at the Site. Then notify the PM to discuss the incident. In case of injuries, field personnel must call 911 or the local emergency services number and then inform the PM. Additional notifications shall follow Roux's Incident Notification Process. Depending on the utility strike additional notifications shall be made to utility operators and/or clients/site contacts.



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Appendix A
Roux Subsurface Utility Clearance Checklist

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Appendix A

Roux Subsurface Utility Clearance Checklist/Utility Verification/Site Walkthrough Record

Roux Subsurface Utility Clearance Checklist ***Date of Revision: 3/2024***

Work site set-up and work execution

ACTIVITY	Yes	No	N/A	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Daily site safety meeting conducted, SPSAs performed, JSAs reviewed, appropriate work permits obtained (if applicable).				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
Mechanical intrusive work activities may not be performed at any location without authorization from the Roux Site Supervisor (SS). Clearance activities may not be performed at any location unless the SS is physically present.				
Work area secured; traffic control established as needed. Emergency shut-off switch located. Fire extinguishers / other safety equipment available as needed.				
Utility mark-outs (public / private) clear and visible. Provide Excavator's Stake-Out Reference Number / Request Date / Time.				
Tolerance zone work identified. Intrusive work activities cannot be performed in areas that are in direct conflict with any markings made by public or private locators.				
Unless the PP & OM authorizes it, all boreholes and test pit locations must be physically cleared before using mechanized equipment. Required minimum physical clearance depths and diameters are as follows: • Physically clear to a depth of 5 feet bls. • The size of the pre-clearance exploratory test hole must be, at a minimum, twice the diameter of any downhole tool or boring device. • For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% to the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.).				
Work execution plan reviewed and adhered to (ground disturbance methods, clearance depths, any special utility protection requirements, or any other execution requirements; especially for Tolerance Zone work).				

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Mechanical intrusive work is prohibited within 3-feet distance in all directions from subsurface structures that will be intentionally exposed during pre-clearance. Any removal of material within 3-feet of the subsurface structure may only proceed by hand using non-conductive tools/compressed air if authorized by state law and the owner/operator of the utility.				
All equipment onsite must maintain the appropriate horizontal distance from any point on the equipment to the nearest overhead electrical power line. Refer to site-specific HASP and local/utility company requirements.				
Verbal endorsement received from Roux PM and OM for any required field deviations to work execution plan.				

Key Reminders for Execution

The Subsurface Utility Clearance Protocol should be referenced to determine all requirements while executing subsurface work. The bullet points below are intended as general reminders only and should not be relied upon solely.

- The size of the pre-clearance exploratory test hole must be at a minimum twice the diameter of any downhole tool or boring device to minimum required depth of 5 feet bls.
- For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth of 5 feet bls.
- The tolerance zone is defined as three feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks, and other non-cylindrical utilities) of a utility and three feet from the outside of any subsurface structure.
- For excavations, all utilities need to be marked and then exposed by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the “moat” technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12” for first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment.

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Utility Verification/Site Walkthrough Record

Employee Name:_____

Date: _____

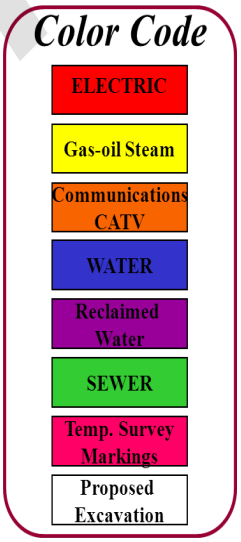
Instructions: For each utility suspected at the job site, indicate the location on the job site, approximate burial depth, and means of detecting the utility. Leave blank if that utility is not believed to be present.

Utility	Description of Utility Location Identified Onsite	Approx. Depth (bls)	Method / Instrumentation used to determine Utility Location	Utility Owner Response (Date/Time)	Mark Out Indicates (Clear / Conflict)
Electrical Lines					
Gas Lines					
Pipelines					
Steam Lines					
Water Lines					
Sanitary and Stormwater Sewer lines					
Pressured Air-Lines					
Tank Vent Lines					
Fiber Optic Lines					
Underground Storage Tanks					
Phone Lines/ Other					

* bls - below land surface

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Site Sketch Showing Utilities:



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Other Comments / Findings:

Completed by: _____

Signature: _____ Date: _____

Appendix B
Private Utility Technology Applications and Considerations

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Appendix B – Private Utility Technology Applications and Considerations

Technology ⇒ **Utility/Object** ⇓	Radio Frequency Electro-Magnetic Detector (connection to utility, or induction without connection)	Radio Frequency Electro-Magnetic Detector (passive sweep)	Ground Penetrating Radar (GPR)⊙	Acoustic Plastic Pipe Locator	Beacon, Sonde or Conductive Rodder Insertion	EM-61 (time domain electromagnetics) Ξ	
Power/Instrument Line (Energized/Signaled) □	❋ G	G	G	R	R	G	
Power Line (Non-energized) □	❋ G	R	G	R	R	G	
Sewer/Water Line (Metallic) □	❋ G	Y	G	Y	G	G	
Sewer/Water Line (Non-metallic)	R	R	G	G	❋ G	R	
Instrument / Telecomm Lines (Non-energized)	❋ G	R	G	R	R	Y Only if metallic	
Hydrocarbon Transmission Line (Pipeline)◆ □	❋ G	R	G	R	R	G	
Metallic/Non-Metallic Line (with Tracer Wire)	❋ G	Y	G	Y	Y	G metallic	Y non-metallic
Metallic/Non-Metallic Line (without Tracer Wire)	G metallic	R non-metallic	R	❋ G	Y	Y	G metallic	R non-metallic
Metal or Fiberglass UST	R	R	❋ G	R	R	G metallic	R non-metallic

Additional Considerations

Technology ⇒ **Variable** ⇓	Radio Frequency Electro-Magnetic Detector	Ground Penetrating Radar (GPR)⊙	Acoustic Pipe Locator	Beacon, Sonde, or Conductive Rodder Insertion	EM-61 Ξ
Moist Soil	G	Y	G	G	G
Dry Soil	Y	G	Y	G	G
Clay	Y	R	G	G	G
Concrete w/Rebar	R	Y	G	G	R
Long Horizontal Profile	G	G	G	G	G
Short Horizontal but Deep Vertical Profile	Y	G	R	R	G
Access to Line✚	G	N/A	G	G	G
No Access to Line✚	G (induction or passive) R (direct connect)	G	R	R	G G
Ferrous Metal	G	G	G	G	G
Non-ferrous Metal	Y	G	G	G	G
Adjacent or crossing conductive utility(ies)	Y	N/A	N/A	N/A	Y

Each site will be unique. Do not use this table as the sole criteria for technology selection. Use it as a starting point to assess available, applicable technology(s).

❋ Indicates best technology for given object. Site structures, rebar in concrete, shallow groundwater tables, perched storm water, etc. can significantly affect performance and reliability of any electro/magnetic method. Other utilities which cross or are adjacent to the target line can cause the EM signal to bleed or jump to the other utility line.

□ Metallic lines that have power running through them or can be connected to a tracer signal generator.

◆ Natural gas pipeline locating technicians must be trained/certified (in the U.S. requires DOT and Office of Pipeline Safety standards, other regions may have similar certification or requirements).

⊙ Most sensitive to interpretation. The skill, training and experience of operator are critical.

Ξ Emerging technology with limited availability.

✚ Access: induce unique electronic signature, apply acoustical impulse or insert conductive rodder/beacon/sonde.

Green Generally, an applicable technology **Yellow** May or may not be applicable **Red** Not generally applicable

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APPENDIX F

Heavy Equipment Exclusion Zone
Management Program

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HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/2019**
REVIEWED DATE	:	**03/2025**
REVISION NUMBER	:	**4**

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4. TRAINING 2
5. STOP WORK AUTHORITY 2

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1. PURPOSE

The Exclusion Zone Management Program aims to establish the minimum clearance distance that must be maintained between workers and heavy equipment while the equipment is in operation (i.e., engaged or in motion). The intent is to have no personnel or equipment entering the Exclusion Zone while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux") employees and their subcontractors performing fieldwork and are potentially exposed to heavy equipment. Heavy equipment includes, but is not necessarily limited to, excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this program, Exclusion Zones must be established and maintained during activities involving the movement/operation of heavy equipment. The Exclusion Zone requirements apply to all personnel on the site but are primarily focused on personnel required to work near the equipment. The exclusion zone is in effect when heavy equipment is moving or engaged (e.g., movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:
   - A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
   - Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment, this may mean an exclusion zone distance larger than 20 feet);
   - Greater than the fall zone of equipment and their contents; and
   - Greater than the tip-over distance of the heavy equipment.

   The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Planning Process and incorporated in the pre-job tailgate meeting with the subcontractor(s), including any updates to our Job Safety Analysis (JSA).
2. The spotter (or another authorized individual) is responsible for enforcing the Exclusion Zone and not conducting any other task. The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator. The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone. The operator should stop work if the spotter is not within their line of sight. If a spotter must be within the Exclusion Zone, they must be in a designated area outside the swing/tip radius, fall zone, line of fire of lifted loads, etc. If multiple pieces of equipment are being used, one spotter may be adequate so long as there is a clear line of sight and the spotter can control the zone(s). Radios would be required since hand signals would not be adequate if two pieces of equipment are in operation at the same time in the Exclusion Zone.

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3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment. Once the equipment is no longer moving (e.g., movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is STOPPED, etc.), the operator must bring the boom/arm to the ground ensuring a “Zero Energy State” and DISENGAGE THE CONTROLS and STOP and SIGNAL BY “SHOWING HIS HANDS.” This signal will indicate that it is safe for the person to enter the limits of the Exclusion Zone to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel exited the Exclusion Zone's boundaries and the designated Spotter has signaled by “SHOWING HIS HANDS” to the Equipment Operator that it is safe to resume operations.
4. When entering the limits of the Exclusion Zone, personnel must, at a minimum:
    - Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
    - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
    - Identify a travel path free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fences or solid poles between the cones, barrels, tape, or other measures. For work in rights-of-way, rigid barriers, such as Jersey barriers or temporary chain link fences, should be used. For certain types of widespread or moving/mobile equipment operations, such delineation may not be practicable around equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure the security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above, as well as any additional requirements that may be required on a client or site-specific basis. Logistics involving heavy equipment should be understood and discussed prior to the field event during the job planning phase.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities, or construction tasks. However, any such activity must be pre-planned, emphasizing limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in the JSA and potentially other project-specific plans (i.e., critical lift plans, etc.), and approved by the Roux Project Principal (PP), Office Health and Safety Manager (OHSM) and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects have different requirements that are client-specific or site-specific in nature. However, all Roux employees are provided initial training, as well as annually thereafter, on our Heavy Equipment Exclusion Zone policy.

5. STOP WORK AUTHORITY

All Roux employees and their subcontractors have stop-work authority. Upon initial hire, all Roux employees are provided initial safety orientation, including stop work authority. All Roux employees and subcontractors are encouraged to stop work whenever any task or operation presents an unreasonable risk or employees

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are unsure how to carry out work safely. This includes upon observing any questionable safety-related behavior or condition, they are to stop work immediately and discuss the behavior or condition with the individual(s) involved. Upon stopping work, the following actions will be taken:

- Notify the affected parties to include the Project Manager (PM) and Site Health and Safety Officer (SHSO);
- Work to correct the situation or not proceed until the situation is corrected by the PM or SHSO;
- Resume work only when told to proceed by either the PM or SHSO;
- The SHSO will document the Stop-Work intervention in the field logbook;
- Stop-Work interventions will be reported to the PP for review to ensure the interventions are closed; and
- The PP will share learnings from the interventions, as appropriate, throughout the firm, to demonstrate the importance of the Stop-Work interventions.

Please note: Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.

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APPENDIX L

Community Air Monitoring Plan

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Community Air Monitoring Plan

3728 Park Avenue
Bronx, New York 10456

February 13, 2026

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Prepared for:

Sol on Park LLC
c/o NRP Holdings LLC
1228 Euclid Avenue, 4th Floor
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Prepared by:

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1. Action Limit Summary for VOCs and Particulates

Appendix

A. Action Limit Report

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1. Introduction

Roux Environmental Engineering and Geology, D.P.C. (Roux) on behalf of Sol on Park LLC has developed a project-specific Community Air Monitoring Plan (CAMP) to implement real time monitoring at 3728 Park Avenue, Bronx, NY (Site) during Site development and remedial activities. The monitoring program will be implemented at all times during soil disturbance activities. Intrusive activities at the Site will include remediation/redevelopment activities (e.g., support of excavation installation, excavation, soil disposal, installation of Site cover materials, as required). The CAMP is designed to provide protection for the downwind community and on-Site workers not directly involved with the subject work activities from potential airborne releases as a direct result of soil disturbance activities. This plan was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation DER-10, Appendix 1A (New York State Department of Health Generic Community Air Monitoring Plan). Given the size of the Site, more than one downwind CAMP location may be needed. Additionally, a Special Requirements CAMP for any ground intrusive or soil handing activities within 20 feet of an occupied building/sensitive receptor will be implemented, as needed.

The specifics of the CAMP are presented in the following five (5) sections:

- 2. VOC Monitoring Approach
- 3. Particulate Monitoring Approach
- 4. Meteorological Monitoring Approach
- 5. Available Suppression Techniques
- 6. Reporting

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2. VOC Monitoring Approach

Volatile organic compounds (VOC)s are present in soil, groundwater, and soil vapor at the Site; therefore, VOCs will be monitored during all intrusive activities. Total VOC concentrations in air will be monitored continuously at one (1) location downwind of all soil disturbance activities. Given the size of the Site, more than one downwind CAMP location may be necessary to adequately evaluate Site related air issues. In addition, one (1) upwind monitoring station will be set up upgradient of the wind direction at the Site perimeter, to record the background concentration of VOCs in ambient air at the Site that are unrelated to soil disturbance activities (i.e., stemming from off-Site). The difference in VOC concentration between the upwind and downwind monitoring stations (net concentration) will be used to determine the VOC concentration produced by soil disturbance activities at the Site. The VOC monitoring equipment will be located at temporary monitoring stations that will be established daily, based upon on-Site logistics, weather conditions, and individual work areas. The monitoring work will be conducted using MiniRAE™ 3000 (or equivalent) portable VOC monitors, or similar type monitors. The equipment will be calibrated at least once daily before use, using isobutylene as the calibration gas. Each monitoring station is equipped with an audible alarm to indicate exceedance of the action levels (as defined below and summarized in Table 1).

The equipment is capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the net concentration of total VOCs at the Site exceeds 5 parts per million (ppm) for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the net VOC concentration readily decreases (per instantaneous readings) below 5 ppm work activities can resume with continued monitoring.
- If the net concentration of total VOCs at the downwind perimeter of the Site persists at concentrations in excess of 5 ppm but less than 25 ppm, work activities must be halted, the source of VOCs identified, suppression techniques employed to abate emissions, and monitoring continued. After these steps, work activities can resume if the net VOC concentration at the Site is below 5 ppm for the 15-minute average. If net concentrations are in excess of 25 ppm, the contributing soil disturbance activities will be halted, the source further evaluated, and the activity modified until monitoring indicates that net VOC concentrations at the Site perimeter are below 5 ppm. Once net VOC concentrations are below 5 ppm at the Site perimeter, work will resume with continued monitoring.

All 15-minute running average readings will be recorded and made available for NYSDEC and NYSDOH personnel (if requested) to review. Instantaneous readings and visual observations, if any, used for decision purposes (i.e., implementing VOCs suppression, halting work, or continuing work) will be recorded. If an exceedance of the action level occurs, an Action Limit Report (ALR) will be completed, identifying the monitoring device location, the measured VOC level, the activity causing the exceedance, meteorological conditions, and the corrective actions taken. A blank ALR form is provided in Appendix A. All documentation will be kept on file at the Site.

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3. Particulate Monitoring Approach

Particulate concentrations will be monitored continuously at temporary particulate monitoring stations set up at upwind and downwind locations during all soil disturbance activities. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of averaging readings over a period of 15 minutes (or less) for comparison to the airborne particulate action levels (as defined below and summarized in Table 1). The monitoring equipment used will be the DustTrak II Aerosol 8530 MonitorsTM or equivalent. One (1) upwind and one (1) downwind monitor will be deployed each day, equipped with an omni-directional sampling inlet and a PM-10 sample head. Given the size of the Site, more than one downwind CAMP location may be necessary to adequately evaluate Site related air issues. The upwind monitoring station will be used to record the background concentration of particulates in ambient air at the Site, which are unrelated to soil disturbance activities at the Site (i.e., stemming from off-Site). The net concentration will be used to determine the particulate concentration produced by soil disturbance activities at the Site. The data logging averaging period will be set to 15-minutes with time and date stamp recording. Alarm averaging will be set at 90 micrograms per cubic meter (µg/m3) per 15-minute period. This setting will allow proactive evaluation of Site conditions prior to reaching Action Levels of 100 µg/m3 above net concentrations. The equipment will be outfitted with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The monitoring will be used to compare values to the following:

- If the net PM-10 particulate concentration is 100 µg/m^3 for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that the net PM-10 particulate concentrations do not exceed 150 µg/m^3 and provided that no visible dust is migrating from the Site.
- If, after implementation of dust suppression techniques, the net PM-10 particulate concentrations are greater than 150 µg/m^3, work must be stopped, a re-evaluation of activities initiated, and dust suppression techniques modified. Work can resume provided that dust suppression measures and other controls are successful in reducing the net PM-10 particulate concentration to within 150 µg/m^3 and in preventing visible dust migration.

