1640 FLATBUSH AVENUE

KINGS COUNTY

BROOKLYN, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C224212

Prepared for:

1640 Flatbush Oz Owner LLC

c/o The Moinian Group

3 Columbus Circle, 23rd Floor

New York, NY 10019

Prepared by:

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&

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

NOVEMBER 2023

CERTIFICATION STATEMENT

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

_____ P.E.

_____11/8/2023_____DATE

TABLE OF CONTENTS

1640 FLATBUSH AVENUE
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SITE MANAGEMENT PLAN

List of Tables

List of Figures

List of Appendices

List of Acronyms

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

SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

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

Site Identification: BCP Site No. C224212

1640 Flatbush Avenue, Brooklyn, NY 11210

Institutional Controls:	1. The property may be used for restricted-residential, commercial, and industrial use;	
	2. Environmental Easement	
Inspections:		Frequency
Site-Wide Inspection		Annually, or as otherwise determined by the department
Reporting:		
Inspections		Annually, or as otherwise determined by the department
Certification/PRR		Annually, or as otherwise determined by the department
Final Construction report		Upon completion of Soil management/Excavation activities

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

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the 1640 Flatbush Avenue property located in Brooklyn, Kings County, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C224212 which is administered by New York State Department of Environmental Conservation (NYSDEC).

1640 Flatbush Owner LLC entered into a Brownfield Cleanup Agreement (BCA) on August 25, 2015 with the NYSDEC to remediate the site. A BCA Amendment Application was submitted to the NYSDEC to substitute the former owner (1640 Flatbush Owner LLC) with the new owner (1640 Flatbush Oz Owner LLC) and the revised BCA was executed on March 5, 2020. A figure showing the site location and boundaries of this site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix 3.

After completion of the remedial work, some contamination remains at this site, which is hereafter referred to as "remaining contamination". Institutional controls (ICs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Kings County Clerk, requires compliance with this SMP and all ICs placed on the site.

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC), release or closure letter;
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C224212-06-15; Site #C224212) for the site, and thereby subject to applicable penalties.

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

This SMP was prepared by Tenen Environmental, LLC (Tenen), on behalf of 1640 Flatbush Oz Owner LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC project manager will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

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

- Written 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- Written 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (EWP). If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.

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

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

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

Table 1: Notifications*

Name	Contact Information
Jared Donaldson, NYSDEC Project Manager	(518) 402-9176; jared.donaldson@dec.ny.gov

Jane O'Connell, NYSDEC Regional HW Engineer	(718) 482-4599; jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control	(518) 402-9543; kelly.lewandowski@dec.ny.gov
Renata Ockerby, NYSDOH Project Manager	(518) 402-7860; renata.ockerby@health.ny.gov

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

2.0 Summary of Previous Remedial Investigations and Remedial Actions

2.1 Site Location and Description

The site is located in Brooklyn, Kings County, New York and is identified as Block 7577 and Lot 60 on the New York City Tax Map (see Figure 1). The site is an approximately 0.41-acre area and is bounded by a commercial shopping center, Flatbush Avenue, a strip mall shopping center, and mid-rise residential housing developments to the north, Aurelia Court followed by medium-rise residential apartment buildings to the south, Flatbush Avenue followed by a large residential housing complex to the east, and a mid-rise housing complex followed by East 31st Street to the west (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix 3 –Environmental Easement. The owner of the site parcel at the time of issuance of this SMP is 1640 Flatbush Oz Owner LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a new 13-story mixed-use commercial and residential building with a full cellar. The Site is zoned C4-4D, a designation that typically denotes regional commercial centers outside of central business districts, and is currently utilized for mixed-use commercial and residential. The onsite commercial spaces have not yet been occupied.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Site include residential properties; the properties immediately north of the Site include commercial and residential properties; the properties immediately east of the Site include residential properties; and the properties to the west of the Site include residential properties.

2.2.2 Geology

The stratigraphy of the Site, from the surface down, generally consists of glacially derived variable texture sands with gravel and some clay (the upper five to seven feet are considered to be fill material). Finer grained, more uniform sands and gravel were encountered beneath this interval to a maximum depth of 50 feet below grade (ft-bg).

A geologic cross section is shown in Figure 3. Site specific boring logs are provided in Appendix 4.

2.2.3 Hydrogeology

Groundwater at the Site was encountered at depths ranging from 25.49 to 27.78 ft-bg in permanent monitoring wells gauged as part of the Remedial Investigation (RI). The groundwater flow is in a northerly direction beneath the Site.

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

2.3 Investigation and Remedial History

The Site was historically occupied by several structures from at least 1930 including an automotive repair shop, a 70-car parking garage, a dry cleaner, a metal working shop, and a store. Prior to redevelopment, the Site was developed with a former gasoline station and a one-story convenience store. The building occupied a footprint of approximately 1,000 square feet (SF) in the center of the lot, and four pump islands covered by a canopy also occupied the lot.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 6.0 - References.

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

- *Phase I Environmental Site Assessment, 1640 Flatbush Avenue, Brooklyn, New York*, Enviroscience Consultants, Inc., September 25, 2009.
- *Phase II Environmental Site Assessment, 1640 Flatbush Avenue, Brooklyn, New York,* Enviroscience Consultants, Inc., February 4, 2010.
- *Phase I Environmental Site Assessment, 1640 Flatbush Avenue, Brooklyn, New York*, WCD Group LLC, August 29, 2014.
- *Phase II Environmental Site Investigation Report, 1640 Flatbush Avenue, Brooklyn, New York,* WCD Group LLC, February 2, 2015.
- *Remedial Investigation Report, 1640 Flatbush Avenue, Brooklyn, New York,* WCD Group LLC, September 18, 2019.

Phase I Environmental Site Assessment (September 2009)

A Phase I Environmental Site Assessment (ESA) was prepared for the Site by Enviroscience Consultants, Inc. (Enviroscience) in September 2009. The Phase I ESA identified the following recognized environmental conditions (RECs) in connection with the Site:

- The past and present operation of the subject property as a gasoline station with underground storage tanks (USTs) and stormwater drainage structures. Through operations as a gasoline station, there is a reasonable potential for hazardous substances and/or petroleum products to have been released to the environment; and,
- The former use of the property as an automotive repair shop and dry cleaning businesses. Through operations as an automotive repair shop and dry cleaner, there is a reasonable potential for hazardous substances and/or hazardous wastes to have been released to the environment.

In addition, one historic recognized environmental condition (HREC) was also identified in connection with the Site:

- Three closed NYSDEC Spills (Spill Nos. 87-03389, 95-10099, and 03-13334) that are assigned to the subject property. Based on their closed status, the closed NYSDEC Spills do not represent present RECS in connection with the property.

Phase II Environmental Site Assessment (February 2010)

Following the Phase I ESA, Enviroscience performed a Phase II Environmental Site Assessment which included the installation of seven soil borings, collection of five soil samples, installation of five temporary groundwater monitoring wells, collection of five groundwater samples, and collection of one sediment sample from each onsite stormwater drain. All soil, groundwater, and sediment samples were analyzed for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Resource Conservation and Recovery Act (RCRA) metals. The results of the Phase II Environmental Site Assessment indicated no significant contamination was identified in soil or sediment samples. Elevated concentrations of methyl tert butyl ether (MTBE) were detected in one monitoring well (130 ug/L). No other significant concentrations of VOCs were identified in groundwater.

Phase I Environmental Site Assessment (August 2014)

A Phase I ESA was prepared for the Site by WCD Group LLC (WCD) in August 2019. The Phase I ESA identified the following RECs in connection with the Site:

- Documented elevated concentrations of petroleum-related compounds in onsite groundwater;
- Historic and current presence of rail road line and train yard located adjacent to the Site;
- Current and historic use of the Site as a gasoline filling station from 1950 to present day;
- Historic structures formerly located onsite were demolished. Historic fill of unknown origin and suspect buried structures have the potential to impact the Site;
- Historic uses of the Site as an automotive repair shop and garage including grease pits and a filling station, a dry cleaner, and a metal working shop;
- The Site is registered with the NYSDEC as petroleum bulk storage (PBS) Facility ID 2-258245 and 2-601622 with five active 4,000-gallon gasoline USTs, two active 500-gallon USTs, and ten 500-gallon gasoline USTs that were closed and removed on October 1, 1993. The presence of onsite active gasoline USTs and historic presence of multiple closed-removed gasoline USTs is considered a REC; and,

- The current and historic presence of underground gasoline storage tanks at nearby and adjacent properties from 1955 to present day and discussed below:
    - The PBS facility identified as "The Junction" is located at 1610-1628 Flatbush Avenue immediately north of the Site. The facility is assigned PBS No. 2-609445 for the presence of six closed-removed USTs. Although the tanks have been removed, the historic presence of USTs in close proximity to the Site is considered a REC. Details regarding the USTs identified at the property are listed below. In addition, a spill is associated with this property.
    - The PBS facility identified as "Livingston Garden Inc." is located at 3111 Aurelia Court immediately south of the Site. The facility is assigned PBS No. 2-331589 and contains one active 10,000-gallon No. 2 fuel oil UST. In addition, the facility is listed in the Spills database for Spill No. 9814680 associated with the release of 25 gallons of No. 2 fuel oil on March 9, 1999. The NYSDEC closed the spill on March 10, 1999. The presence of the 10,000-gallon No. 2 fuel oil UST is considered a REC.
    - The PBS facility identified as "Philip Howard Apartments" is located at 1655 Flatbush Avenue, east of the Site across Flatbush Avenue. The facility is assigned PBS No. 2-045217 and contains two active 30,000-gallon No. 6 fuel oil USTs. In addition, the facility is listed in the Spills database for Spill No. 9109512 associated with the release of 100 gallons of No. 6 fuel oil. The presence of the two 30,000-gallon USTs in close proximity to the Site is considered a REC.

In addition, the following HRECs were identified in connection with the Site:

- The Site is listed in the Spills database as "AMOCO SVCE". A spill was reported to NYSDEC on November 12, 1995 following a gasoline tank overflow incident. The quantity of petroleum spilled was not reported. The NYSDEC assigned Spill No. 9510099 to the Site. No further information was provided and the Spill case was closed on March 17, 2005. Due to the closed status of the spill, this listing is considered a HREC.
- The Site is listed in the Spills database as "AMOCO SVCE". A spill was reported to the NYSDEC on March 4, 2004 following a gasoline tank test failure. The

NYSDEC assigned Spill No. 0313334 to the Site. A tank tightness report was submitted to the NYSDEC on April 23, 2007 from Delta Environmental Consultants Inc. indicating no release to the environment. A No Further Action (NFA) letter was submitted to the responsible party and the Spill case was closed on April 23, 2007. Due to the closed status of the spill, this listing is considered a HREC.

- The Site is listed in the Spill database as "1642 Flatbush Avenue/BRO". A spill was reported to the NYSDEC on July 26, 1987 due to a tank overflow incident at the Site resulting in gasoline in the sewer. Approximately 20 gallons of petroleum was spilled. The NYSDEC assigned the Spill No. 8703389 to the Site. The spilled material was absorbed with Speedi Dry and the spill was closed on July 26, 1987. Due to the closed status of the spill, this listing is considered a HREC.

Phase II Environmental Site Investigation Report (February 2014)

The Phase II ESI conducted by WCD included the installation of four soil borings, collection of eleven soil samples, installation of three temporary groundwater monitoring wells, collection of three groundwater samples, installation of three temporary soil vapor sample points, and collection of three soil vapor samples. All soil and groundwater samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), metals, pesticides, herbicides, and polychlorinated biphenyls (PCBs). All soil vapor samples were analyzed for VOCs. The results of the Phase II ESI are as follows:

- In general, soil at the Site consists of fill material consisting of red/brown/gray sand, silt, gravel, red brick, concrete, and ash to a maximum depth of 25 feet below grade (ft-bg), underlain by native soil consisting of fine to coarse sand to 25 ft-bg (maximum boring depth). Bedrock was not encountered during the investigation.
- Field observations and screening during soil sampling revealed the presence of petroleum-like odor and sheen at soil samples WCD-SB-01 from 25 to 35 ft-bg, and WCD-SB-02 from 32 to 35 ft-bg. The petroleum contamination in soil was identified at or below the observed groundwater table.
- The results of the analyses of soil samples revealed VOCs, SVOCs, and metals at concentrations exceeding Unrestricted Use SCOs. SVOCs and the following VOCs

were detected in one or more soil samples at concentrations above the Unrestricted Use SCOs: 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, n-butylbenzene, n-propylbenzene, naphthalene, o-xylene, p-isopropyltoluene, m&p-xylenes, sec-butylbenzene, tetrachloroethene (PCE), and total xylenes. The metals lead, nickel, and zinc were detected at concentrations above the Unrestricted Use SCOs in one or more samples. WCD suspected the VOCs and SVOCs detected in soil may be attributed to petroleum contamination observed at the Site and the historic use of the Site as a dry cleaner. The concentrations of metals exceeding the Unrestricted Use SCOs may be attributed to the characteristics of surficial fill material at the Site. No PCBs or pesticides/herbicides were detected in any of the soil samples at concentrations above Unrestricted Use SCOs.