All 15-minute average readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings and visual observations, if any, used for decision purposes (i.e., implementing dust suppression, halting work, or continuing work) will be recorded. If an exceedance of the action level occurs, an ALR will be completed, identifying the monitoring device location, the measured particulate concentration, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. All documentation will be kept on file at the Site.

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4. Meteorological Monitoring Approach

Meteorological data consisting of wind speed, wind direction, temperature, barometric pressure, and relative humidity will be collected. At a minimum, a full set of meteorological parameters will be measured and recorded at the start of each workday, noon of each workday, and the end of each workday. Wind direction readings will be utilized to position the VOC and particulate monitoring equipment in appropriate upwind and downwind locations. A Davis Corporation wireless instrument station or equivalent will be used to measure and log the meteorological monitoring data.

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5. Available Suppression Techniques

Odor Control

Due to the nature of the project, there is a potential for generation of nuisance odors and the need for odor control. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project.

All necessary means will be employed to prevent off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using odor control solutions/foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) use of chemical odorants in spray or misting systems; and, (e) use of staff to monitor odors in surrounding neighborhoods.

Dust Control

Due to the nature of the project, dust control will be necessary. Dust suppression will be achieved through the use of water for wetting excavation areas. Water will be available on-Site at suitable supply and pressure for use in dust control. Roadways and sidewalks adjacent to the Site entrances/exits will be swept as needed.

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6. Reporting

All recorded monitoring data will be downloaded, and field logged periodically, including ALRs (if any) and Daily CAMP Monitoring Location Plans. All records will be maintained on-Site and available for NYSDEC/NYSDOH review. A summary of CAMP findings, including excursions, will be provided in Weekly Reports. If an ALR is generated due to VOC or particulate exceedances, the NYSDEC and NYSDOH will be notified within 24 hours of the exceedance.

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TABLE

1. Action Limit Summary for VOCs and Particulates

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Table 1. Action Limit Summary for VOCs and Particulates, 3728 Park Avenue, Bronx, NY

Contaminant	Downwind Action Levels*	Action/Response
Volatile Organic Compounds (VOCs) (Monitoring Via Photoionization Detector and Odor Observation)	< 5 ppm	1. Resume work with continuing monitoring.
	5 ppm < level < 25 ppm	1. Work activities must be temporarily halted, source vapors must be identified, suppression techniques employed to abate emissions and monitoring continued. 2. After these steps, if VOC levels (200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or structure, whichever is less) is below 5 ppm over background, resume work.
	> 25 ppm	1. Identified contributing ground intrusive activities must be halted and vapor suppression techniques must be evaluated and modified until monitoring indicates VOC levels below the action level. 2. After these steps, if VOC levels (half the distance to the nearest potential receptor or structure) are below 5 ppm over background, resume work.
Particulates (Monitoring Via Particulate Meter and Observation)	< 100 ug/m^3	1. If dust is observed leaving the work area, then dust control techniques must be implemented or additional controls used.
	100 ug/m3 < level < 150 ug/m^3	1. Employ dust suppression techniques. 2. Work may continue with dust suppression techniques provided that downwind PM-10 particulate concentration do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
	> 150 ug/m^3	1. STOP work 2. Re-evaluate activities, modify dust suppression techniques. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

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* The net concentration of VOCs or particulates above background concentrations. Background concentrations are recorded at the upwind monitoring station. The net concentration is the difference between the upwind monitoring station and the downwind monitoring station concentration. Particulate readings are based on the respirable (PM-10) fraction.

APPENDIX A

Action Limit Report

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ACTION LIMIT REPORT

Project Location: **3728 Park Avenue, Bronx, NY**

Date: _____ Time: _____

Name: _____

Contaminant: PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED (NET) CONCENTRATION

Monitor ID#: _____ Location: _____ Level Reported: _____

ACTIVITY DESCRIPTION

CORRECTIVE ACTION TAKEN

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APPENDIX M

Quality Assurance Project Plan/Field Sampling Plan

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APPENDIX N

Professional Profiles

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PROFESSIONAL PROFILE



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EDUCATION
BS, Environmental Science,
Minor in Engineering,
Binghamton University, 2019
AS, Environmental Science,
Suffolk County Community
College, 2017

Brooke Hildebrand

Project Scientist

EXPERIENCE SUMMARY
Six years of professional experience: Project Scientist, Roux, Islandia, New York.

TECHNICAL SPECIALTIES
Phase I and II Environmental Site Assessments (ESAs); remedial construction and soil excavation oversight; hazardous and non-hazardous waste disposal oversight; New York State Pollutant Discharge Elimination System (SPDES) monitoring and Stormwater Pollution Prevention Plan (SWPPP) compliance; soil import oversight; waste characterization and delineation oversight; environmental site assessments focusing on soil, groundwater, and soil vapor investigations using multiple sampling techniques; drilling oversight; implementation of Community Air Monitoring Programs (CAMP); waterproofing and vapor barrier inspections; and insurance litigation support. Experience also includes management of remedial investigations and remedial actions for real estate and industrial sites in regulatory programs, including the New York State Department of Environmental Conservation (NYSDEC) Brownfields Cleanup Program (BCP), and New York City Office of Environmental Remediation (NYCOER) E-Designation and Voluntary Cleanup Programs.

REPRESENTATIVE PROJECTS

Industrial Site Assessment and Remediation

- Authored and assisted with Phase I Environmental Site Assessment portfolios for 13 parcels of land located in the southern portion of Brooklyn, New York. Responsible for maintaining report integrity and compliance with ASTM E1527-13 standards. Maintained client expectations and delivered accurate results in a timely manner to satisfy tight due diligence deadlines. Provided recommendations to the client where Phase II investigations were warranted.
- Staff on an insurance litigation case regarding the evaluation of past and future costs for the investigation and remediation of a site with past railroad, wood treating, and drum reconditioning operations. Responsibilities included the review and organization of over 20,000 documents, past cost categorization, and report writing assistance.
- Main author of various technical reports submitted to the NYSDEC for sites located throughout the boroughs, including remedial action report, construction completion report, periodic review reports, Phase II reports, daily construction reports, daily CAMP reports, final engineering report, site management plan, remedial investigation report, etc.
- Field manager for remedial excavation activities, CAMP implementation, and endpoint soil sampling at an affordable housing site located in Harlem, New York. Main author of the Site's final engineering report (FER) submitted to the NYSDEC following completion of the environmental role on-site.
- Field manager for the implementation of the On-Site Environmental Monitoring (OEM) program at a 43-acre redevelopment project in Belmont, New York. Responsibilities included ensuring environmental compliance of air, stormwater, noise, traffic, and other relevant environmental concerns during the performance of any construction-related activity across the Site.
- Field manager for a site in Sleepy Hollow, New York, performing soil importation and fill operation activities. Responsibilities include implementation of CAMP, management of soil importation, preparation of daily progress reports submitted to the NYSDEC, on-site soil tracking, and oversight of fill operations using on-site and imported fill.

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- Field Staff for groundwater and soil vapor sampling monitoring programs at a former petroleum refinery and terminal in Brooklyn, New York. This work was done to monitor the largest subsurface free-product plume in North America. Field work responsibilities included the sampling of over fifty wells and monitoring points for petroleum-contaminated groundwater and soil vapor using multiple sampling methods.
- Field Manager responsible for the implementation of groundwater sampling activities at multiple locations including a high-end shopping mall site in Norwalk, Connecticut, and a Site in Brooklyn, New York.
- Field manager for NYSDEC BCP Site located in Gowanus neighborhood in Brooklyn, New York. Industrial site history and proximity to Superfund Site Gowanus Canal required a USEPA-approved remediation. Responsibilities included construction oversight, CAMP implementation, SWPPP, and groundwater sampling.
- Field manager responsible for air monitoring to collect interior air quality data during construction activities at a site in Hudson Yards, New York enrolled the NYSDEC BCP. Roux implemented monitoring by utilizing 13 stationary 5-gas meters with telemetry and two roaming 5-gas meters, capable of measuring the following air quality parameters: oxygen, carbon monoxide, hydrogen sulfide, methane (as LEL) and organic vapors (volatile organic compounds [VOCs]). Responsibilities also included construction oversight, analyzing air monitoring data, and preparing associated reporting daily.
- Field Manager responsible for environmental oversight of geotechnical work at a generating station in Astoria, New York. Responsibilities included monitoring and enforcing the subcontractor's adherence to specific procedures to prevent vertical migration of non-aqueous phase liquid (NAPL), logging and screening soil with a photo ionization detector (PID), recording lithology of soil cores, and confirming depths of clay layers and bedrock.
- Field Manager responsible for the implementation of CAMP during excavation, disposal, and import activities at multiple locations in Queens, Brooklyn, and Upstate, New York. Monitored airborne dust and VOCs potentially generated by remedial action work activities, reviewing the collected data for exceedances of the New York State Department of Health (NYSDOH) guidelines.
- Site Safety Officer for various remedial investigation sites. Responsibilities included preparation of Health and Safety Plans (HASPs), development and review of job safety analysis (JSA) documents, on-site safety meeting management, safety document preparation (Lessons Learned, Near Loss, Field Audits, etc.), and planning execution of corrective actions.
- Project Manager for multiple public sector sites located in Queens and Manhattan with petroleum contamination. Responsibilities include project management, coordination of groundwater monitoring and product recovery events, data evaluation and reporting, and client communications.
- Project Manager for NYSDEC BCP Site located in Upstate, New York. Responsibilities included project management of the remedial investigation, coordination of day and night shifts, work within an active commercial building, data evaluation, preparation of a remedial investigation report and remedial action work plan, client communications, and NYSDEC communications.
- Project Manager for multiple Phase II investigations conducted at sites located in Brooklyn, Queens, and Manhattan. Responsibilities included subcontractor coordination, project management, data evaluation, reporting, and client communications.
- Project Manager for two affordable housing redevelopment projects located in Bedford-Stuyvesant, Brooklyn with E-designations. Responsibilities included project management of Phase II ESAs, preparation of NYSDEC BCP applications, Remedial Investigation Work Plans, HASPs, CAMP, Quality Assurance Project Plans, and client management.
- Project Manager for a commercial mall site within the New York City Office of Environmental Remediation (NYCOER) Voluntary Cleanup Program (VCP) located in Staten Island. Responsibilities included project management related to soil disturbance oversight and air monitoring, tenant and OER coordination, and preparation of remediation summary documents to receive notices of no objection (NNO) from OER for tenant occupancy.
- Project Manager for the largest residential geothermal building in New York State located in Greenpoint, Brooklyn. Responsibilities included coordination of groundwater monitoring well and soil vapor point installation, preparation of NYSDEC BCP documents including FER, Site Management Plan, Soil Vapor Intrusion Evaluation Work Plan, client management, and coordination with NYSDEC and NYCOER to obtain NNOs for temporary certificates of occupancies.

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PROFESSIONAL PROFILE



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EDUCATION
BCE, Civil Engineering, University of Delaware, 1987
MBA, Management, Adelphi University, 1992

PROFESSIONAL LICENSES
Professional Engineer: New York, New Jersey, Pennsylvania, Rhode Island, Connecticut, Vermont, Virginia, North Carolina, Ohio, Michigan, and Montana

Charles J. McGuckin, PE

Vice President | Principal Engineer

EXPERIENCE SUMMARY
Over thirty years of experience: Principal, Senior and Project Engineer with Roux Associates, Inc.; President of Remedial Engineering, P.C.; and Design Engineer at Dvirka and Bartilucci Consulting Engineers.

TECHNICAL SPECIALTIES
Engineering design of soil and groundwater remediation systems. Brownfields clean-up plans, stormwater studies, and engineered natural treatment systems.

REPRESENTATIVE PROJECTS

- Principal Engineer for remedial investigation scoping, fate and transport analysis, and feasibility study preparation for a 1300+ acre Former Aluminum Smelter USEPA Superfund Site, Montana. Due to the size, complexity, and unique exposure areas of the Site it was broken up into multiple decision units including landfills, percolation ponds, operational areas, river area, soil, and groundwater. The contaminants of concern included metals, PAHs, cyanide, and fluoride. Remedial technologies evaluated in detail included landfill capping, groundwater extraction and treatment, pond and river dredging, soil excavation, slurry wall containment, in situ stabilization, and in situ groundwater treatment. Detailed effectiveness, implementability, and cost evaluations were prepared to support preferred remedial alternatives for each decision unit.
- Principal Engineer for remedial action implementation for a 2.5-acre former subway transit power station along the Gowanus Canal, Brooklyn, New York. The project remedial action was completed under an extremely tight deadline to obtain the certificate of completion under the NYSDEC BCP program. The project also involves close coordination with USEPA due to the adjacent canal superfund status. The investigation required in depth review of historic facility operations and sampling of subsurface tunnel structures. The remedy included excavation of PCB impacted soils, LNAPL recovery, shoreline stabilization, concrete scarification, sewer cleaning and capping. The project has required close coordination with the development team to ensure management of impacted materials in conformance with the Site Management Plan.
- Principal Engineer for the preparation of field implementation plans, construction monitoring, and Engineers Certification Report for a former manufactured gas Plant (MGP) site in West Chelsea, Manhattan, New York. The site was one of the first projects completed under the NYS Brownfields Clean-up Program. The remedy included soil excavation and offsite thermal treatment, a sheet pile barrier wall, a vapor barrier, and basement ventilation system. A comprehensive air monitoring program was conducted due to the concerns over coal tar residue emissions and odors on the surrounding community. The remedy was incorporated into the design and construction of the headquarters office building of an international media company.
- Principal engineer for the preparation of the feasibility study, IRM plans, and remedial design/remedial action plans for a 40-acre former manufacturing facility in Rensselaer, New York. IRM Soil remediation included excavation of over 10,000 cubic yards of CVOC and metals source material for disposal at multiple facilities based on waste characteristics. Basement cleaning was performed in three large buildings to remove accumulated process sludges. Lagoon closure plans included sediment removal, dewatering, soil washing, and soil capping. The final remedy for the site includes a groundwater perimeter containment trench and 40 gpm treatment system for metals and VOCs and a 9-acre vegetated cap for a former landfill.

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- Principal Engineer for the feasibility studies and remedial action work plans for multiple operable units of a large railyard located in Sunnyside, Queens, New York under the NYSDEC Inactive hazardous waste program. For the former engine house and maintenance area unit, pre-design studies included product plume thickness data collection and modeling, ex situ biopiles treatment, in situ enhanced bioremediation, and in situ chemical oxidation. The final design consisted of decontamination and removal of structures, excavation of hot spot soils for PCBs and lead, UST closures, a dual phase high vacuum extraction system and in situ bioremediation.
- Project Engineer for the design and construction management of a 600 gpm groundwater extraction and treatment system to prevent offsite migration at a petroleum storage and pipeline transfer facility in Providence, Rhode Island. The treatment system was designed to remove iron, BTEX, and naphthalene from the groundwater to below surface water discharge standards for the Providence River. The system processes consisted of equalization, aeration, de-aeration, flocculation, clarification, air stripping, dual media filtration, granular activated carbon adsorption (liquid and vapor phase), and sludge thickening and dewatering. The system included an outfall diffuser designed in accordance with the CORMIX computer model.
- Senior Engineer responsible for the design, construction management, and O&M of a 60,000-gpd constructed wetlands treatment system for a former manufacturing facility in Virginia. The 16-acre treatment system was designed within an existing phragmites wetland to remove zinc and iron from landfill leachate prior to discharge to an adjacent creek. The treatment system consisted of alkalinity producing cells, toxic ponds, compost and limestone berms, anaerobic cells, and aerobic cells. The design included a 400-foot reinforced earthen dike together with hydraulic control structures and piping to maintain cell water levels and flow rates. The system also includes a pump station and force main for both effluent discharge and irrigation purposes. Joint wetlands and local permit approvals were obtained for the project.
- Senior Engineer for the performance of a feasibility study and remedial design for the closure of a concrete oil/water separator filled with refinery sludge and demolition materials impacted with lead at a former refinery in Providence, Rhode Island. Remedial alternatives were developed and evaluated including capping and containment using a perimeter slurry wall, sheet piling or concrete wall sealing; excavation and disposal; and in situ solidification. The capping and containment using a slurry wall alternative was selected for implementation of the remedial design. The design consisted of removal and replacement of existing monitoring wells, sealing of separator wall openings, a 2-acre multi-layer cap, a 1200-foot long by 30-foot deep soil-bentonite slurry wall, and a perimeter drainage swale. The multi-layer cap included a 40-mil HDPE geomembrane and a geosynthetic clay liner. The slurry wall was keyed into the existing clay confining layer beneath the separator. The design incorporated disposal of an additional 10,000 cubic yards of petroleum impacted soil under the cap.
- Principal Engineer for environmental consulting support services for a large landfill O&M contract under review by the New York City Department of Investigation. The work entailed reviewing the scope of routine vs. non-routine work performed over a one-year period for compliance with contract requirements. The O&M Work included routine cover maintenance, groundwater and gas monitoring, landfill gas extraction, major system repairs and waste handling. Memos of findings were prepared assessing acceptability of work, compliance with permit regulations and providing recommendations for improvements.
- Principal Engineer for the independent engineering review of change orders for the New York MTA Office of the Inspector General associated with electric utility substations reconstruction damaged during the 2012 Superstorm Sandy. The cost review focused on contracting procedures, waste classification of impacted structures and soils, proper waste management and disposal. Findings were compiled in a report to determine if costs were legitimate and justifiable and providing recommendations for improved specifications for bidding and of management waste handling contracts.
- Principal Engineer for remedial action plan implementation oversight and certification for the CornellTech campus development on Roosevelt Island, New York. The first phase of the campus development included lead paint and ACM abatement and demolition of the former Goldwater Hospital, construction of six main campus buildings, new utilities, roadways, and lawn/landscaped areas. Responsibilities include oversight of soil/subsurface structures excavation handling, disposal, and reuse; community air monitoring; dewatering permit compliance; and SWPPP inspections.
- Senior and Principal Engineer for the decommissioning and decontamination of a pharmaceutical facility covering seven city blocks as a part of a NYSDEC Voluntary Cleanup Agreement in Brooklyn, New York. The former office and laboratory complex would be decontaminated for reuse as a school and small business space. Multiple other buildings were demolished. Responsibilities included preparation of interior abatement plans to address mercury, lead and PCBs in building materials and review of Interim Remedial Measure (IRM) work plans for lead, benzene and mercury-contaminated soil excavation and disposal. Groundwater remediation design

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included air sparge/soil vapor extraction, in situ oxidation and a reactive barrier wall using colloidal carbon and ZVI.