- Visual indications of petroleum contamination, including petroleum-like odor and sheen, were identified in groundwater samples collected from onsite temporary well point WCD-GW-1. No elevated PID readings were recorded in the headspace from any of the wells. Groundwater was encountered at approximately 27 to 29 ft-bg.
- The results of the analyses of groundwater samples revealed VOCs, SVOCs, and metals above Class GA Standards in one or more groundwater samples. The VOCs detected above Class GA Standards include 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-butylbenzene, n-propylbenzene, naphthalene, o-xylene, m&P-xylenes, sec-butylbenzene, toluene, PCE, trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE). WCD suspected the VOCs in groundwater were attributable to petroleum contamination observed at the Site and historic use of the Site as a dry cleaner. WCD suspected the SVOC, naphthalene, detected in groundwater was attributable to petroleum contamination observed at the Site. WCD attributed the metals detected above Class GA Standards to the characteristics of the aquifer. No PCBs or pesticides/herbicides were detected in any groundwater samples exceeding Class GA Standards.

- The results of the analysis of soil vapor samples identified elevated concentrations of PCE, TCE, 1,2-dichloroethane, and chloroform in one or more soil vapor samples.

Remedial Investigation Report (September 2019)

A Remedial Investigation (RI) consisting of a combined 2017 subsurface investigation and a supplemental 2019 investigation was completed at the Site, and documented in a Remedial Investigation Report (RIR) dated September 18, 2019. The goals of the RI were to define the nature and extent of contamination in soil, groundwater, and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Action Work Plan (RAWP) to address the contamination.

The following activities were completed as part of the RI:

- The installation of a total of 15 soil borings (four soil borings in 2017 and eleven soil borings in 2019) to collect 43 soil samples (eight soil samples in 2017 and 35 soil samples in 2019) for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, metals, and emerging contaminants;
- The installation of five permanent groundwater monitoring wells (four installed in 2017, one installed in 2019) to establish groundwater flow and the collection of ten groundwater samples for laboratory analysis VOCs, SVOCs, total and dissolved metals, pesticides, PCBs, and PFAS to evaluate groundwater quality; and,
- The collection of ten soil vapor samples for laboratory analysis of VOCs (all collected in 2017).

The results of the sampling performed during the RI indicated the presence of historic fill material across the Site to depth of five to seven feet, underlain by variable texture sands with gravel and some clay. Finer, more uniform sands and some gravel were encountered beneath this interval. Depending on location, the historic fill material contains one or more of the metals cadmium, copper, lead, mercury, nickel, and zinc above Unrestricted Use and/or Restricted-Residential and/or Commercial Use SCOs. The

chlorinated VOC (cVOC) PCE was detected within both the deep and shallow soil samples collected in 2017 at concentrations below Protection of Groundwater SCOs and Unrestricted Use SCOs. The soil samples collected in 2019 were not analyzed for cVOCs.

Several VOCs related to petroleum-products were detected at concentrations above Unrestricted Use SCOs in samples collected from soil borings SB-8, SB-9, and SB-11. Exceedances of Restricted-Residential and Commercial Use SCOs were reported only at SB-8 (near a former fuel pump), including exceedances of Commercial Use SCOs at 26-28 feet below grade (ft-bg) (1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene at 950 mg/kg and 230 mg/kg, respectively, and xylenes at 610 mg/kg) and exceedance of Restricted-Residential Use SCOs at nine ft-bg (1,2,4-trimethylbenzene at 100 mg/kg). One SVOC, naphthalene, was detected above the Unrestricted Use SCO at SB-8 at a sampling depth of 26-28 ft-bg. No pesticides, herbicides, or emerging contaminants (1,4-dioxane and per- and polyfluoroalkyl substances [PFAS]) were detected in any samples.

Soil contamination at concentrations above Restricted-Residential Use SCOs is limited to the petroleum compounds identified in SB-8, near a former fuel pump in the eastern portion of the Site, and to a single low-grade exceedance of lead in one surface soil sample. Exceedances of Unrestricted Use SCOs are reported for petroleum compounds in SB-11, also in the eastern portion of the Site, for metals throughout the Site, and for SVOCs in limited areas. No significant PCE contamination has been reported in soil (one sample from an earlier investigation contained PCE concentrations above Unrestricted Use SCOs).

Petroleum contamination appears to be related to released at a former onsite fuel pump island. Based on the vertical distribution in the soil column, which documents the most significant impacts in soils near the groundwater interface, contamination may extend under Flatbush Avenue. Impacts from SVOCs are likely primarily related to the presence of onsite fill soils, with limited contributions from former onsite operations.

Groundwater samples were collected from four newly installed permanent groundwater monitoring wells on November 20, 2017. PCE was detected above the Class GA Standard in MW-3 (9.30 ug/L), and at low concentrations in all other monitoring wells. Low concentrations of TCE were detected in MW-1 and MW-3. Elevated concentrations of chloroform (max. 20 ug/L) were reported at all wells except MW-2. Several metals (total concentrations), including iron (max. 889 ug/L), magnesium (max. 40,000 ug/L),

manganese (max. 337.9 ug/L), and sodium (max. 145,000 ug/L) were detected in one or more samples above the Class GA Standards. Analysis of laboratory filtered groundwater samples identified dissolved magnesium (max. 38,800 ug/L) and sodium (max. 136,000 ug/L) above the Class GA Standards. Metal concentrations are consistent with results of prior investigations and are likely to be representative of local groundwater conditions. No SVOCs were detected in any of the samples. Additional groundwater samples were collected from the four monitoring wells installed in 2017, and one newly installed groundwater monitoring well (MW-5) on April 15 and 16, 2019. PCE concentrations increased in MW-3 (34.3 ug/L) and MW-4 (5.66 ug/L), and an elevated concentration of TCE was detected in MW-4 (8.01 ug/L). A PCE breakdown product, cis-1,2-DCE, was detected at low concentrations in MW-1, MW-3, and MW-4. Elevated concentrations of acrylonitrile (8.22 ug/L) and methyl tert butyl ether (MTBE) (54.4 ug/L) were detected in MW-5. Total and dissolved metals values were generally consistent with the 2017 results. Low concentrations of several PAHs were found in one or more samples. Groundwater samples were also analyzed for emerging contaminants. The following PFAS compounds were detected in groundwater samples: perfluorobutanesulfonic acid (PFBS), perfluoro-n-butanoic acid (PFBA), perfluoroheptanoic acid (PFHpA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), perfluorohexanoic acid (PFHxA), and perfluoropentanoic acid (PFPeA). Detectable concentrations ranged from 2.1 nanograms per liter (ng/L) (PFPeA in MW-5) to a maximum concentration of 97.9 ng/L (PFOA in MW-3). Peak levels for combined PFOA and PFOS were 122.6 ng/L at MW-3.

Groundwater contamination is primarily limited to low-grade impacts from chlorinated solvents (PCE and breakdown products TCE and cis-1,2-DCE), MTBE, metals, and PFAS. Chlorinated compounds and MTBE may be the result of historical onsite releases (no significant concentrations of these compounds, however, were found in soil during the RI) or may be the result of migration from offsite areas (historical commercial uses at nearby properties have included automobile repair, other filling stations, and a freight yard). There may also be offsite petroleum impacts in groundwater under Flatbush Avenue in the vicinity of soil boring SB-8. Contamination by metals and PFAS is likely to be associated with general regional conditions rather than specific onsite releases.

Five soil vapor samples were collected from one to two feet above the groundwater interface (approximately 25 ft-bg) and five soil vapor samples were collected between five and eight ft-bg in 2017. The results of the analysis of soil vapor indicated low-grade contamination throughout the Site, including petroleum compounds related to gasoline, and the chlorinated solvents PCE and TCE found in both shallow and deep samples. Soil vapor concentrations are not consistent with a significant source area at the Site.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated March 2021 are as follows.

2.4.1 Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

2.4.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

2.4.3 Soil Vapor

RAOs for Public Health Protection

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

2.5 Remaining Contamination

2.5.1 Soil

End-point sampling was conducted across the Site following excavation. End-point samples were collected from the base of the excavation every 900 square feet (SF) across the Site and from the base of the sidewalls of the hot spot excavation every 30 linear feet (LF), in accordance with NYSDEC's Division of Environmental Remediation Technical Guidance for Site Investigation Remediation (DER-10). Sample collection was biased towards the location of highest suspected contamination based on PID readings, field observations, and historic data.

A total of 22 bottom end-point samples, six sidewall end-point samples, and two sets of quality assurance/quality control (QA/QC) samples (field blank, duplicate, and MS/MSD) were collected from the Site. End-point samples were analyzed for Part 375 VOCs, SVOCs, pesticides, PCBs, TAL metals, PFAS and 1,4-dioxane. End-point analytical results for samples collected within the petroleum hotspot were compared to the Protection of Groundwater SCOs and end-point analytical results for samples collected outside of the petroleum hotspot were compared to the Restricted-Residential Use SCOs.

End-point Sampling Results

VOCs, SVOCs, pesticides, PCBs, TAL metals, PFAS, and 1,4-dioxane were not detected in exceedance of Protection of Groundwater SCOs in any petroleum hotspot end-point samples and were not detected in exceedance of Restricted-Residential Use SCOs in any end-point samples collected outside of the petroleum hotspot. All end-point samples confirmed the Track 2 Restricted-Residential Use SCOs were attained.

Table 2 and Figure 6 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs, Protection of Groundwater SCOs, and/or the Restricted-Residential Use SCOs at the site after completion of remedial action.

2.5.2 Groundwater

Baseline Groundwater Sampling

Two sentinel wells, SW-1 and SW-2, were installed in the sidewalk of Flatbush Avenue in down- and upgradient locations, respectively, on November 11, 2022. Both monitoring wells were installed to a depth of 35 ft-bg with ten feet of slotted 0.020-inch screen. Baseline groundwater sampling was performed for sentinel wells SW-1 and SW-2 on November 17, 2022. Baseline groundwater sampling was performed for existing monitoring well MW-5, located onsite, on November 21, 2022. All baseline groundwater samples were analyzed for VOCs, SVOCs, total metals, pesticides, PCBs, 1,4-dioxane, and PFAS.

One metal, nickel, was detected slightly in exceedance of its Class GA Standards in one groundwater sample, MW-5. Nickel was detected at a concentration of 110.8 micrograms per liter (ug/L) with a Class GA Standard of 100 ug/L. In addition, various naturally occurring earth metals, including iron, manganese, and sodium were detected in exceedance of Class GA Standards in all three groundwater samples. Two PFAS analytes, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were detected in exceedance of their respective Class GA Standard in all three groundwater samples. PFOA was detected at a maximum concentration of 20.5 nanograms per liter (ng/L) in SW-2 with a Class GA Standard of 6.7 ng/L and PFOS was detected at a maximum concentration of 34.2 ng/L in MW-5 with a Class GA Standard of 2.7 ng/L.

VOCs, SVOCs, pesticides, PCBs, and 1,4-dioxane were not detected in exceedance of the Class GA Standards in any groundwater samples.

Groundwater Sampling During Onsite Dewatering

Groundwater sampling was performed during dewatering activities for sentinel well SW-1 on December 21, 2022; for sentinel well SW-2 on December 27, 2022; and, for monitoring well MW-5 on January 9, 2023. All groundwater samples were analyzed for VOCs, SVOCs, total metals, pesticides, PCBs, 1,4-dioxane, and PFAS.

During this round of sampling, one VOC, methyl tert butyl ether (MTBE), was detected in exceedance of its Class GA Standards in one monitoring well, MW-5. MTBE was detected at a concentration of 21 ug/L with a Class GA Standard of 10 ug/L. In addition, two SVOCs were detected in exceedance of Class GA Standards in one monitoring well, MW-5. Benzo(a)anthracene was detected at a concentration of 0.02 ug/L with a Class GA Standards of 0.002 ug/L and hexachlorobenzene was detected at a concentration of 0.05 ug/L with a Class GA Standard of 0.04 ug/L. It should be noted that benzo(a)anthracene was else detected in the field blank collected with MW-5 at a concentration of 0.03 ug/L. Various naturally occurring earth metals, including iron, manganese, and sodium were detected in exceedance of Class GA Standards in all three groundwater samples. Two PFAS analytes, PFOA and PFOS, were detected in exceedance of the NYSDEC's PFAS Guidelines in two of three groundwater samples. PFOA was detected at a maximum concentration of 47.8 ng/L in SW-1 with a Class GA Standard of 6.7 ng/L and PFOS was detected at a maximum concentration of 73 ng/L in SW-2 with a Class GA Standard of 2.7 ng/L. In addition, 1,4-dioxane was detected slightly in exceedance of its Class GA Standard of 0.35 ug/L in one groundwater sample, MW-5. 1,4-dioxane was detected at a concentration of 0.488 ug/L. Pesticides and PCBs were not detected in exceedance of the Class GA Standards in any groundwater samples during this round of sampling.

Table 3 and Figure 5 summarize the results of all samples of groundwater that exceed the SCGs after completion of the remedial action.