- Principal Engineer for the performance of a Brownfields Demonstration Pilot Program in the Hamlet of New Cassel for the Town of North Hempstead, New York. Under an EPA grant, Roux Associates created an inventory of 50 potential commercial/industrial properties within New Cassel and evaluated these properties based on perceived contamination and potential for redevelopment/reuse. Eight sites exhibiting the greatest potential for redevelopment were selected to perform Phase I Environmental Site Assessments. Of these eight sites, four sites were selected for Brownfield Site investigations to identify the nature and extent of contamination in soil and groundwater and provide potential remedial alternatives and cleanup costs to revitalize these properties. The Brownfields Demonstration Pilot Program also included community outreach activities to promote a unified approach to the redevelopment of Brownfields in new Cassel.
- Principal Engineer responsible for engineering certification of all remediation activities related to the seven-city-block Barclay's Arena and Atlantic Yards redevelopment in Brooklyn, New York. This multi-billion-dollar redevelopment includes the Arena, which will be focal point of the largest redevelopment project in Brooklyn, consisting of an urban complex of housing, commercial and retail space, as well as several acres of landscaped public open space. The existing properties being redeveloped are residential, commercial, and industrial properties, including a large railroad yard. Engineering certification included multiple RAWPs under NYSDEC Spills Program, UST removals, soil excavation, in situ groundwater treatment and remedy oversight services. The project also includes ACM abatement, building demolition, soil pre-waste-classification, coordination (with the receiving facilities), and oversight of the removal of 1,000,000 cubic yards of soil (~550,000 yards removed to date), representing one of the largest excavation and soil removal projects performed in New York City.
- Principal Engineer responsible for the preparation of the remediation completion report at Captain's Cove former municipal landfill State Superfund Site located in Glen Cove, New York. This work has been performed in accordance with Title 3 of the NYS Environmental Quality Bond Act under contract to the City of Glen Cove. Design elements included excavation plans, radiological waste monitoring, demo debris and waste separation and screening, dewatering water management, waste disposal, and site restoration. Additional work included the delisting of a six acre "clean" portion of the site to allow the development of a ferry terminal and esplanade and development of alternative cleanup standards consistent with future site uses. Site remediation will accommodate site redevelopment as a commercial waterfront and operating ferry service and seaport area.
- Principal Engineer providing program management of interior building materials surveys for 22 residential buildings along the south shore of long island under an Army Corps of Engineers contract for dune reconstruction. Building materials surveys included testing and analysis of suspect contaminants and reporting in support of building abatement and demolition planning. Testing was completed using multiple teams on a tight timeline to meet project schedule requirements.
- Principal Engineer for the remediation of a former Manufactured Gas Plant (MGP) facility in Brooklyn, NY, including oversight of the excavation of both the former gasholders, and adjacent contaminated hotspots requiring offsite thermal desorption of over 30,000 tons of coal tar impacted soil. Directed the Community Air Monitoring Program (CAMP) specific to the MGP impacted soil removal, as required by both New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH). Remedial activity met all substantive requirements of the NYSDEC approved Remedial Action Work Plan for the Site. The remedy included design of a passive subsurface vapor monitoring/recovery system for a 500,000 sq. ft. retail structure in Brooklyn, NY. The system design integrated a perforated piping system complemented by a protective vapor barrier below the structural floor slab to monitor and mitigate volatile organic compound vapors. Multiple vapor barrier options were evaluated to determine the optimum design based on the site conditions.
- Principal Engineer providing expert settlement support services to a county municipality in New York State. The case involved an EPA Order for underground storage tank (UST) compliance for over 50 county operated facilities with over 125 USTs. The project involved the field inventory of the USTs at each facility and development of both Interim and final compliance plans to comply with EPA, NYSDEC and local UST regulations. Detailed cost estimates were prepared for multiple scenarios for upgrading USTs including tightness testing, manway repairs, leak detection and overfill protection monitoring systems, UST removal and replacement, and new piping. The upgrade evaluation and negotiations included incorporation of Supplemental Environmental Project (SEPs) in accordance with EPA requirements. SEPs included centralized monitoring systems for leak detection and inventory control.
- Principal Engineer for preparation of a site management plan for redevelopment of a former watch case factory in Sag Harbor, New York. The primary engineering controls for the former factory conversion to a residential building consisted of a vapor barrier and an active sub slab depressurization system

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(SSDS) to address chlorinated VOCs. The SSDS system was complicated due to the existing 100-year-old structure. A unique raised floor approach was designed to allow for the SSDS installation. The system design, approved by NYSDEC and NYSDOH includes multiple legs, dual blowers, low vacuum alarms and monitoring points.

- Principal Engineer for the Remedial Action Work Plan (RAWP) for redevelopment of a shopping center in the Bronx, New York. The RAWP elements included soil and groundwater management plans, stormwater management, air monitoring and vapor mitigation systems. To address vapor intrusion, active sub slab depressurization systems were designed for two pad buildings. One system for a new retail building construction and one retrofit system for an existing building to be used as a restaurant. Closure reports were prepared and certified documenting all remediation work and approved by NYC Mayor's Office of Environmental Remediation (OER).
- Principal Engineer for the preparation of a preliminary remedial design for the remediation and restoration of a pond and surface water tributaries to Canaan Lake that have been impacted from leachate generated from an upgradient former municipal landfill located in Holtsville, New York. Completed a preliminary remedial design for the construction of a compost-based permeable reactive barrier for the removal and treatment of leachate prior to discharge to the surface water, followed by restoration of the surface water body and surrounding wetlands. The project included development of a long term remedial strategy to reduce rainfall infiltration into the landfill and minimize leachate generation. Current plans to reduce rainfall infiltration include the planting of 3,250 hybrid poplars, regrading and lining of drainage swales, and the resurfacing of low lying areas consistent with recreational facilities.
- Principal Engineer for final capping elements and wetlands restoration work and completion of the Final Engineering Report for an inactive hazardous waste site in Syracuse, New York. The project included onsite consolidation of lead impacted waste; 7-acre landfill cap with vegetated layer, cover soil, and geomembrane; stormwater runoff controls; reconstruction of wastewater ponds; and an 8-acre wetland restoration. An O &M Plan was prepared and implemented consisting of groundwater, surface water and landfill gas monitoring, and annual cap and wetland inspections.
- Principal Engineer for the preparation of the remedial action work plan for an 11-acre former Department of Defense owned Site that manufactured airplane parts along Hempstead Harbor in Manorhaven, New York. The project is regulated under the NYSDEC Voluntary Cleanup Program. The remedial design consisted of both soil vapor extraction/air sparging and in situ enhanced bioremediation systems for Site groundwater impacted by chlorinated VOCs. The final remedial design and site management plan are expected to include soil capping, vapor barriers and passive ventilation systems to be incorporated into a residential redevelopment with waterfront access.
- Senior Engineer for the performance of a stormwater runoff evaluation for a manufacturing facility in Watertown, New York. Roux Associates was retained as third party to evaluate the drainage design and construction elements for an industrial landfill cap. The evaluation was performed for the facility owner in support of potential litigation arising from onsite building flooding incidents following a severe snow and rainstorm event. The scope of work included an evaluation of the existing onsite storm sewer system capacity, calculation of runoff flow rates for the 300-acre contributing area, review of landfill cap surface drainage design, review of erosion control measures implemented during construction, and analysis of specific flooding incident causes. The runoff analyses were performed using the TR 55 Method for three conditions: pre-capped, capping under construction prior to establishment of vegetation, and final vegetated cap design. Recommendations were made to improve the site drainage including design of surface drainage swales, temporary berms and sediment traps during construction and modification of snow handling practices.
- Principal Engineer for the management of a soil and ground-water remediation system for a nationwide overnight delivery distribution center in Brooklyn, New York as part of the NYSDEC Voluntary Cleanup Program. A risk-based remedial approach that called for the remediation of "hot spot" source area soils, and mass-reduction of VOCs was successfully utilized for the Site. As a result, the focus of remediation was on reducing the mass of VOCs in on-site groundwater to a level where natural attenuation would be effective in remediation of VOCs. To address the contamination in the source area, a soil vapor extraction (SVE) and air sparge (AS) system consisting of 8 SVE wells and 17 AS wells was designed, constructed, operated and maintained for a period of approximately 3 years. Permanent shutdown of the system was approved by the NYSDEC.
- Senior Engineer for the design and construction management of a soil remediation and stormwater management project at a 16-acre former pesticide warehouse facility in Dayton, New Jersey. The Site was redeveloped for storage and trailer parking. The project consisted of consolidation of pesticide contaminated soils; asphalt capping of the 3.5-acre contaminated soils area; stormwater collection, conveyance, and detention; and site regrading. The evaluation included TR-55 runoff modeling for pre and post capping and development conditions. The storm sewer system consisted of

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multiple catch basins, over 2,000 linear feet of reinforced concrete pipe ranging in size from 15 to 30 inches, and a recharge basin. A Soil Erosion and Sedimentation Control Plan and a NJPDES General Permit were prepared for the project.

- Project Principal for the performance of LNAPL remediation studies at the New Jersey Transit former Lake Street Bus Garage in Newark, New Jersey. The studies involved evaluating remedial alternatives for free product recovery, performance of an LNAPL recovery pilot test and cost estimating. A RAWP and engineering design plans were prepared for both the bus garage and the adjacent park properties. The remedy included excavation of the source area, horizontal recovery wells, a vertical recovery trench, in situ oxidation injections and product recovery using vacuum extraction.
- Senior Engineer for the performance of a stormwater management analysis for a 28-acre industrial landfill in Virginia. The principal objective of the study was to identify engineering controls to minimize stormwater runoff to a metals-contaminated sediment impoundment. The study included TR-55 runoff modeling and storage analyses for multiple detention ponds. Three engineering control alternatives were identified including landfill cap regrading, diversion using berms and swales, and diking and weir raising.
- Senior Engineer for the investigation, design, and construction management of the closure of a 2-acre fire-water supply pond and modification of the stormwater conveyance system at a former manufacturing facility in Williamsburg, Virginia. The investigation phase of the project was focused on determining the sources and loading of metals influent to the pond. Field activities included examination of the existing stormwater drainage system, sub watershed delineation, groundwater monitoring, and installation of automatic stormwater sampling devices. The final design included 400 feet of open concrete channels, 250 feet of culvert replacement, slip lining of 370 feet of 36-inch RCP culvert, reconstruction of five catch basins, placement of 10,000 cubic yards of clay fill within the pond and regrading of existing drainage ditches. Erosion control measures and slope stabilization were also included as well as the design of a special outlet structure for minimizing erosion at the outfall.
- Project Principal for the investigation and closure of five USTs at the New Jersey Transit Broad Street Station site in Summit, New Jersey. Tank sizes ranged from 20,000 to 30,000-gallon capacity. UST closure program completed in accordance with the NJDEP Technical Requirements for Site Remediation. Closure report prepared and submitted to the NJDEP and subsequent issuance of a No Further Action letter from the NJDEP.
- Project Engineer of the underground storage tank (UST) program for a major retail chain store in the New York, New Jersey, and Pennsylvania region. Responsibilities included preparation of a UST management plan based on federal, state, and local regulations and costs to prioritize UST maintenance. The tank designs included plans and specifications for the removal and replacement, or upgrading, of USTs to meet regulatory requirements. The engineering design involved fuel requirements for dual heating and back-up generator usage, mechanical pumping equipment and fire wall design.
- Project Engineer for the design and construction management of a 1,000 sq. ft. hazardous and flammable materials storage facility in Syosset, New York. The facility included concrete secondary containment dikes, access ramps, sprinkler system modifications, and lighting. The separate flammable materials area included 2-hour fire rated concrete block walls and doors, ventilation equipment and a fire alarm system. Permitting services were performed for the Nassau County Department of Health, the Nassau County Fire Marshall, and the Building Department.
- Project Engineer for the design of a 2,000 sq. ft. hazardous waste storage facility in Astoria, New York. Prior to construction, demolition of an existing building was required and included removal of asbestos and lead paint. The project included driving treated timber piles and excavation and removal of contaminated soil and groundwater. The structure consisted of a steel frame with a metal standing seam roof system, decorative masonry block walls, and a roll-up door. Temporary and permanent fencing were required along with concrete sidewalk replacement.
- Senior Engineer providing construction management services in support of the BNYCP Cogeneration Facility construction and Brooklyn Navy Yard facility decommissioning. Work included preparation of construction management plans, supervision of soil, concrete, and sediment disposal activities, asbestos surveys, and PCB sampling and analysis work. A NYCDEP wastewater discharge permit was prepared for the million gallon per day stream condensate and wastewater backwash flow rate.
- Project Principal for performing remedial alternative cost estimating for a New Jersey Transit site in Montclair, New Jersey, which is to be redeveloped as a firehouse. A cost estimate prepared by another consultant was reviewed as part of the scope of work. The proposed remedial alternative for the site consisted of excavation and disposal of PAH-impacted fill material and capping. The alternative remedy proposed by Roux Associates was a more risk-based approach, resulting in a cost savings of approximately $100,000 for New Jersey Transit.

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- Project Engineer for the design and construction management of cap repair and drainage improvement measures for an industrial hazardous waste landfill in Tennessee. Components of the design included replacement of the primary clay cover material, temporary and permanent erosion and sedimentation control measures, and a lined drainage channel to minimize the generation of landfill leachate. The project included the performance of a focused feasibility study to characterize the flow, quality, and treatability of the leachate. A feasibility study was also performed in order to evaluate constructed wetlands remedial technology as a method of effective and economical treatment of leachate.
- Senior Engineer for the remedial design and construction management of a 7-acre off-spec asphalt waste pond at a former refinery in New England. The asphalt material exhibited a low load bearing capacity combined with a viscous, tacky surface. An in situ solidification mix design was developed consisting of liquification using hot water and a 2-stage lime kiln dust reagent injection and mixing step. Gravel was added to the mix when the existing subgrade material was of insufficient bearing capacity. Solidified material was tested for unconfined compressive strength, durability, and TCLP. The final cover material consisted of a 6-inch vegetated layer.
- Principal Engineer for the performance of LNAPL remediation studies for a former bus maintenance facility and a segment of a Metropolitan Subway System in Newark, New Jersey. The studies involved evaluating groundwater and soil monitoring data, performance of LNAPL recovery pilot tests, evaluation of remedial alternatives and cost estimating. Recommendations included the use of mobile high vacuum extraction methods to collect LNAPL while minimizing capital expenditures and permanent low vacuum extraction methods to minimize odors to subway cars and surrounding communities.