2.5.3 Soil Vapor

Site remediation included excavation and removal of petroleum impacted soil exceeding Protection of Groundwater SCOs in the hotspot area to a depth of 31 ft-bg. Additionally, Track 2 Restricted-Residential Use SCOs were achieved across the Site. As part of building construction, a minimum of two feet of clean stone and a 20-mil vapor barrier were installed beneath the building slab. The HVAC design was completed in accordance with the NYCDOB requirements, which includes the introduction of tempered air in the cellar spaces.

Considering that no source of chlorinated VOCs was identified during the remedial investigation or remediation phases, a Track 2 cleanup was achieved, and construction elements incorporated two feet of clean fill and a 20-mil vapor barrier in the new building, the potential for soil vapor intrusion has been addressed by the remedial action.

3.0 Institutional Control Plan

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) are required to protect human health and the environment. This IC Plan describes the procedures for the implementation and management of all ICs at the site. The IC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all ICs on the site;
- The basic implementation and intended role of each IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of ICs, such as the implementation of the Excavation Work Plan (EWP) (as provided

in Appendix 2) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and

- Any other provisions necessary to identify or establish methods for implementing the ICs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) prevent future exposure to remaining contamination; and, (2) limit the use and development of the site to residential, commercial, or industrial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 7. These ICs are:

- The property may be used for: restricted residential, commercial, and industrial use;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
- Vegetable gardens and farming on the site are prohibited;

- The remedial party or Site owner must complete and submit to NYSDEC a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- A provision for evaluation of the potential soil vapor intrusion for any occupied buildings on the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- If there is a future change of use for the Site/on-site building, or if building modifications (e.g., structural, HVAC systems) are implemented, then the potential for soil vapor intrusion must be evaluated, and any potential impacts that are identified must be monitored or mitigated; and,
- Monitoring for soil vapor intrusion for any buildings on the Site, as may be required by the Institutional Control Plan discussed above.

3.3 Site-Wide Inspection

Site-wide inspections will be performed at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect the remaining contamination at the site. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report.

During an inspection, an inspection form will be completed as provided in Appendix 6 – Site Management Forms. The inspections will determine and document the following:

- Compliance with all ICs, including site usage;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- If these controls continue to be protective of human health and the environment;

- Compliance with requirements of this SMP and the Environmental Easement;
- Confirm site records are complete and up to date.

Reporting requirements are outlined in Section 5.0 of this plan.

Inspections will also be performed in the event of an emergency. An inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the ICs implemented at the site by a qualified environmental professional, as determined by the NYSDEC project manager. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.0 Periodic Assessments/Evaluations

4.1 Climate Change Vulnerability Assessment

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

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

The Site elevation is approximately 30 feet above mean sea level (msl), with a gentle slope to the south southeast. According to the Federal Emergency Management Agency (FEMA) Effective Flood Insurance Rate Map (FIRM) Number 3604970214F

(effective 9/5/2007), the Site is located in Zone X; indicating the Site is not located within a floodplain.

The Site building has been constructed within the entire footprint of the Site and sealed by a concrete building slab, with no sloped basement entrances. The Site remedy is not reliant on mechanical systems. Therefore, the vulnerability of the Site during severe storms or weather events and associated flooding is low. During the annual inspections for the PRR (see Section 5.2), the slab will be observed and the Site assessed for any change in this condition.

5.0. Reporting Requirements

5.1 Site Management Reports

All site management inspection events will be recorded on the appropriate site management forms provided in Appendix 6. These forms are subject to NYSDEC project manager revision.

All applicable inspection forms and other records, including media sampling data generated for the site during the reporting period will be provided in electronic format to the NYSDEC project manager in accordance with the requirements of Table 5 and summarized in the Periodic Review Report.

Table 5: Schedule of Inspection Reports

Task/Report	Reporting Frequency*
Inspection Reports	Annually, or as otherwise determined by the Department
Periodic Review Report	Annually, or as otherwise determined by the Department

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

All inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Any observations, conclusions, or recommendations; and

- A determination as to whether contaminant conditions have changed since the last reporting event.

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

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet).

5.2 Periodic Review Report

The Periodic Review Report will consist only of the certification as specified in Section 5.2.1 except in the event where there have been changes to the site or data gathered during the certifying period. Given such an event, the submittal of a comprehensive PR report will be necessary, as specified below.

A Periodic Review Report (PRR) will be submitted to the Department beginning 30 days after the initial 15-month certifying period. This initial certifying period commences upon issuance of the Certificate of Completion. After submittal of the initial Periodic Review Report, the next PRR shall be submitted every year to the Department or at another frequency as may be subsequently required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix 3 - Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ICs required by the remedy for the site.

- Results of the required annual site inspections and severe condition inspections, if applicable.

- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.

- A summary of any data and/or information generated during the reporting period, with comments and conclusions, if any

- A site evaluation, which includes the following:

  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;

  - Any new conclusions or observations regarding site contamination based on inspections or data generated;

  - Recommendations regarding any necessary changes to the remedy; and

  - The overall performance and effectiveness of the remedy.

5.2.1 Certification of Institutional Controls

Within 30 days after the end of each certifying period, as determined by the NYSDEC, the following certification will be provided to the Department:

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

- *The institutional control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*

- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*

- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*

- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement.*
- *The information presented in this report is accurate and complete.*
- *That no new information has come to the Site owner's attention, including groundwater monitoring data from wells located at the Site boundary, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid.*

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

For BCP projects, every five years the following certification will be added:

- *The assumptions made in the qualitative exposure assessment remain valid.*

The signed certification will be included in the Periodic Review Report, if such report is required for the period. Otherwise, the Certification will be submitted as a stand-alone document.

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

5.3 Corrective Measures Work Plan

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

6.0 REFERENCES

Decision Document, 1640 Flatbush Avenue, Brooklyn, Kings County. NYSDEC. March 2021.

Remedial Action Work Plan, 1640 Flatbush Avenue, Brooklyn, New York. AMC Engineering, PLLC. February 2021.

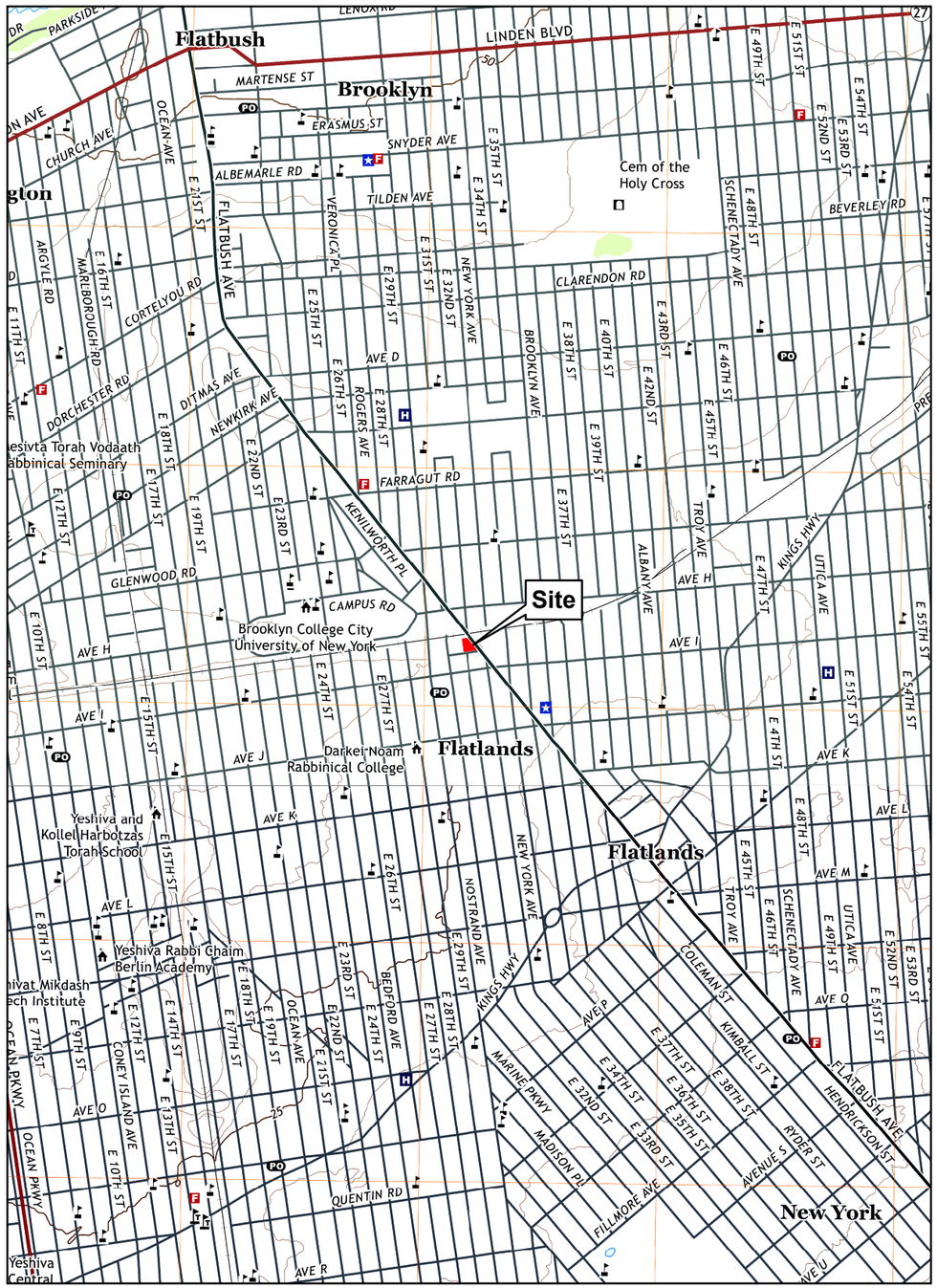
Remedial Investigation Report, 1640 Flatbush Avenue, Brooklyn, New York. WCD Group LLC. September 18, 2019.

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

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

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

FIGURES



Basemap: USGS Topographic Map, 7.5 Minute Quadrangles: Brooklyn, NY; Coney Island, NY

Site Location

0 1,000 2,000 4,000 Feet

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

Department of Finance Digital Tax Map

Department of City Planning MapPluto 2023 v1

0 150 300 600 Feet

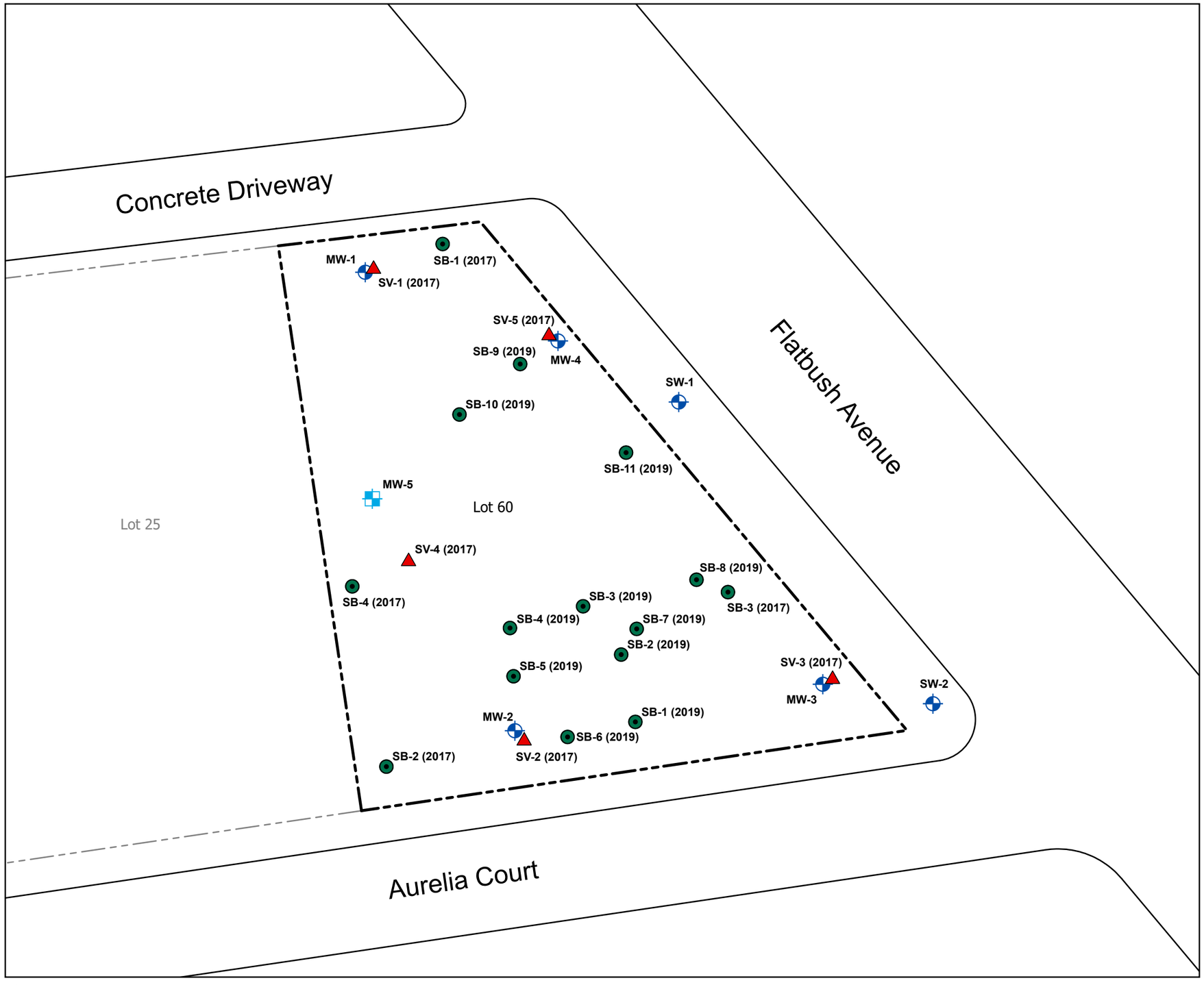
1640 Flatbush Avenue
Brooklyn, New York
Block 7577, Lot 60
BCP Site No. C224212