Litigation Support Experience

- Project Engineer for the evaluation of remedial investigations and remedial cost estimates for a 30-acre former book publishing facility in Poughkeepsie, New York. The evaluation included the review of Phase I and Phase II investigation reports, remedial investigation (RI) and feasibility study (FS) reports, and the remedial investigation work plan. The findings included the presence of chlorinated volatile organic compounds in the soil and groundwater as well as identification of underground storage tanks. Deficiencies were identified in both the RI and FS reports by comparing with the NYSDEC's required criteria and recommendations were proposed for the RI work plan to further delineate source areas. Based on the remedial investigation review, revised costing assumptions were made, and remedial cost estimates were prepared totaling $3.6 million.
- Project Engineer for the evaluation of expected remedial costs for nine hazardous waste sites, two of which are federal superfund sites. The evaluation of both single and multiple PRP sites was performed to identify costs for an insurance claim. The expected remedial costs for nine sites, which include landfills or facility surface impoundments, totalled approximately $65 million. Remedial plans evaluated for multiple site operable units included groundwater pump and treat, alternative water supply systems, soil/sludge in situ solidification and treatment, and wetlands restoration. Additional work included evaluating invoices for site work previously performed and allocating expenses into their appropriate operable unit and work type, i.e., defense or indemnity.

Water Treatment Experience

- Senior Engineer for the engineering design of a 10 gpm groundwater recovery and treatment system at a former tank farm in Rhode Island. The recovery system included a 200-foot slotted HDPE horizontal well, a 400-foot coated concrete swale and curbing, and a series of seepage collection points manifolded to a common receiving structure. The entire system was designed for passive recovery and gravity flow transmission targeting free-product seepage areas. The treatment system consisted of a collection sump retrofitted within an existing separator, a coalescing plate oil/water separator, a surge tank, a bag filter, and carbon adsorption units. The project included a permit modification for discharge to the Providence River.
- Design Engineer for the design and start-up operation of a 2 mgd packed tower aeration system for potable water in Williston Park, New York. The primary contaminants were trichloroethane and tetrachloroethene which were stripped below drinking water standards. The design process included full scale pilot testing to assure proper removal levels.
- Design Engineer for the design, construction, and start-up operation of a 5 mgd industrial cooling water treatment system utilizing mechanical surface aeration. The system consisted of two lined aeration basins operating in series with floating mechanical aerators to remove volatile organic contaminants to levels suitable for recharge into the Long Island groundwater aquifer. The primary contaminants were 1,1-dichloroethene, trichloroethane, tetrachloroethene and vinyl chloride.
- Design Engineer for the design and construction of a 4 mgd granular activated carbon system for potable water in Hempstead, New York. The primary contaminants consisted of more than 8 volatile and semi volatile organic compounds. Responsibilities included site inspection for the installation of the six vessels containing 20,000 lbs. of carbon in each. The

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system was designed for 99.9% removal efficiency with two units operating in series.

Constructed Wetlands Experience

- Senior engineer for the conceptual design of a constructed wetlands stormwater treatment system for a coal handling freight railroad facility in Norfolk, Virginia. The design consists of treatment of contaminated stormwater runoff generated from maintenance and fuel handling areas onsite. The design treatment performance objective is the reduction of total suspended solids, oil and grease, and selected metals to levels below the SPDES permit discharge standards established for two of the site's outfalls discharging to the Elizabeth River. The 3 acre system consists of a passively operated 200,000 gpd subsurface-type constructed wetlands with a low visual impact and specialized structural design to meet the needs of a busy railyard facility. Additional design components include stormwater bypass structures, jacking beneath tracks, a grit chamber, a lift station, and outfall modifications. A joint wetlands permit will be prepared for the project.
- Senior Engineer for the feasibility study, conceptual design, and construction of four constructed wetlands units and sedimentation basin for a stormwater treatment system along Cedar Swamp Creek for the City of Glen Cove, New York. The project consisted of review of stormwater studies of the 12 square mile contributing watershed, compilation of USGS water quality and flow data, evaluation of stormwater treatment methods and best management practices and optimum site selection along the creek. The constructed wetlands design included a forebay, high and low marsh cells, a micropool, and stormwater bypass structures for removal of sediment, nitrogen, phosphorus, and trace metals during first flush events. Final design for the first 1.8 acre constructed wetlands unit was completed and performance of construction management is ongoing. Design activities include structural and hydraulic design tasks with specific emphasis on storm water bypass. The design has been integrated into an into an intermodal transportation project with the addition of bicycle and walking paths. NYSDEC and Army Corps permits were obtained for the project.
- Project Engineer for the design of a 7,000 gpd subsurface flow-type constructed wetlands treatment system for a refinery site in Rhode Island. The system was designed to treat a surface-water stream impacted by petroleum hydrocarbons. The system's high aesthetic, low visual impact appeal was ideal for its golf course setting. Both phragmites SPP and Typha SPP wetland species were incorporated in the design in order to assess the biodegradation/biotransformation processes effectiveness. A growth and maturation plan and a treatment evaluation plan were developed in order to evaluate the system performance.
- Lead Engineer responsible for technical review of a design for modifications to a constructed wetlands system in Nicholas County, West Virginia. The system was designed to treat the leachate from a solid waste landfill at a maximum capacity of 30 gpm. The complete water-tight treatment system consisted of a sedimentation basin, stabilization basin, a series of three wetland cells and a finishing ditch. The wetland cells consisted of a double liner system with leachate collection piping overlaid with stone fill and a matrix of plant life. The technology combines physical, geochemical, and biological removal mechanisms operating simultaneously.

Permitting/Compliance Plans

- Project Engineer for the preparation of a Spill Prevention Control and Countermeasure (SPCC) Plan and a Storm Water Pollution Prevention Plan (SWPPP) for an 850-acre petroleum storage terminal in New England. The SPCC Plan involved the inventory of 50 bulk storage tanks and miscellaneous storage vessels and an assessment of barge loading areas, truck loading racks, additive loading areas, pumping stations, and a network of aboveground pipelines. The SWPPP encompassed an inventory and surveying of the existing storm sewer system, an evaluation of oil/water separator performance and identification of storm water management controls and practices.
- Project Engineer for the design of modifications to multiple discharge facilities along the Providence and Runnins Rivers in Rhode Island. Permitting activities were performed with the following agencies: Rhode Island Department of Environmental Management (RIDEM) Pollutant Discharge Elimination System (RPDES), RIDEM Division of Freshwater Wetlands, Coastal Resources Management Council (CRMC), and the Army Corps of Engineers.

Sanitary Experience

- Design Engineer for the evaluation of a municipal sanitary sewer system consisting of approximately 70 miles of piping ranging in size from 8 inches to 16 inches, in Garden City, New York. The sewer system was evaluated for existing and proposed flow capacity, surcharging, infiltration of groundwater, inflow of storm water, root encroachment, and sewer breaks. Evaluation methods consisted of hydraulic profile analysis, television inspection of piping, field inspection of manholes, and flow measurement. Sewer upgrading methods were evaluated including direct replacement, manhole restoration and pipe slip lining, and a rehabilitation program was implemented.
- Design Engineer for the City of Glen Cove's industrial wastewater pretreatment program which was established to monitor significant industrial users discharging to the city's wastewater treatment plant to minimize upsets to the

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biological treatment mechanisms. The program work included annual facility inspections, wastewater discharge sampling, review and evaluation of quarterly self-monitoring results, calculation of discharge penalty fees, preparation of annual monitoring reports for each facility and development of wastewater discharge permits to comply with City regulations.

- Design Engineer for a heavy metals study for the municipal sanitary sewer system in the City of Glen Cove, New York. The heavy metals study consisted of the development and performance of a city-wide sewer sampling program to identify the sources of heavy metals loadings on the wastewater treatment plant. The evaluation included industrial sources, scavengers, non-industrial sources, the plant operation itself, and review of existing heavy metal studies. Recommendations were provided for minimization of loadings and pretreatment to protect the plant operations.

Stormwater Experience

- Design Engineer for the evaluation and conceptual design of a water management plan for a 200-acre proposed office complex in Bethpage, New York. The design included inlets, piping and recharge basin sizing for peak storm water runoff flows as well as a system of architectural ponds and level control structures. For dry periods, the design included flow controls connected to an existing cooling water system to maintain pond levels and for utilization as a water supply for an irrigation sprinkler system during the growing season.
- Design Engineer for the design of a municipal storm drainage system for a 200-acre contributing area in Garden City, New York. The purpose of the drainage system was to alleviate severe flooding problems for eight homes located in a local low point of a residential neighborhood. The system included over 4,800 linear feet of reinforced concrete piping ranging in size from 12 to 60 inches. Design considerations included hydraulic gradient analysis, inlet capacity, utility crossings, minimization of removals of established trees, a county road crossing, utilization of existing structures and piping, and a headwall discharge to a recharge basin. Additional design items included pavement restoration, service line relocations, curbs and sidewalks, and maintenance and protection of traffic.

Site Assessment Experience

- Senior Engineer for coordination and review of Phase I environmental site assessments for five large research and development complexes located throughout the eastern United States for a major chemical company. The site assessments were performed for due diligence prior to engaging in long-term property lease agreements. The site assessments evaluated chemical storage and handling areas and previous site usage.
- Senior Engineer for coordination and review of Phase I environmental site assessments for 12 properties associated with tennis centers acquisition on Long Island, New York. The properties were either active tennis center facilities or vacant parcels available for new construction. All site assessments were conducted in accordance with ASTM standards for commercial real estate transactions. Primary concerns identified were USTs, drum storage areas, and unauthorized dumping.
- Project Manager representing a group of banks investing in a 20 acre commercial property in Westchester, New York. The onsite soil was contaminated with several volatile and semi volatile organics. Performed an evaluation of the remediation plan which included onsite biological treatment of soils and aeration and oil water separation of groundwater.

Water Main Experience

- Project Engineer for the design of over 6,000 feet of ductile iron water main in sizes from 4 to 16 inches for Town of Hempstead, New York Department of Water and the Nassau County, New York Department of Public Works. The designs included wet and dry connections to existing mains, fittings, valves, copper services and fire hydrants. Restoration work included replacement of asphalt pavement, concrete sidewalk and curbs, and grass areas.
- Design Engineer for the design and construction management of over 10,000 feet of ductile iron water main in sizes from 6 to 12 inches for the Town of Wallkill, New York. The designs included booster pump station upgrades, a stream crossing, a wetlands crossing, jacking of 36-inch casing beneath a state highway, air release chambers, copper service re-connections, fire hydrants, valves, and appurtenances. Restoration work included wetlands restoration, backfilling, and regrading within a NYSDOT right-of-way and grass and pavement replacement.
- Design Engineer for the design and construction management of upgrades to a 3.7 mgd potable water booster pump station for the Town of Wallkill, New York. The design featured the replacement of a hydropneumatic tank and pump system with three larger capacity centrifugal pumps. The upgrades were performed while maintaining the pump station service. The pump station revisions included piping, pump pads, shut-off valves, silent check valves, pressure relief valves, gauges, ventilation equipment and a motor control center.

Feasibility Study Experience

- Senior Engineer for the performance of a feasibility study and remedial design of a free product containment and recovery system at a former refinery in New England. The areal extent of the free-product plume was approximately 10 acres with a measured thickness of up to eight feet. Pilot testing activities consisted of pump tests, baildown tests, and funnel and gate

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systems with and without sheeting. The selected remedial alternative consisted of re-routing and repair of active storm sewer piping, closure-in place of a former 72-inch storm drain using clay fill material to form a barrier wall, and installation of multiple recovery trenches totaling 450 linear feet. The recovery trenches were installed to a depth of 14 feet using a deep trenching machine and were completed with gravel, horizontal perforated piping, recovery wells, and monitoring wells to accommodate both passive and active product recovery pumping equipment. Product recovery enhancement pilot testing was also performed by using non-ionic surfactants, mechanical reworking of soil and vacuum extraction methods.

- Project Engineer for the performance of a feasibility study for the containment of a free-product plume beneath a refinery site in Rhode Island. The feasibility study included analysis of groundwater modeling, bench and pilot scale treatability studies, groundwater quality characterization, identification and screening of discharge alternatives, and treatment process evaluations. The work also included the evaluation of the discharge of treatment system effluent to several receptors including groundwater, wetlands, sanitary sewers, and storm sewers. Discharge requirements were evaluated for process water, off-gas air, and residual wastes. Several treatment processes were also evaluated including metals precipitation and sludge dewatering, VOC and SVOC removal, and off-gas treatment. Preferred alternatives for each process were selected for remedial design development.
- Project Engineer for the performance of a feasibility study for a hazardous waste landfill located at a Superfund site in Tennessee. The feasibility study focused on the characterization and quantification of landfill leachate consisting of chlorinated organic compounds as well as proprietary pesticide compounds. The remedial technologies which were evaluated included leachate collection alternatives, onsite treatment alternatives and offsite disposal methods. An analysis was performed for onsite treatment technologies which included constructed wetlands, biological fluidized bed reactor, and granular activated carbon adsorption. The technologies were assembled into four feasible remedial alternatives and treatability studies were recommended to confirm the suitability of selected processes.

PROFESSIONAL AFFILIATIONS

National Society of Professional Engineers

American Society of Civil Engineers

WEF Hazardous Waste Committee, 1996–1998

PUBLICATIONS

Assessment and Remediation of Off-Spec Asphalt Disposal Areas - Co-authored, Contaminated Soils, Volume 3, Amherst Scientist Publishers, 1998

Use of a Subsurface Flow Constructed Wetlands for Collection and Removal of Water Containing BTEX, Co-authored, Proceedings of the 2000 Petroleum Hydrocarbons and Organic Chemicals in Groundwater Conference, National Ground Water Association

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PROFESSIONAL PROFILE



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EDUCATION
BS, Chemical Engineering,
Cornell University, 2000

Dana M. Hignell

Senior Engineer II

EXPERIENCE SUMMARY
Over twenty years of experience: Staff, Project, and Senior Engineer with Roux.

TECHNICAL SPECIALTIES
Engineering services for the investigation, design, construction, and operation and maintenance of remedial systems for the treatment of contaminated soil, sediment, and groundwater. Remedial designs have included excavation, in-situ groundwater remediation, groundwater pump and treat systems, air sparging with soil vapor extraction, vapor barriers and sub slab depressurization systems, and landfill soil cover systems.

REPRESENTATIVE PROJECTS

- Senior Engineer and Project Manager of a former wire and conduit manufacturer (former NYS Inactive Hazardous Waste Site) remediation in Syosset, NY. The Site was accepted into the NYSDEC BCP to support additional remediation and future redevelopment. Activities completed included development of RIR/RAWP and manage oversight of construction activities for approved remedy.
- Senior Engineer and Project Manager for the design and installation of a Constructed Treatment Wetlands (CTW) to treat nitrogen loading from a sanitary system in Brentwood, New York.
- Senior Engineer for the investigation of nitrogen loading to a creek in East Hampton, New York that is part of the Peconic Bay Estuary, and evaluation of the use of a permeable reactive barrier to reduce the flux of nitrogen.
- Senior Engineer for the design and start-up of a soil vapor extraction (SVE) and air sparge (AS) system at an active gasoline station in Staten Island, New York. The system was installed to address soil and groundwater contaminants and consists of 17 vertical SVE wells and 10 AS wells. The recovered soil vapor is treated by catalytic oxidation before being discharged. Over 1,200 pounds of hydrocarbon have been recovered since the system start-up.
- Senior Engineer for the design of in-situ groundwater remediation to treat chlorinated volatile organic compounds (CVOCs) at a former dry cleaner in Bronx, New York. In-situ chemical oxidation (ISCO) was selected as the groundwater remedy, with injections completed over a half an acre of property. The ISCO remedy was successful and allowed for redevelopment of the property within the required schedule.
- Senior Engineer for the design and implementation of a passive product-recovery system using horizontal recovery wells at a former bus garage in Newark, New Jersey. The remedial action also included excavation and offsite disposal of approximately 7,000 tons of petroleum contaminated soil, and in-situ chemical oxidation to treat residual soil and groundwater contamination.
- Senior Engineering managing the investigation, design, and implementation of product-recovery skimming systems for a former petroleum refinery in Queens, New York. Over 100,000 gallons of product has been recovered to date.
- Senior Engineer for the design of a sub-slab depressurization system with vapor barrier for the construction of a 19-story residential building in Brooklyn, New York.