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

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

Drawing Title: Site Location Map

Drawing No.: Figure 1



Legend

- Soil Sample Location (Remedial Investigation, WCD Group LLC)
- Monitoring Well Location (Remedial Investigation, WCD Group LLC)
- Monitoring Well and 2019 Soil Sample Location (Remedial Investigation, WCD Group LLC)
- 2017 Soil Vapor Sample Location (Remedial Investigation, WCD Group LLC)
- Site Boundary
- NYC Tax Lots

0 15 30 60 Feet

Reference:
NYC Department of City Planning, Information Technology Division

1640 Flatbush Avenue
Brooklyn, New York
Block 7577, Lot 60
BCP Site No. C224212

TENEN ENVIRONMENTAL
Tenen Environmental, LLC
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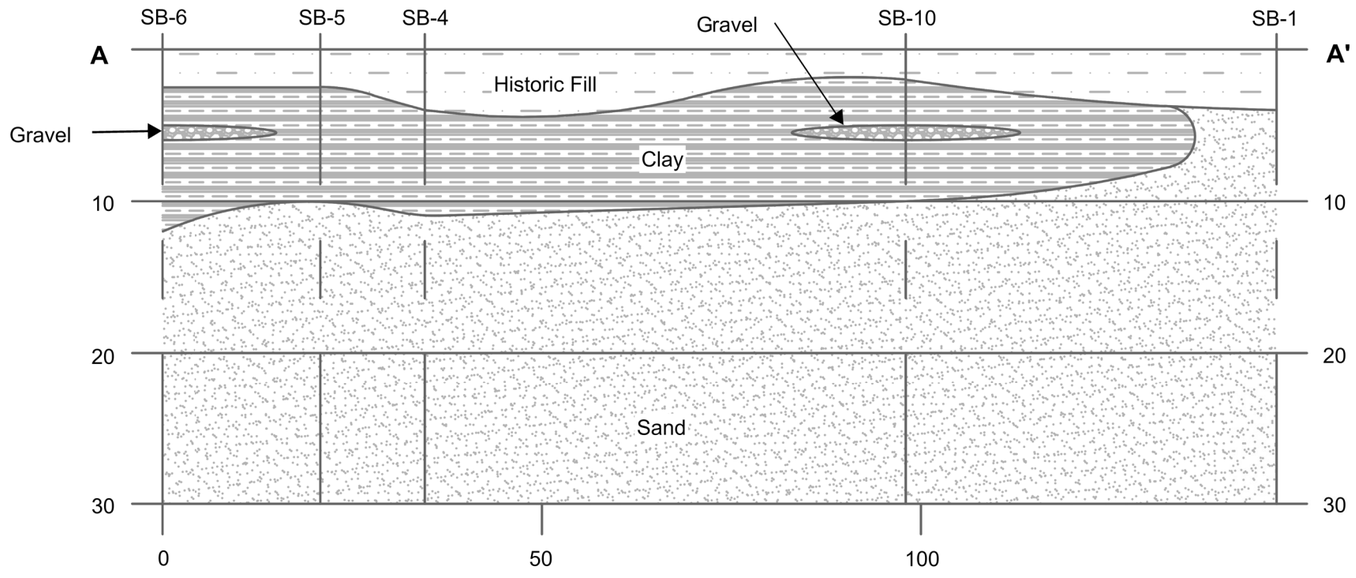
Drawn By	LM
Checked By	CZ
Date	July 2023
Scale	As Noted

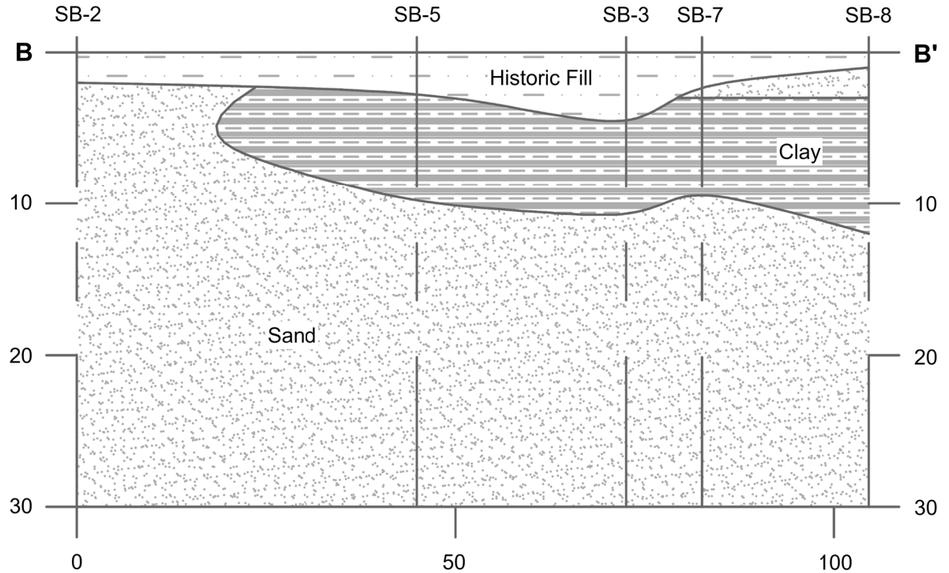
Drawing Title: Site Layout

Drawing No.: Figure 2

Plan View



Section A-A'



Section B-B'