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- Senior Engineer for the investigation, design, and implementation of a soil remediation project at a Former Oil Terminal in Sag Harbor, New York. The remedy completed includes excavation and offsite disposal of approximately 2,000 tons of petroleum contaminated soil in an active roadway surrounded by underground utilities.
- Senior Engineer for the investigation, design, and implementation of a soil remediation project at a 4-acre Former Oil Terminal in Cold Spring Harbor, New York. The remedy completed includes excavation and offsite disposal of approximately 20,000 tons of petroleum contaminated and/or hazardous lead contaminated soil in accordance with the future use of the site under an Environmental Easement. Additional activities completed at the site included asbestos remediation followed by building demolition, UST removal, and cesspool remediation.
- Project Engineer for the complete design for a 9-acre landfill in Rensselaer, New York as part of the NYSDEC Voluntary Cleanup Program. The design was in accordance with the future use of the Site as a landfill with an integrated wildlife habitat vegetative cap and included hot spot soil excavation and installation of a vegetative cap.
- Project Engineer for the design of a soil and groundwater remediation system for a Former Oil Terminal in Oceanside, New York. A risk based remedial approach that called for the remediation of "hot spot" source area soils, and mass-reduction of VOCs in groundwater was successfully utilized for the Site. To address the soil contamination in the source areas, "hot spot" soil excavation was completed. A groundwater pump and treat system was designed, constructed, and continues to be operated and maintained to address the VOC contaminants in groundwater. The system consists of seven recovery wells, an oil/water separator, and a packed column air stripping tower. Over 11 million gallons of groundwater have been recovered and treated.
- Project Engineer for the design and startup of a soil vapor extraction (SVE) and air sparge (AS) system at an 11-acre active Oil Terminal in Glenwood Landing, New York. The system was installed to address soil and groundwater contaminants and consists of four horizontal SVE wells and 8 AS wells. The recovered soil vapor is treated by carbon units before being discharged. Approximately 12,000 pounds of hydrocarbon have been recovered since system start up.
- Project Engineer for the design and startup of a soil vapor extraction (SVE) and air sparge (AS) system at an 11-acre active Oil Terminal in Inwood, New York. The system was installed to address soil and groundwater contaminants and consists of 4 vertical SVE wells and six AS wells. The recovered soil vapor is treated by carbon units before being discharged. Approximately 32,000 pounds of hydrocarbon have been recovered since system start up.

Operation and Maintenance (O&M) Experience

- Project Engineer responsible for the O&M and monitoring of a SVE system and a dual-pump, product recovery system at an active Oil Terminal in Inwood, New York. O&M activities included system operation and maintenance, performance monitoring, and preparation of quarterly status reports for submission to the NYSDEC. The SVE system consists of 5 SVE wells and was designed, constructed, operated, and maintained for a period of approximately 6 years. The SVE system was permanently shut down and this area of the Site is currently in the post-remediation monitoring phase. The dual-pump system, including groundwater and product recovery and packed column air stripping towers, is currently still in operation.
- Project Engineer responsible for the operation and maintenance of soil and groundwater remediation systems for an active Oil Terminal in Glenwood Landing, New York. A groundwater pump and treat system, consisting of 1 recovery well, two packed column air stripping towers, bag filters and granular activated carbon units, has been in operation at the Site to address VOC contaminants in groundwater. In addition, an SVE/AS system, previously installed, was upgraded to further address soil and groundwater contaminants at the Site boundaries. The SVE system consisted of vertical wells in an area of shallow groundwater. The system was upgraded with seven horizontal wells and an additional five AS wells were installed. Following an on-site diesel spill of approximately 5,000 gallons in 2005, free-product recovery efforts were implemented, including removal of saturated soils and installation of a free-product recovery system.
- Staff Engineer responsible for the O&M and monitoring of an SVE/AS system for nationwide distribution center in Brooklyn, New York as part of the NYSDEC Voluntary Cleanup Program. O&M activities included system operation and maintenance, performance monitoring, soil gas monitoring, quarterly monitoring, and preparation of quarterly and annual status reports for submission to the NYSDEC. The SVE and AS system consists of 8 SVE wells and 17 AS wells and was designed, constructed, operated and maintained for a period of approximately 3 years. The SVE and AS system is permanently shut down and the Site is currently in the post-remediation monitoring phase.
- Staff Engineer responsible for the O&M of a 430 gpm, dual-pump, product recovery system in Greenpoint, Brooklyn, New York. Processes and system maintained include dual-pump groundwater and product recovery, low profile air strippers and a catalytic oxidation unit. The Site encompasses one of the nation's largest petroleum releases (18 million gallons).

UST Experience

- Project Engineer for the management of the excavation and removal of a 10,000-gallon UST and four ASTs ranging from 284,000-gallon capacity to 976,000-gallon capacity at a former Oil Terminal in Cold Spring Harbor, New York. The scope of

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work entailed preparation of a UST and AST closure work plan, project management of the field work, post excavation and tank footprint sampling and preparation of a UST and AST Closure Report.

- Project Engineer for the excavation oversight of a 2,000-gallon heating oil UST at an active Oil Terminal in Glenwood Landing, New York. Field oversight included post-excavation and waste characterization soil sampling, health and safety monitoring, supervision during the removal, cleaning, and disposal of the USTs and preparation of a Closure Report.
- Project Engineer for the excavation oversight of a 2,000-gallon heating oil UST at an active Oil Terminal in Inwood, New York. Field oversight included post-excavation and waste characterization soil sampling, health and safety monitoring, supervision during the removal, cleaning, and disposal of the USTs and preparation of a Closure Report. Also included was the management and field oversight of the closure of an in-ground oil/water separator at an active Oil Terminal Inwood, New York. The scope of work entailed preparation of an oil/water separator closure work plan, project management of the field work, excavation of petroleum contaminated soils associated with the separator, post-excavation sampling, and preparation of an Oil/Water Separator Closure Report.
- Staff Engineer for the excavation oversight of three 8,000-gallon USTs, two pump islands and three hydraulic lifts and all associated piping at a former service station in Norwalk, Connecticut. Field oversight included post-excavation and waste characterization soil sampling, health and safety monitoring, supervision during the removal, cleaning, and disposal of the USTs, and preparation of a Closure Report.
- Staff Engineer for the excavation oversight of three 8,000-gallon USTs, two pump islands and all associated piping at a former service station in Hartford, Connecticut. Field oversight included post-excavation and waste characterization soil sampling, health and safety monitoring, supervision during the removal, cleaning, and disposal of the USTs and preparation of a Closure Report.

Soil and Groundwater Remediation

- Project Engineer for the design of soil remediation at an active Oil Terminal in Stamford, Connecticut to remove contaminated soils following a 30,000-gallon petroleum spill in 2006. The remediation included excavation of approximately 1,000 cubic yards of petroleum-impacted soil with post-excavation sampling.
- Staff Engineer responsible for construction management of remediation of a former major pharmaceutical plant located in Hicksville, New York as part of the State Superfund Program. The project consisted of the excavation of non-hazardous soil from five on-site drywells and a former waste disposal area, implementation of a community air monitoring plan, coordination with the Long Island Rail Road (LIRR) for work performed within the LIRR's right of way, steel sheeting installation and removal, backfilling, monitoring well abandonment and replacement, transportation and disposal of 3,300 tons of VOC, SVOC and metal contaminated soil, and restoration of approximately 9,800 square feet of asphalt. A 7-foot diameter steel caisson was used to support the deeper excavation required at the invert of two drywells. This innovative approach saved the client approximately $50,000 in costs that would have been incurred by using a traditional steel sheeting support system to protect the on-site commercial building.

Stormwater

- Project Engineer for the design and construction management of a stormwater drainage upgrade project for the parking lot of a former manufacturing facility (costume jewelry and then surgical needles) located in Queens Village, New York. The stormwater drainage system consisted of multiple catch basins, a new drain and curb, and all associated piping.
- Project Engineer for the design and construction of two stormwater management ponds and swales for a former landfill in Rensselaer, New York. The ponds and swales were constructed as part of the landfill cap project to direct stormwater to existing catch basins, allow stormwater overflow control and to enhance the wildlife habitat.

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PROFESSIONAL PROFILE



CONTACT INFORMATION
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Direct: (631) 630-2385
Email: jduminuco@rouxinc.com
Website: www.rouxinc.com

209 Shafter Street
Islandia, NY 11749

EDUCATION
MS, Geology, Wright State University, 1990
BS, Geology, Hofstra University, 1983

PROFESSIONAL LICENSES
Licensed Professional Geologist, NY (License No. 000119)

Joseph Duminuco, PG

Executive Vice President | Principal Hydrogeologist
Director of Site Investigation and Remediation Services

EXPERIENCE SUMMARY
Over thirty-five years of experience: Director of Site Investigation and Remediation Services, Executive Vice President, Brownfields Practice Area Leader, Vice President, Office Manager, Principal, Senior, and Project Hydrogeologist at Roux; Staff Hydrogeologist at Geraghty & Miller; and Geologist at Mueser Rutledge Consulting Engineers.

TECHNICAL SPECIALTIES
Mr. Duminuco provides environmental consulting services and strategic planning, focusing on the use of innovative solutions. He is Roux's Director of Site Investigation and Remediation Services, encompassing focused efforts within the Brownfields Redevelopment, Public Sector, Industrial Services, and Petroleum-Energy practice areas. He specializes in investigation and remediation of soil, groundwater, and vapor at commercial and industrial sites, including Brownfield Redevelopment projects.

REPRESENTATIVE PROJECTS

- **Principal-in-Charge of the 45-acre Development of a State-of-the-Art UBS Sports Arena And Commercial/Retail Complex at the Belmont Park Horse Racing Venue on Long Island, New York.** The Roux scope of work included Phase I and Phase II environmental site assessments (ESAs) as part of due diligence, executive information system (EIS) support, Waste Characterization sampling design, implementation, and oversight of all soil disposal/reuse activities of approximately 400,000 cubic yards of soil. In addition, Roux provided onsite environmental manager (OEM) services including daily implementation of the Community Air Monitoring Program (CAMP), compliance inspections, and reporting.
- **Principal-in-Charge of the Redevelopment of an Entire City Block into a Mix of Public and Private Open Space with Community Gardens, 655 Mixed-income Residential Units, and Community Services Containing Three Multi-use Buildings in Harlem, New York.** The buildings will be certified to Passive House standards. Responsibilities include Phase I and II ESAs, remedial action plans (RAPs), waste characterization sampling design, and reporting to the New York City Department of Environmental Protection (NYCDEP). Subsequently, the project was entered as two separate New York State Department of Environmental Conservation (NYSDEC) Brownfields Cleanup Program (BCP) sites. Activities have included BCP Application, preparation, and implementation of a remedial investigation work plan (RIWP), preparation and implementation of an IRM Work Plan, preparation of a combined remedial investigation report (RIR)/remedial action work plan (RAWP), and implementation of CAMP and soil/fill excavation oversight and management and preparation of a site management plan (SMP) and final engineering report (FER) to obtain a certificate of completion (COC).
- **Project Executive of the Design-Build Project to Prepare the Bronx Jail Property for Construction at the Location of the Former Lincoln Hospital.** The hospital and all associated structures were demolished, and the demolition debris was buried at the Site. This debris included asbestos-containing material (ACM). Roux's work consisted of a site-wide geophysical survey, a site-wide radiological gamma walkover survey, extensive waste characterization and asbestos sampling, completion of downhole gamma logging in most of the soil borings, and completion of ten test pits for asbestos and radiological delineation.

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During construction Roux provided environmental oversight, CAMP, noise monitoring, and perimeter asbestos air monitoring during the construction phase of work. Due to the nature of the Site and the presence of ACM, all ground-intrusive soil work required those working within the exclusion zone to wear Level C Personal Protective Equipment (PPE).

- **Principal-in-Charge of the Redevelopment of a Waterfront Site that includes Two High-Rise Mixed-use Affordable/Senior Living Residential Towers in Queens, New York.** Additionally, the development includes ground floor retail, community facility public spaces and two piers extending into the East River. The two towers were entered as separate NYSDEC BCP sites and are immediately adjacent to the Newtown Creek Federal Superfund Site. Activities have included BCP Application, preparation, and implementation of a RIWP, preparation of a combined RIR/RAWP, and implementation of CAMP and soil/fill excavation oversight and management, and preparation of an SMP and FER to obtain a COC.
- **Principal-in-Charge of the Redevelopment of a Former Garage and Auto Repair Operation and a Manufacturing Facility on two Adjacent lots into a Multi-story Single-family Residence in lower Manhattan, New York.** The Site contains an E-Designation and as such is going through the New York City Office of Environmental Remediation (NYCOER) Voluntary Cleanup Program (VCP). Roux completed a Phase I ESA, an RI, a RAWP, a waste characterization plan, and is providing oversight of waste management, underground storage tank (UST) removals, and CAMP.
- **Principal-in-Charge of a NYSDEC BCP Redevelopment of a Property Adjacent to a Dry Cleaning Solvent Distribution Facility in Brooklyn, New York.** The Site was a former freight railyard, and offloading spillage on-site and migration from the off-site solvent facility resulted in significant soil, groundwater, and vapor contamination with chlorinated volatile organic compounds (VOCs). The Site was developed into multifamily units with first floor retail use and the remedy consisted of soil hot spot removal, a physical barrier to limit on-site migration, a permeable reactive wall to eliminate off-site migration, hot spot in situ injections, and a sub-slab depressurization system. The Site contained an E-Designation which was satisfied through the NYCOER simultaneously with the BCP process. Roux was awarded the Big Apple Brownfield Award for Innovation based on our successful cleanup approach.
- **Principal-in-Charge of a NYSDEC BCP Redevelopment Project that required a RCRA-compliant Facility Closure at a Former Paint Factory in Queens, New York.** Historical site operations adversely impacted the subsurface including a light non-aqueous phase liquid (LNAPL) plume, in addition to petroleum hydrocarbon impacts to the soil and groundwater. Roux completed a RI at the Site which characterized the nature and extent of the impacts. The remedial action included a large excavation that required support of excavation (SOE) and was completed under a tent due to odor concerns, multiple in situ chemical oxidation (ISCO) injections, UST removal/abandonment, installation of a LNAPL recovery system, and installation of a sub-slab depressurization system (SSDS). Additionally, Roux provided oversight of Resource Conservation and Recovery Act (RCRA) closure activities at the Site, which included emptying, cleaning, and scrapping 65 aboveground storage tanks (ASTs)/vessels; decontaminating the ceilings, walls, and floors of the Paint Factory Building; and collection of compliance samples.
- **Principal-in-Charge of Multiple Dry Cleaner Remediation Project Takeovers in NYC, Long Island, New Jersey, and Connecticut.** Sites included a mixed use multifamily affordable housing neighborhood retail complex, a healthcare facility, a light manufacturing facility, and several retail shopping centers. Impacts included soil, groundwater (bedrock and overburden), surface water, soil vapor, indoor air, and building material contamination from chlorinated VOCs from the former dry cleaner operations. Activities included historical research, re-delineation of contaminant source areas, negotiations with regulatory agencies, and remediation including hot spot soil removal, soil vapor extraction (SVE), in situ groundwater treatment, and negative pressure approaches (SSDS) for vapor mitigation in the existing buildings.
- **Principal-in-Charge of a NYSDEC VCP Redevelopment of a Former MGP Site into a Big Box Retail Site in Brooklyn, New York.** The project consisted of negotiations with the NYSDEC and Roux limited remediation to former gasholders filled with coal tar, soil hot spots with mobile coal tar, and perimeter containment of coal tar. All the remaining soil at the Site was impacted with manufactured gas plant (MGP) waste and most of the Site was underlain by liquid coal tar. Roux negotiated the use of institutional/engineering controls to allow significant contamination to remain in place. An SSDS and vapor barrier were installed to address the mobile coal tar left below the retail building.
- **Principal-in-Charge for a NYSDEC BCP Redevelopment Project at a Site in White Plains, New York**. This Site consists of 16 separate parcels spanning 4.5 acres and had a variety of former uses including automotive service/repair and multiple dry cleaners. The Site has both chlorinated and petroleum hydrocarbon impacts to the soil and groundwater. The remedy will consist of a site cover system, soil hot spot removals, in situ chemical oxidation for groundwater contamination, and installation of an SSDS.

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- **Principal-in-Charge of a Former Wire and Conduit Manufacturer (former NYS Inactive Hazardous Waste Site) Remediation on Long Island, New York.** The Site was accepted into the NYSDEC BCP to support additional remediation and future redevelopment. Activities completed included compiling, reviewing, extracting, and summarizing numerous historical environmental reports prepared for the Site; interacting with the NYSDEC, United States Environmental Protection Agency (USEPA), and Nassau County Health Department (NCDOH); completing a supplemental soil investigation (including extensive use of XRF Technology as metals are the compound of concern); and a groundwater investigation (water is over 100 feet deep). Subsequently an RI was performed and an RIR/RAWP was submitted. The approved remedy is a site cover system.
- **Principal-in-Charge for a NYSDEC BCP Redevelopment in Staten Island, New York of a former Retail Service Station Site.** There is soil, groundwater, and vapor contamination from petroleum-related constituents in the vicinity of the former gasoline piping and pump island (the petroleum source area), as well as historic fill across the entire Site. The remedy, described in the Remedial Action Work Plan prepared by Roux, will consist of a sheet pile containment wall around the petroleum source area, a Site Cover System across the entire Site comprised of concrete building slab/walkways, asphalt parking areas and limited landscaped areas, and site-wide a sub-slab depressurization system to prevent vapor intrusion into the proposed retail building and off-site migration of impacted soil vapor.
- **Principal-in-Charge of a Mixed-use (Public School and Residential) Brownfield Redevelopment in Lower Manhattan, New York.** Project consisted of a Phase I and a Phase II ESA to satisfy New York City Department of Environmental Protection (NYCDEP) requirements. Due to the presence of contaminated historic fill, Roux performed in situ waste characterization to assist in the development of NYCDEP-required plans. In addition, Roux provided oversight of the waste removal, completion of waste manifests, and full-time CAMP during all soil moving activities. Roux provided support to the excavation contractor when two previously unknown USTs were discovered during excavation activities.
- **Principal-in-Charge of a Multi-phased NYSDEC VCP Redevelopment of a Former Defense Site to Waterfront, Upscale Housing in Long Island, New York.** This investigation included determining the nature and extent of chlorinated VOCs in soil, groundwater, and vapor-phase contamination on-site and off-site. Utilized a risk assessment to argue the level of residual contamination allowed to remain on-site with an intended residential future use. Remedial alternatives were selected in accordance with future development plans and institutional/engineering controls were proposed to limit cleanup costs. Successfully argued the technical impracticability of remediation of the heavily contaminated deeper aquifer beneath the site and off-site.
- **Principal-in-Charge of a Retail/Commercial Redevelopment in The Bronx, New York.** The Site contained a NYCDEP E-Designation due to a previous on-site service station UST release. In addition, a previous Phase I and Phase II ESA identified a former dry cleaner with a chlorinated VOC release. Roux performed a focused Phase II ESA at the dry cleaner and determined the chlorinated solvent release was not a hazard. Roux obtained closure under the NYSDEC Spills group, and the Site was redeveloped with a restaurant, a pharmacy, and reuse of a former supermarket.
- **Principal-in-Charge of the Redevelopment and Expansion of an Automobile Dealer/Service Center in New York, New York into the US Flagship Dealer for a Major European Luxury Car Manufacturer.** Supported the client and legal team during lease negotiations. Worked closely with the NYCOER to address NYCDEP E-Designation. Coordination with the NYCOER to implement remedial investigation and develop a Site Materials Management Plan as part of the expansion. Also, worked closely with the NYSDEC to address an on-site spill, as well as coordinate efforts to evaluate whether a 19,000-gallon dielectric fluid release by others impacted the Site.
- **Principal-in-Charge for the Completion of Phase I and Phase II Environmental Site Assessment Activities Associated with a Proposed Mixed-use Redevelopment Located in Westchester, New York, Waterfront.** Work included management of subsurface investigation activities to characterize soil conditions, and working closely with the client's architects and construction contractors to integrate the proposed site remediation into the project development plan (including evaluating multiple potential disposal scenarios). Site contaminants included hydrocarbons (including free-product plume from former USTs) and historic fill constituents.
- **Principal-in-Charge of an 80-acre Redevelopment in Yonkers, New York.** Work included Phase I and Phase II investigations, asbestos surveys and abatement support, and response to a free product impact from an adjacent landowner. Coordinated with the NYSDEC and responsible party to address contamination issue and not impact the client's construction schedule.
- **Principal-in-Charge for the Redevelopment of a Property in Brooklyn, New York into Supportive Housing.** Worked closely with the NYCOER to address the NYCDEP E-Designation. Coordination with the NYCOER to implement remedial investigation and develop RAP/ Construction Health and Safety Plan (CHASP) as part of the NYC VCP.

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- **Principal-in-Charge for the Redevelopment of a Property in The Bronx, New York into Supportive Housing.** Worked closely with NYCDEP to address E-Designation. Coordination with NYCDEP to implement remedial investigation and develop RAP/CHASP as part of the redevelopment. Also performed an American Society for Testing and Materials (ASTM) vapor encroachment condition (VEC) to address vapor concerns.
- **Principal-in-Charge of a Brownfield Redevelopment for a Large Vacant Parcel (460 acres) on Long Island, New York.** The project involved an extensive investigation, UST, and PCB remediation; removal and proper disposal of numerous tanks, drums, abandoned vehicles and transformers; and participation in contentious public meetings. The Site was redeveloped into a golf course and a senior care facility.
- **Principal-in-Charge for a Property Transfer Support Project at a Heavily Contaminated (Chlorinated Volatile Organic Compounds from an Adjacent Dry Cleaner and On-site MGP Waste) Distribution Facility in the Bronx, New York.** The Site was a former MGP being handled under the VCP, in addition to an open petroleum spill under the regional spills group. Roux performed a Phase I for the buyer, a Phase II and remedial cost estimate for the owner, and negotiated with the buyer's consultant and the NYSDEC to limit the scope of the investigation and cleanup.
- **Principal-in-Charge of Investigation and Remediation of a Catastrophic Heating Oil Release for a Commercial Office Building in Brooklyn, New York.** All work was performed under the oversight of the NYSDEC Spills Group and time was of the essence for the initial response as the heating season was fast approaching. Roux performed free product delineation and remediation and indoor air monitoring at adjacent buildings. Site closure was obtained from the NYSDEC.
- **Principal-in-Charge of a Mixed-use (Residential, Retail, Commercial) Brownfield Redevelopment in The Bronx, New York.** Project consisted of a Phase I and Phase II ESA to satisfy NYCDEP requirements. The media investigated included soil, groundwater, soil vapor, and building materials. During the Phase II ESA, Roux performed preliminary in situ waste characterization.
- **Principal-in-Charge of an Interior Brownfield Redevelopment of a PCB, Metals, and Hydrocarbon-Contaminated Wire Manufacturing Facility in Westchester County, New York Into Use as a Movie Studio.** Activities included delineation and characterization of building surfaces, design of a remediation program, and interim cleanups to allow studio use as the project progressed.
- **Principal-in-Charge of Multiple Phases of Brownfield Project for Construction of a Cogeneration Facility in Brooklyn, New York.** The project consisted of construction oversight; environmental compliance monitoring; asbestos and lead paint abatement oversight; data evaluation and report preparation; soil, offshore sediment, and sewer effluent sampling; PCB-contaminated material remediation; preparation of a waste handling and disposal plan; and permitting.
- **Principal-in-Charge of Multiple Retail Developments in Harlem, New York.** Work included Phase I and Phase II investigations to satisfy the NYCDEP and lender requirements. Lead-based paint and asbestos surveys were performed as part of due diligence. Extensive asbestos issues were identified in building materials and soil backfill. Worked with asbestos contractors to determine the best abatement approaches for the redevelopments.
- **Project Coordinator of Multi-year Environmental Consulting Contracts with Amtrak and New Jersey Transit.** Responsibilities include contract negotiations, workload/ resource distribution, compliance with contract requirements including utilization of Minority and Women-owned Business Enterprise (M/WBE) contractors, client-staff liaison, adherence to budgets and schedules, and overall quality assurance. The remedy will likely consist of hot spot removals, a site cover system and a sub-slab depressurization system.
- **Principal-in-Charge of a Multi-phase RI/FS at a PCB and Diesel Fuel-contaminated Railroad Yard in New York City.** The Site is on the State Superfund list because PCBs were detected in soil, groundwater, hydrocarbon plume, sewer water, and sewer sediment. Responsibilities included preparation of work plans; delineation of PCB hot spots with immunoassays; sewer investigation including pump outs, monitoring, flow measurements, and video surveys prior to abandonment; investigation and remediation of numerous USTs including gasoline, solvents, and fuel oils; support of construction activities; report preparation; negotiations with the NYSDEC and New York State Department of Health (NYSDOH); participation in public meetings; and implementation of interim remedial measures to mitigate the PCB-contaminated hydrocarbon plume; interim remedial measures to mitigate PCB, PAH, and lead-contaminated soil hot spots; and agency acceptance of alternate cleanup levels for site soils that resulted in savings of over $80 million.
- **Principal-in-Charge of a Project to Support the Construction of a High-speed Rail Program.** Performed Phase I and II Environmental Site Assessments as part of due diligence at three major railyards. Prepared reports and presentations regarding environmental conditions to regulatory agencies and the design-build consortium. Performed pre-construction sampling and hot spot remediation programs. Also, prepared

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environmental contingency plans for construction contractors to follow.

- **Principal-in-Charge of an Investigation at a PCB and Solvent-Contaminated Transformer Manufacturing/Repair Facility in North Carolina.** Responsibilities included preparation of a work plan and oversight of the project which consists of soil borings and sampling, immunoassay testing, monitoring well installation, groundwater sampling, report preparation, and remedial alternatives evaluation.
- **Principal-in-Charge of a Multi-year Quarterly Monitoring and Reporting Program at a Municipal Landfill Complex on Long Island, New York.** The complex consists of multiple landfills, leachate containment systems, and leachate holding tanks. The project involves the collection of water level and water quality data from dozens of monitoring wells, sampling of leachate containment systems, coordination with contract laboratory, data validation, data evaluation, and report preparation.
- **Project Director of all UST investigative and remedial work performed at service station sites in New England for a major oil company.** Responsibilities included preparation and negotiation of work orders; coordination of monitoring and sampling; communication with client, regulator, and site owner contacts; management of technical aspects of all projects; strategy evaluation with client; administration of all contracts; and operation and maintenance of remediation systems to mitigate UST releases which included groundwater pump and treat, product recovery, and soil venting systems.
- **Principal-in-Charge of an NPL Superfund Site in Delaware.** Responsibilities include ongoing performance monitoring of a groundwater extraction system. The remedial system was installed to capture a chlorinated solvent plume emanating from a former PVC manufacturing facility. In addition, prepared and implemented an RI work plan for a USEPA-required off-site investigation of adjacent chemical manufacturing facilities and a large petroleum refinery. Also included dense non-aqueous phase liquid (DNAPL) investigation and deep aquifer study.
- **Principal-in-Charge of a NJDEP-ECRA and ISRA Investigation and Cleanup Involving Groundwater and Soil Contamination at a Pesticide Formulation and Distribution Facility in New Jersey.** Responsibilities include delineating the nature and extent of the off-site contaminant plume; determining groundwater flow patterns in a two-aquifer system; using a three-dimensional computer model to determine proper location for extraction and injection wells; and preparing work plans and summary reports for New Jersey Department of Environmental Protection (NJDEP)-required additional delineation of the nature and extent of on-site soil contamination.

PROFESSIONAL TRAININGS

NYCOER Turbo Training Certified Professional

PROFESSIONAL AFFILIATIONS

Advisory Council Hofstra University NSF GEOPaths Grant

PRESENTATIONS

Incentives: Programs and Lessons. 2018 Environmental Law Forum – New Jersey State Bar Association; Cape May, NJ; June 2018.

Environmental Law in Real Estate Transactions – Working with Technical Professionals. Hofstra University Law School; January 13, 2013.

Duminuco J., Coyle F., Property Redevelopment and Brownfield Sites. Proceedings of the 11th Annual Environmental Law Conference; ISBA Conference; May 2012.

Transactions and the Environment: Contaminated Property Issues in Real Estate and Corporate Matters. New York State Bar Association; Tarrytown, NY; June 2006.

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APPENDIX O

Request to Import/Reuse Fill Material Form

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NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

Site Name:

Site Number:

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

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SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Name and address of fill source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

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The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

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APPENDIX P

SSDS and Vapor Barrier Drawings and
Manufacturer's Specifications

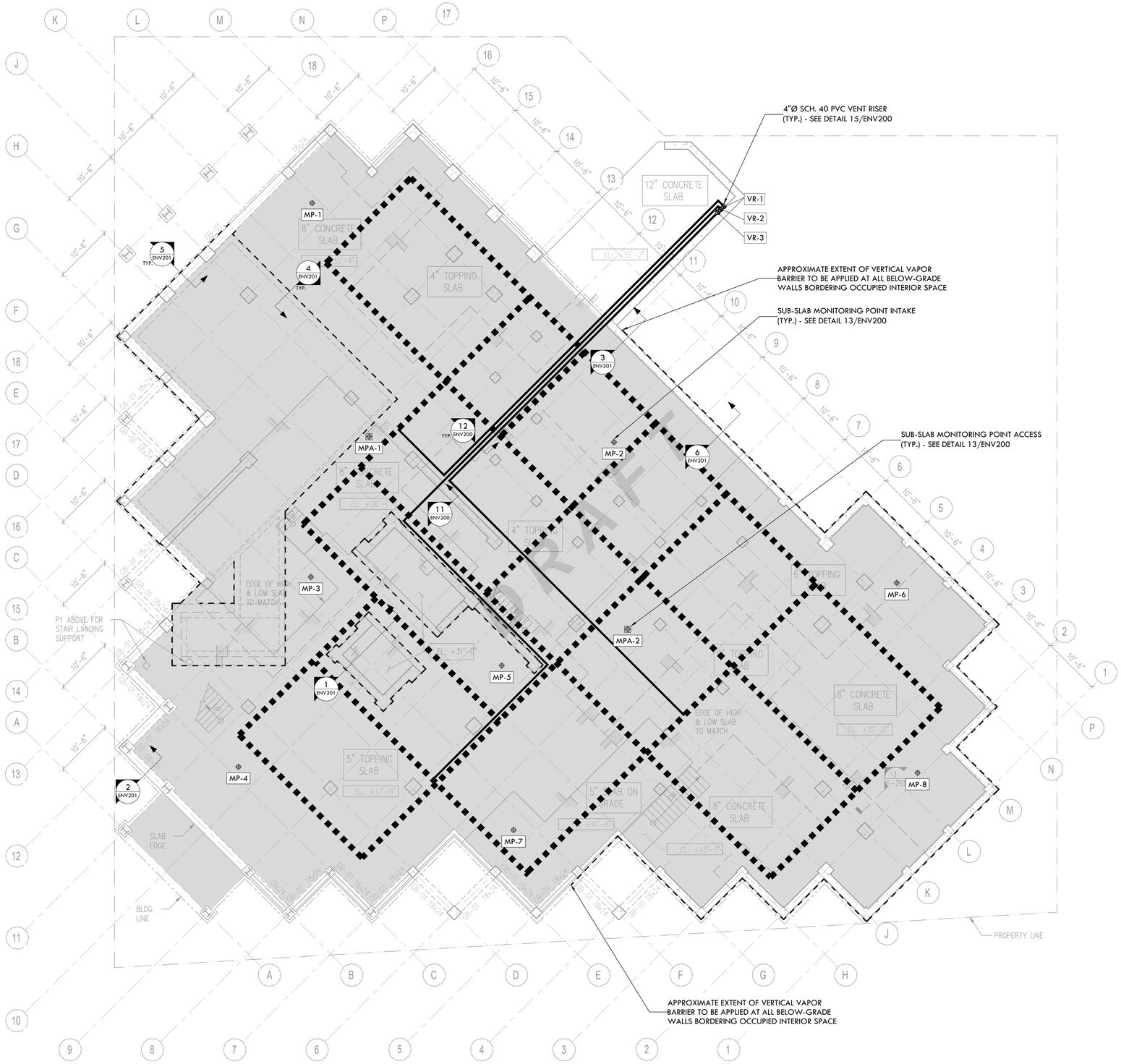
DRAFT

NORTH ARROW:

N

SCALE:

0' 2' 4' 8' 16'



1 1ST (GROUND) FLOOR FRAMING PLAN

REF: 1/S-101.00 1/8" = 1'-0"

LEGEND:

- HORIZONTAL EXTENT OF VAPOR BARRIER
- VERTICAL EXTENT OF VAPOR BARRIER
- GEOVENT VENTING SYSTEM
- 4"Ø SCH. 40 PVC HEADER PIPE
- VR-X — 4"Ø SCH. 40 PVC VENT RISER
- MP-X — SUB-SLAB MONITORING POINT INTAKE
- MPA-X — SUB-SLAB MONITORING POINT ACCESS

NOTES:

1. DRAWING NOT TO BE USED FOR ARCHITECTURAL, STRUCTURAL, OR ANY PURPOSE OTHER THAN VAPOR INTRUSION MITIGATION SYSTEM.
2. MONITORING POINTS AND VENT RISERS ARE NOT TO SCALE AND ARE EXAGGERATED FOR CLARITY.
3. VERIFY FINAL MONITORING POINT AND VENT RISER LOCATIONS IN THE FIELD WITH ARCHITECT/OWNER.
4. OFFSET OF RISERS SHALL BE MINIMIZED. IF NECESSARY, HORIZONTAL OFFSET PIPING SHALL BE SLOPED 1% TOWARDS LOW POINT.

GMP CD

EAI INC
ENVIRONMENTAL MANAGEMENT SERVICES
SPECIALTY CONTRACTING

50 PRESCOTT STREET
JERSEY CITY, NJ 07304

TEL: (201) 395-0010

No.	Date	Description
1	01/14/2026	GMP CD

Scale: 1/8" = 1'-0"		Date: 01/14/2026
Designer: TC	Drawn by: TC	Checked by: ZT

Project:
SOL ON PARK

Address:
3728 PARK AVENUE
BRONX, NY 10456

Drawing Title:
VAPOR INTRUSION MITIGATION SYSTEM
1ST FLOOR FRAMING PLAN

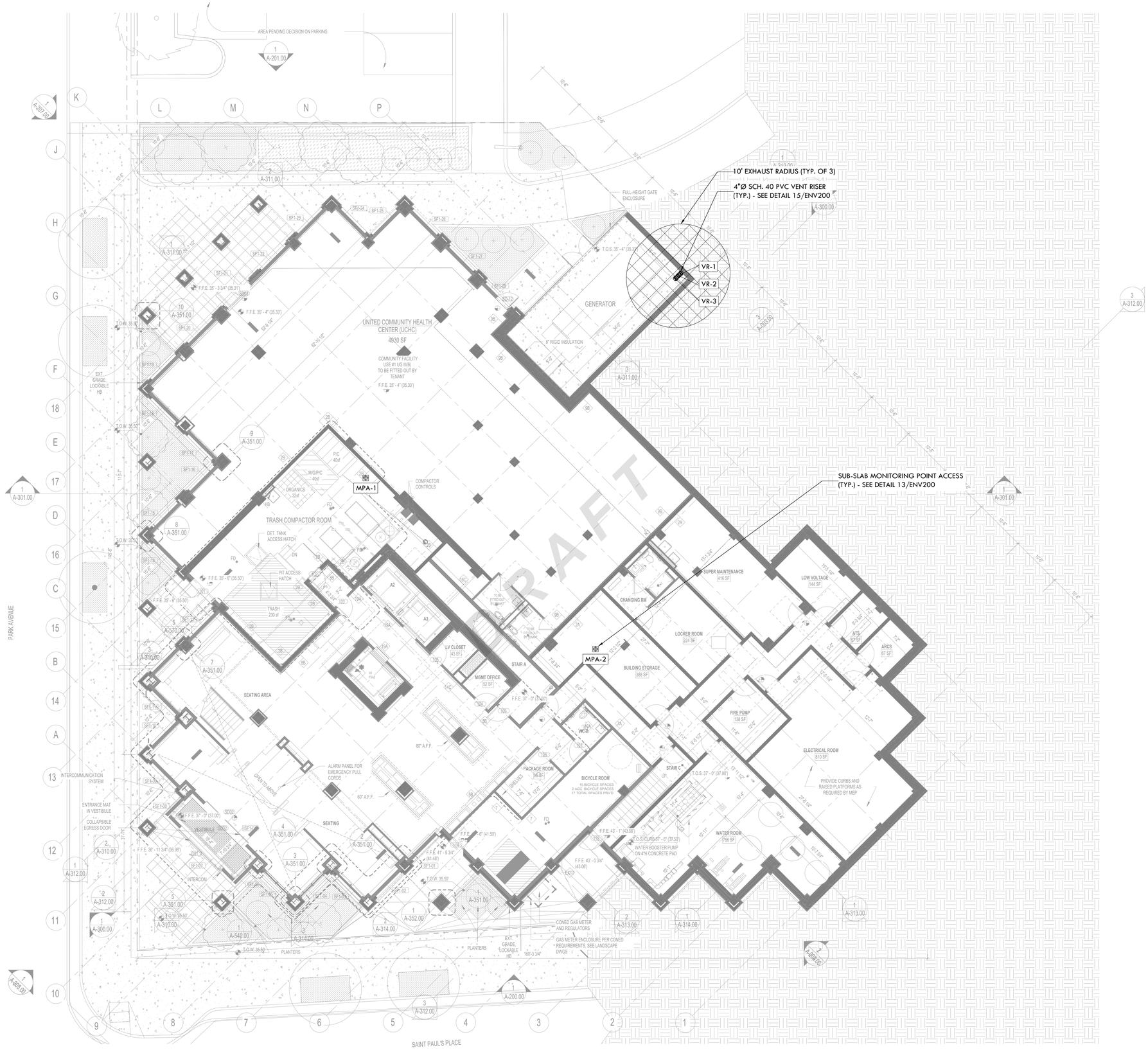
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Sheets in Drawing Set: 01 of 04

NORTH ARROW:

SCALE:

0' 2' 4' 8' 16'



1 1ST (GROUND) FLOOR PLAN

REF: 1/A-101.00 1/8" = 1'-0"

LEGEND:

- VR-X — 4"Ø SCH. 40 PVC VENT RISER
- MP-X — SUB-SLAB MONITORING POINT INTAKE
- MPA-X — SUB-SLAB MONITORING POINT ACCESS
- 10' EXHAUST RADIUS

NOTES:

1. DRAWING NOT TO BE USED FOR ARCHITECTURAL, STRUCTURAL, OR ANY PURPOSE OTHER THAN VAPOR INTRUSION MITIGATION SYSTEM.
2. MONITORING POINTS AND VENT RISERS ARE NOT TO SCALE AND ARE EXAGGERATED FOR CLARITY.
3. VERIFY FINAL MONITORING POINT AND VENT RISER LOCATIONS IN THE FIELD WITH ARCHITECT/OWNER.
4. OFFSET OF RISERS SHALL BE MINIMIZED. IF NECESSARY, HORIZONTAL OFFSET PIPING SHALL BE SLOPED 1% TOWARDS LOW POINT.

GMP CD

EAI INC
ENVIRONMENTAL MANAGEMENT SERVICES
SPECIALTY CONTRACTING

50 PRESCOTT STREET
JERSEY CITY, NJ 07304

TEL: (201) 395-0010

No.	Date	Description
1	01/14/2026	GMP CD

Scale:	Date:
1/8" = 1'-0"	01/14/2026

Designer:	Drawn by:	Checked by:
TC	TC	ZT

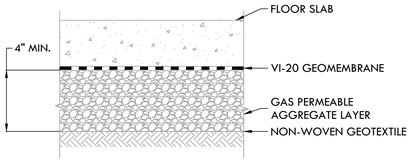
Project:
SOL ON PARK

Address:
3728 PARK AVENUE
BRONX, NY 10456

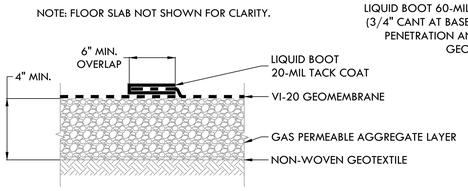
Drawing Title:
VAPOR INTRUSION MITIGATION SYSTEM
1ST FLOOR PLAN

Drawing Title: ENV101

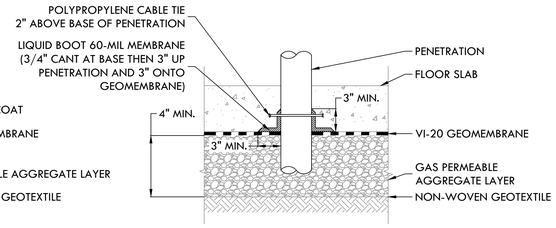
Sheets in Drawing Set
02 of 04



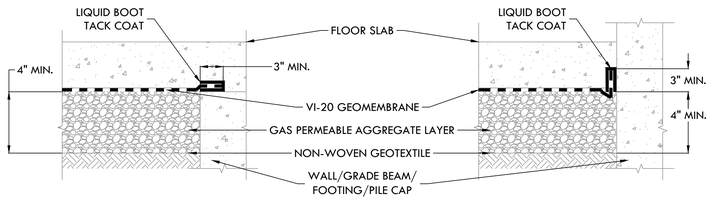
1 VAPOR BARRIER SECTION



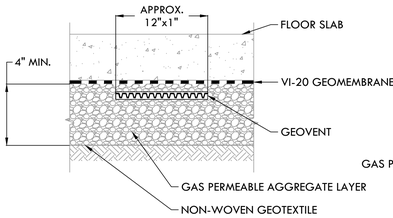
2 VAPOR BARRIER OVERLAP DETAIL



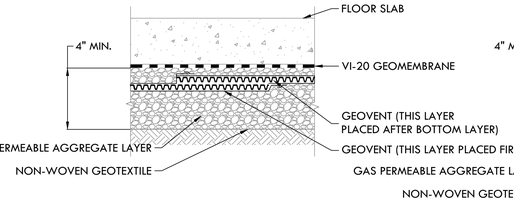
3 VAPOR BARRIER PENETRATION DETAIL



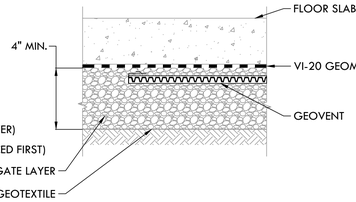
4 VAPOR BARRIER TERMINATION DETAILS



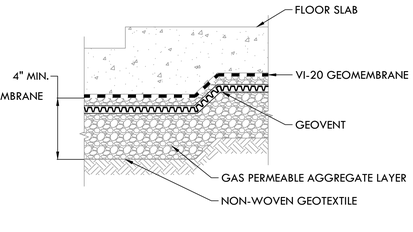
5 GEOVENT SECTION



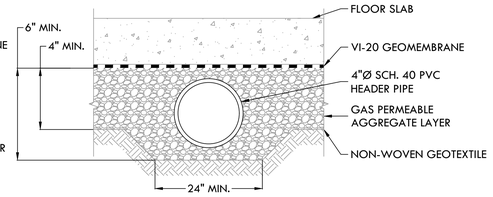
6 GEOVENT OVERLAP DETAIL



7 GEOVENT TERMINATION DETAIL



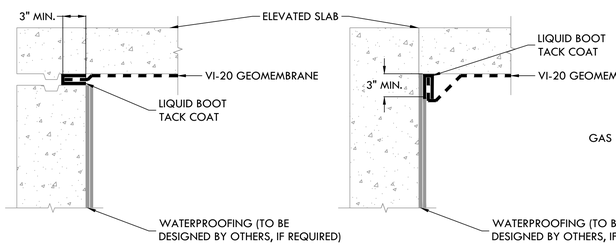
8 GEOVENT AT THICKENED SLAB DETAIL



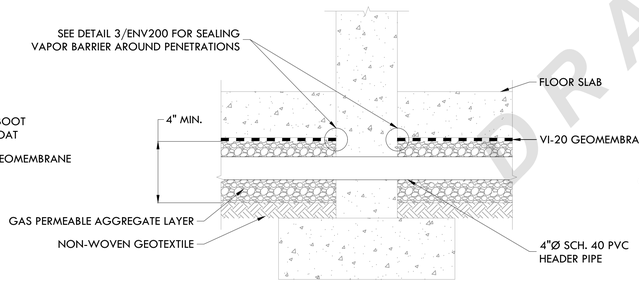
9 HEADER PIPE SECTION

NOTES:

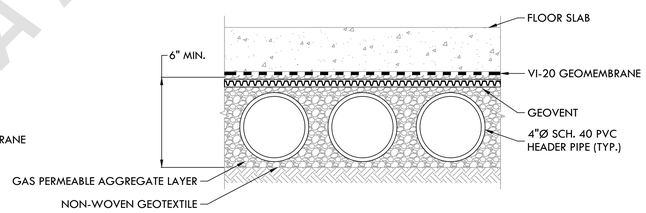
1. DRAWING NOT TO BE USED FOR ARCHITECTURAL, STRUCTURAL, OR ANY PURPOSE OTHER THAN VAPOR INTRUSION MITIGATION SYSTEM.
2. DETAILS ARE NOT TO SCALE AND ARE EXAGGERATED FOR CLARITY.
3. VERIFY FINAL MONITORING POINT AND VENT RISER LOCATIONS IN THE FIELD WITH ARCHITECT/OWNER.
4. OFFSET OF RISERS SHALL BE MINIMIZED. IF NECESSARY, HORIZONTAL OFFSET PIPING SHALL BE SLOPED 1% TOWARDS LOW POINT.
5. VENT RISER TERMINATION TO BE LOCATED A MINIMUM 10' AWAY FROM ANY AIR INTAKE SOURCE OR OPERABLE WINDOW, INCLUDING THOSE OF ADJOINING PROPERTIES.
6. GC TO PROVIDE 3/4" CONDUIT FROM ELECTRICAL PANEL WITHIN 5' OF VENT RISER ROOF PENETRATION FOR FUTURE BLOWER INSTALLATION, IF REQUIRED.
7. GAS PERMEABLE AGGREGATE LAYER TO BE A MINIMUM 4" LAYER OF 3/4" CLEAN CRUSHED STONE, #57 STONE, OR EQUIVALENT.



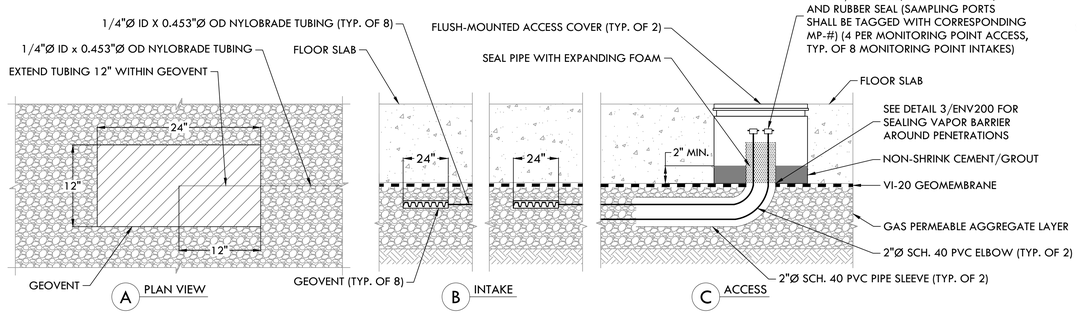
10 VAPOR BARRIER TO WATERPROOFING TRANSITION DETAILS



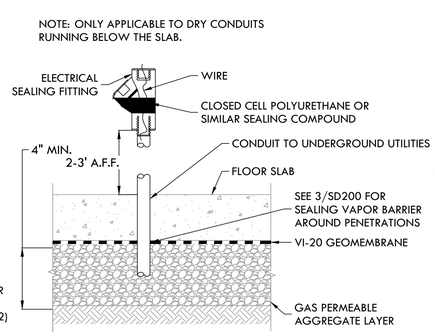
11 GEOVENT TRANSITION DETAIL AT FOUNDATION WALL



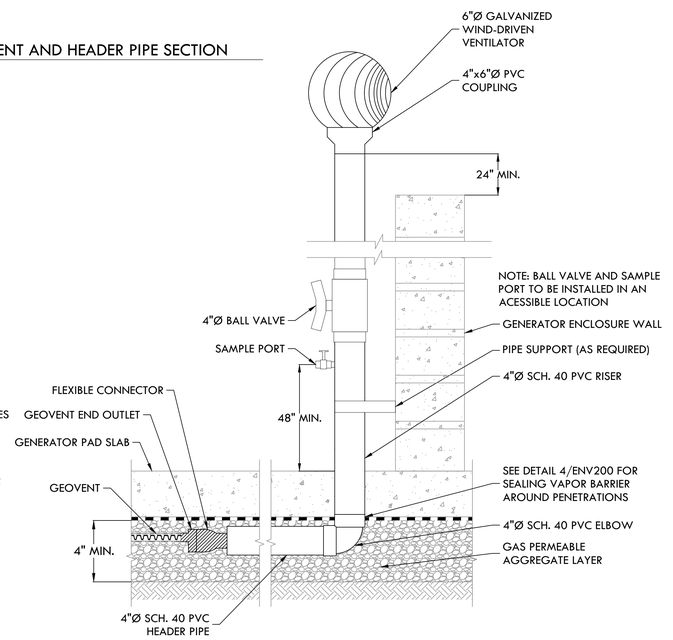
12 GEOVENT AND HEADER PIPE SECTION



13 SUB-SLAB MONITORING DETAILS



14 ELECTRICAL SEAL-OFF FITTING DETAIL



15 VENT RISER DETAIL

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GMP CD

EAI INC
ENVIRONMENTAL MANAGEMENT SERVICES
SPECIALTY CONTRACTING

50 PRESCOTT STREET
JERSEY CITY, NJ 07304

TEL: (201) 395-0010

No.	Date	Description
1	01/14/2026	GMP CD

Scale: NTS		Date: 01/14/2026
Designer: TC	Drawn by: TC	Checked by: ZT

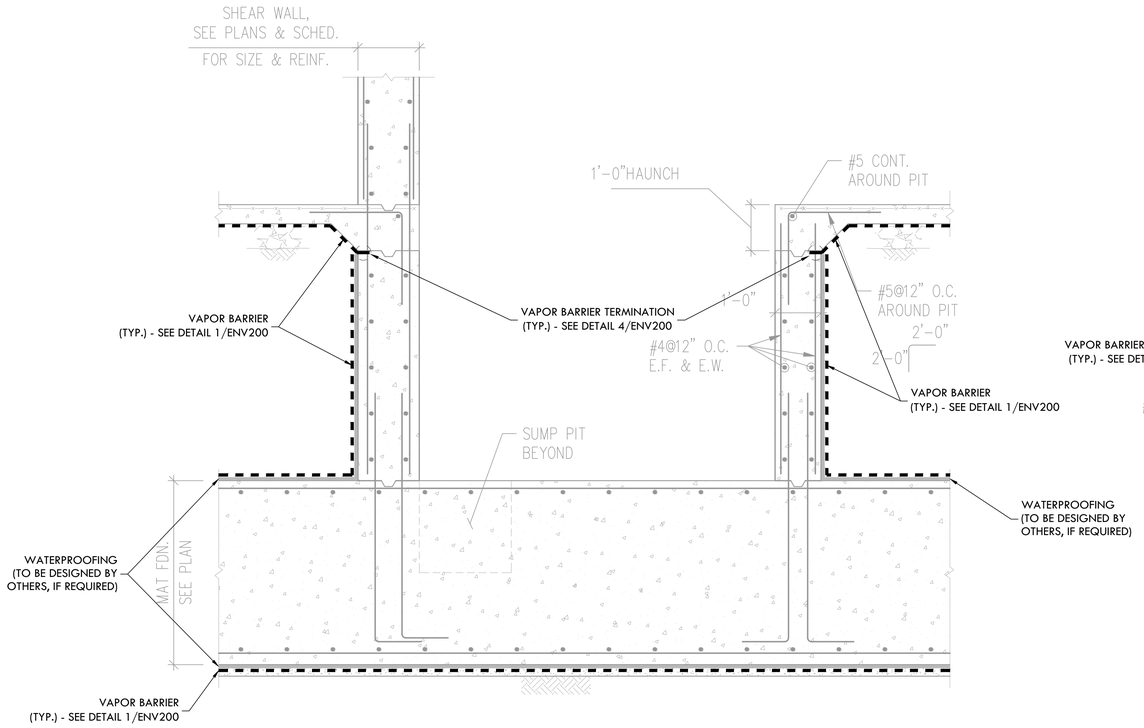
Project:
SOL ON PARK

Address:
3728 PARK AVENUE
BRONX, NY 10456

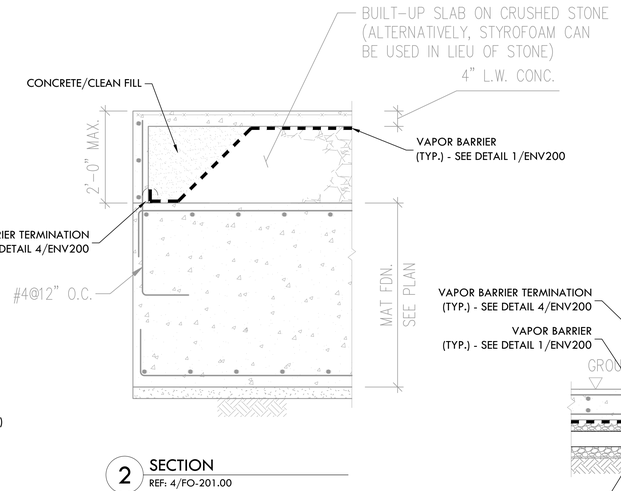
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VAPOR INTRUSION MITIGATION SYSTEM TYPICAL DETAILS

Drawing Title: ENV200

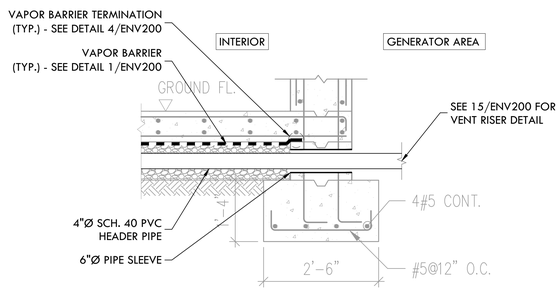
Sheets in Drawing Set
03 of 04



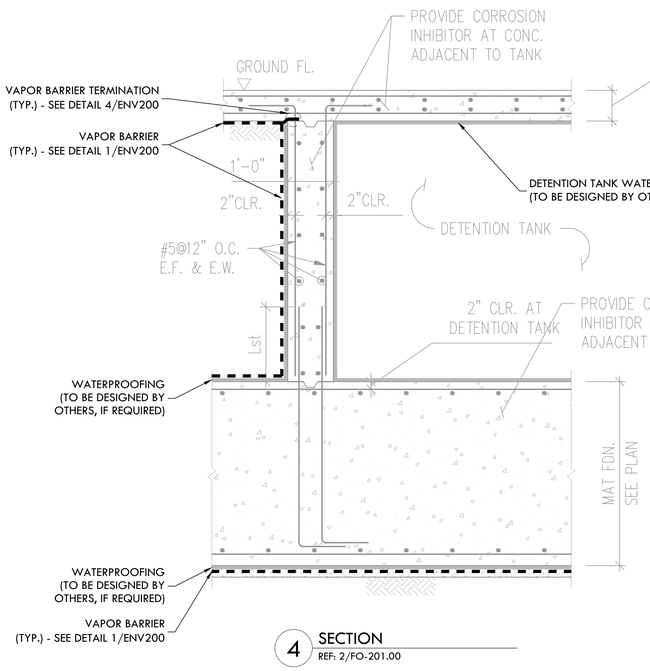
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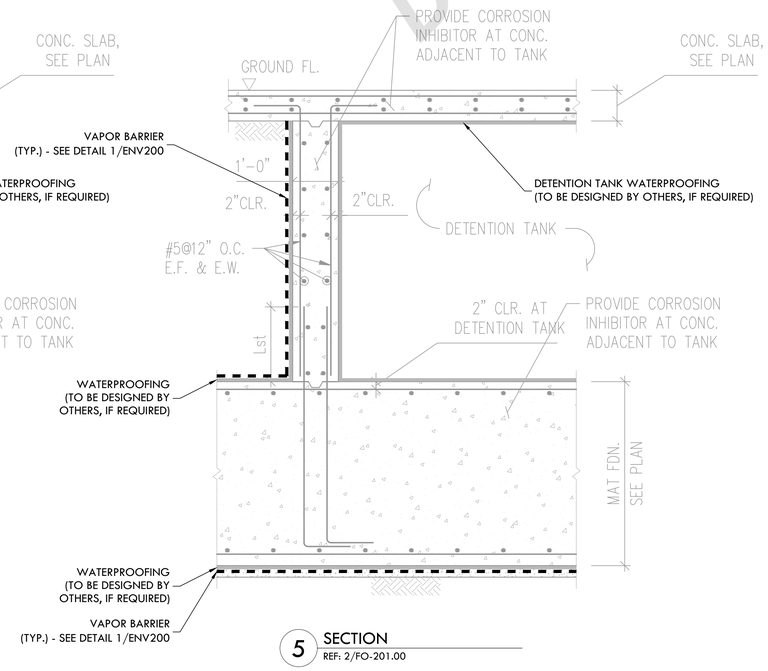
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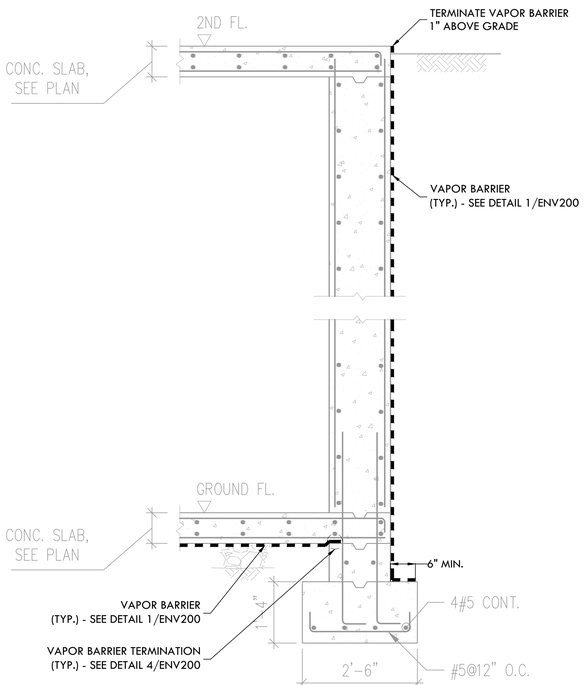
3 SECTION
REF: 5/FO-201.00



4 SECTION
REF: 2/FO-201.00



5 SECTION
REF: 2/FO-201.00



6 SECTION
REF: 5/FO-201.00

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GMP CD

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JERSEY CITY, NJ 07304

TEL: (201) 395-0010

No.	Date	Description
1	01/14/2026	GMP CD

Scale: NTS		Date: 01/14/2026
Designer: TC	Drawn by: TC	Checked by: ZT

Project:
SOL ON PARK

Address:
3728 PARK AVENUE
BRONX, NY 10456

Drawing Title:
VAPOR INTRUSION
MITIGATION SYSTEM
SITE-SPECIFIC DETAILS

Drawing Title: ENV201

Sheets in Drawing Set
04 of 04

GEOVENT™

ACTIVE/PASSIVE GAS VENTING SYSTEM



GEOVENT™ allows for ease of installation directly on the subgrade, eliminating the need for costly and labor-intensive trenching.



GEOVENT™ allows for ease of installation directly on the subgrade, eliminating the need for costly and labor-intensive trenching.

DESCRIPTION

GEOVENT™ consists of a three-dimensional vent core that is wrapped in a non-woven, needle-punched filter fabric.

GEOVENT End Outlets are available for use in conjunction with GEOVENT active/passive gas venting systems.

APPLICATION

GEOVENT™ is designed for use in the following application:

- An active or passive venting when used with CETCO vapor intrusion mitigation systems.

BENEFITS

- Installed directly on subgrade eliminating trenching and potential interference or damage to existing underground utilities
- Placed in closer proximity to the vapor intrusion barrier allowing for more effective venting of any accumulated gas
- Greater opening area per lineal foot of pipe and integral filter fabric allows for higher ventilation efficiency

TESTING DATA

PHYSICAL PROPERTIES		
CORE PROPERTY	**TEST METHOD**	**RESULT**
Compressive Strength	ASTM D 1621	8,500 - 11,000 psf (407 - 527 kN/m²)
Thickness	ASTM D 1777	1.0 in. (2.54 cm)
Flow Rate (Hydraulic gradient = .1)	ASTM D 4716	30 gpm/ft width (372 lpm/m)

FABRIC PROPERTY	**TEST METHOD**	**RESULT**
A.O.S.	ASTM D 4751	70 US Sieve (0.212 mm)
Grab Tensile Strength	ASTM D 4632	100 lbs. (0.45 kN)
CBR Puncture Strength	ASTM D 6241	250 lbs. (1.11 kN)
Flow Rate	ASTM D 4491	140 gpm/ft² (5,704 lpm/m²)

PACKAGING

GEOVENT™ is available in the following packaging option:

- 1 ft. x 165 ft. (0.3 m x 50 m) Rolls

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North America: 847.851.1800 | 800.527.9948 | www.CETCO.com

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UPDATED: FEBRUARY 2014

TDS_GEOVENT_AM_EN_201403_v1

CETCO®

OUR STANDARDS. YOUR PEACE OF MIND.

A Minerals Technologies Company

LIQUID BOOT® 500

SPRAY-APPLIED VAPOR BARRIER

DESCRIPTION

LIQUID BOOT® 500 is a seamless, spray-applied, water-based membrane containing no VOCs, which provides a barrier against vapor intrusion into structures. LIQUID BOOT® 500 spray-application directly to penetrations, footings, grade beams, pile caps and other irregular surfaces, provides for a fully-adhered vapor barrier system.

APPLICATIONS

LIQUID BOOT® 500 is used as an underslab vapor barrier, used to minimize vapor migration into buildings. LIQUID BOOT® 500 is ideal for methane migration control.

BENEFITS

- Can be installed more economically than LIQUID BOOT®, resulting in greater savings
- LIQUID BOOT® 500 is comprised of the same elements as LIQUID BOOT®
- Unique formulation provides superior protection from methane intrusion

INSTALLATION

Protect all adjacent areas not to receive vapor barrier. Ambient temperature shall be within manufacturer's specifications. All plumbing, electrical, mechanical and structural items to be under or passing through the vapor barrier shall be secured in their proper positions and appropriately protected prior to membrane application. Vapor barrier shall be installed before placement of reinforcing steel.

Expansion joints must be filled with a conventional waterproof expansion joint material. Surface preparation shall be per manufacturer's specifi cation. A minimum thickness of 60 dry mils, unless specified otherwise.

PACKAGING

LIQUID BOOT® 500 is available in the following packaging options:

- 55 Gallon Drum
- 275 Gallon Tote

EQUIPMENT

- COMPRESSOR: Minimum output of 155–185 cubic feet per minute (CFM)
- PUMPS: For "A" drum, an air-powered piston pump of 4:1 ratio (suggested model: Graco, 4:1 Bulldog). For "B" drum, an air-powered diaphragm pump (0–100 psi)
- HOSES: For "A" drum, ½" wire hose with a solvent resistant core (for diesel cleaning flush), hose rated for 500 psi minimum. For "B" drum, a 3/8" fl uid hose rated at only 300 psi may be used.
- SPRAY WAND: Only the spray wand sold by CETCO is approved for the application of LIQUID BOOT®.
- SPRAY TIPS: Replacement tips can be purchased separately from CETCO.



TESTING DATA

CHEMICAL & PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	RESULT
Elongation	ASTM D 412	> 500%
Bonded Seam Strength Tests	ASTM D 6392	Passed[1]
Methane Permeability	ASTM D 1434	None Detected
Microorganism Resistance (Soil Burial)	ASTM D4068-88	Passed[1]
Oil Resistance Test	ASTM D543-87	Passed[1]
Heat Aging	ASTM D4068-88	Passed[1]
Dead Load Seam Strength	City of Los Angeles	Passed[1]
Environmental Stress-Cracking	ASTM D1693-78	Passed[1]
Water Vapor Permeability	ASTM E96	0.22 perms
Adhesion to Concrete	ASTM C-836	Passed[1]
Hardness	ASTM C-836	Passed[1]
Hydrostatic Head Resistance (Tested at 20 psi)	ASTM D-751	Passed[1]

Notes:

[1] Passed City of Los Angeles methane barrier criteria

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cetco@mineralstech.com | cetco.com | 800.527.9948

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VI-20™ GEOMEMBRANE

HIGH-PERFORMANCE VAPOR INTRUSION BARRIER

DESCRIPTION

VI-20™ is a 7-layer co-extruded geomembrane made using high quality virgin-grade polyethylene and EVOH resins that provide unmatched impact strength as well as superior resistance to VOC vapor transmission. EVOH technology serves as a highly resilient underslab and vertical wall barrier designed to restrict methane, radon and other harmful chemicals. Applications for EVOH originated in the manufacturing of automotive fuel systems to control emissions of hydrocarbons, whose use was mandated by the US EPA and the CA Air Resources Board (CARB) to reduce VOC emissions.

APPLICATION

VI-20™ is a 20-mil, high performance polyethylene-EVOH copolymer geomembrane, specially designed for use as a VOC barrier when used in conjunction with Liquid Boot® spray-applied vapor intrusion membrane to minimize vapor intrusion and nuisance water (non-hydrostatic conditions) migration into buildings. VI-20™ is ideal for applications with chlorinated solvents, BTEX and other PAHs.

BENEFITS

- Polyethylene layers provide excellent chemical resistance and physical properties
- EVOH barrier technology provides superior protection against diffusion of chemicals when compared to typical HDPE geomembranes
- Manufactured at ISO 9001:2008 certified plant

INSTALLATION

For use as a component of the Liquid Boot® Plus system, VI-20™ geomembrane is rolled out on prepared sub-grade, overlapping seams a minimum of six inches (6”). The geomembrane is cut around penetrations so that it lays flat on the sub-grade and tight at all inside corners. A thin (20 mil) tack coat of Liquid Boot® (“A” side without catalyst) is sprayed within the seam overlap. Once the VI-20™ geomembrane is installed, penetrations are then treated with VI-20™ Detailing Fabric prior to installation of the Liquid Boot® spray-applied vapor intrusion membrane and UltraShield™ G-1000 protection course.



EVOH technology provided in VI-20™ geomembrane has been shown to have VOC diffusion coefficients 20 times lower than an 80 mil (2 mm) HDPE geomembrane.

PACKAGING

VI-20™ Geomembrane is available in the following packaging option:

- 10 ft. x 150 ft. (3 m x 45 m) Rolls

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VI-20™ GEOMEMBRANE

HIGH-PERFORMANCE VAPOR INTRUSION BARRIER

VI-20™ CHEMICAL & PHYSICAL PROPERTIES		
CHEMICAL PROPERTY	TEST METHOD	RESULT
Benzene Diffusion Coefficient	EPA Method 8260	4.5×10^{-15} m²/s
Ethylbenzene Diffusion Coefficient	EPA Method 8260	4.0×10^{-15} m²/s
m&p-Xylenes Diffusion Coefficient	EPA Method 8260	3.7×10^{-15} m²/s
Methane Permeance	ASTM D1434	$< 1.7 \times 10^{-10}$ m²/d•atm
o-Xylene Diffusion Coefficient	EPA Method 8260	3.7×10^{-15} m²/s
Radon Diffusion Coefficient	SP Test Method	$<0.25 \times 10^{-12}$ m²/s
Toluene Diffusion Coefficient	EPA Method 8260	4.2×10^{-15} m²/s
PHYSICAL PROPERTY	TEST METHOD	RESULT
Membrane Composite Thickness	ASTM D5199	20 mil (0.5 mm)
Impact Resistance	ASTM D1709	2,600 g
Tensile Strength	ASTM E154 Section. 9	58 lbf/in (1.0 N/m)
Water Vapor Transmission	ASTM E154 & E96	0.004 grains/hr-ft² (0.0028 g/hr-m²)
Water Vapor Retarder Classification	ASTM E1745	Class A, B & C

NOTE:
These are typical property values.

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UPDATED: MAY 2017

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FORM: TDS_VI-20_GEOMEMBRANE_AM_EN_201705_V2