Reference:
NYC Department of City Planning, Information Technology Division

1640 Flatbush Avenue
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Block 7577, Lot 60

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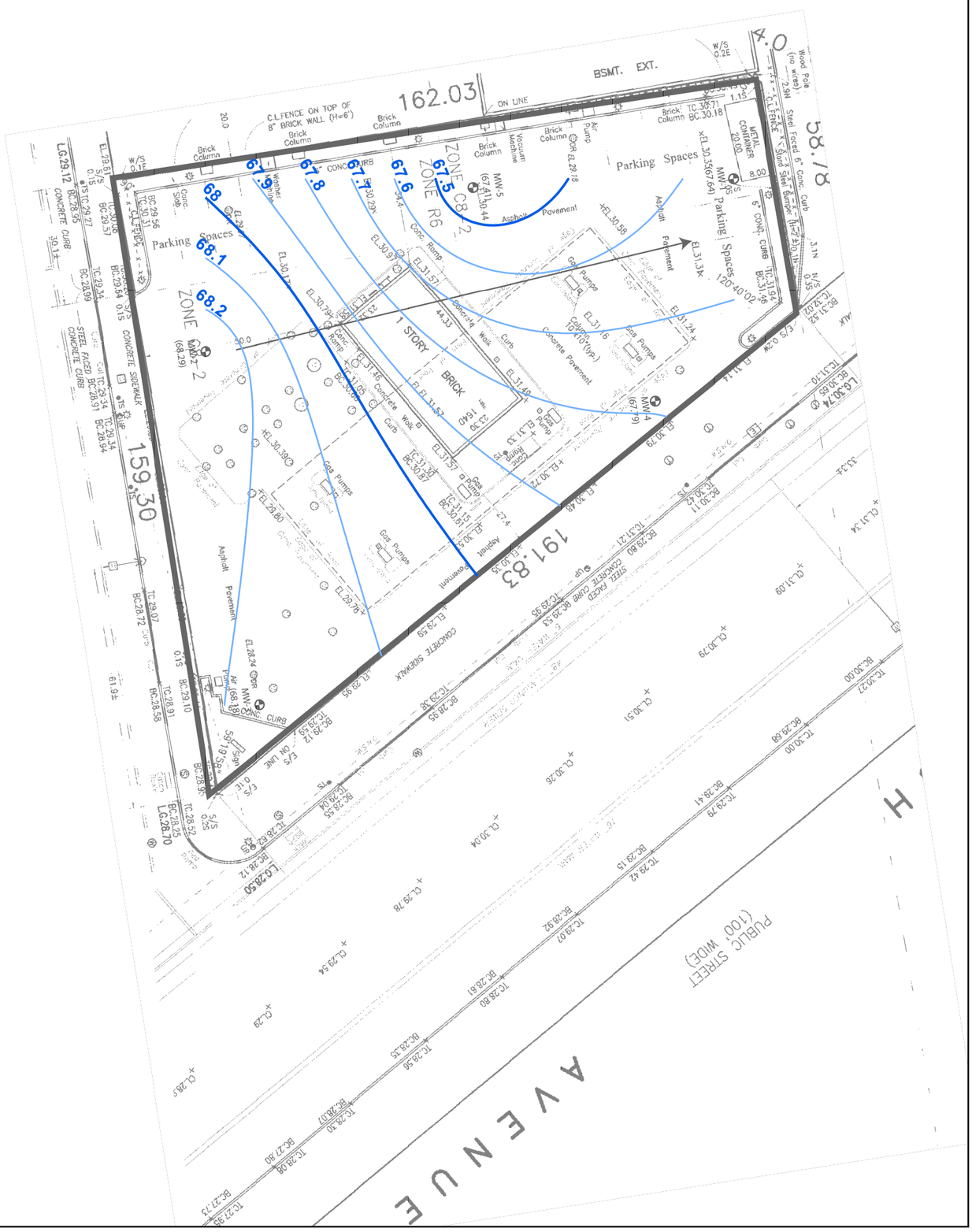
Drawn By	LM
Checked By	AP
Date	July 2023
Scale	As Noted
Drawing Title	Geologic Cross-Sections
Drawing No.	Figure 3

Reference:
WCD Group, NYSDEC BCP Site #C224212, WCD File 16-9335, Fig 5 - Groundwater Elevation Data, September 2019



Legend

Groundwater Contour

Groundwater Contour

0 15 30 60 Feet

Drawing Title: Groundwater Contour Map	Drawn By: LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street, Suite 702 New York, NY 10001 O: (646) 606-2332; F: (646) 606-2379	1640 Flatbush Avenue Brooklyn, New York Block 7577, Lot 60 BCP Site No. C224212
	Checked By: CZ		
Drawing No.: Figure 4	Date: July 2023		
	Scale: As Noted		

SAMPLE ID:	NY-AWQS	SW1
LAB ID:		L2272111-01
COLLECTION DATE:		12/21/2022
Total Metals Units: ug/l		**Conc**
Iron, Total	300	7870
Manganese, Total	300	399.3
Sodium, Total	20000	23000
PERFLUORINATED ALKYL ACIDS BY EPA 1633 Units: ng/l	**NYSDEC AWQGV**	**Conc**
Perfluorooctanoic Acid (PFOA)	6.7	47.8
Perfluorooctanesulfonic Acid (PFOS)	2.7	27.8

SAMPLE ID:	NY-AWQS	MW-5	
LAB ID:		L2301162-01	
COLLECTION DATE:		1/9/2023	
Volatile Organic Compounds Units: ug/l		**Conc**	**Q**
Methyl tert butyl ether	10	21	
1,4 DIOXANE BY 8270E-SIM			
1,4-Dioxane	0.35	0.488	
SEMIVOLATILE ORGANICS BY GC/MS			
Benzo(a)anthracene	0.002	0.02	J
Hexachlorobenzene	0.04	0.05	J
TOTAL METALS			
Sodium, Total	20000	93800	

SAMPLE ID:	NY-AWQS	SW-2
LAB ID:		L2272610-01
COLLECTION DATE:		12/27/2022
Total Metals Units: ug/l		**Conc**
Iron, Total	300	774
Sodium, Total	20000	153000
PERFLUORINATED ALKYL ACIDS BY EPA 1633 Units: ng/l	**NYSDEC AWQGV**	**Conc**
Perfluorooctanoic Acid (PFOA)	6.7	45.4
Perfluorooctanesulfonic Acid (PFOS)	2.7	73.0

Concrete Driveway

Flatbush Avenue

Aurelia Court

Lot 25

Lot 60

SW-1

SW-2

MW-5

Notes:

- NY-AWQS: New York TOGS 111 Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.
- NYSDEC AWQ Guidance Values for PFOA, PFOS and 1,4-Dioxane, March 2023
- Conc = Concentration
- Q = Laboratory Data Qualifier
- Cells highlighted in yellow indicate concentrations above the guidance value
- For J qualified entries, the estimated concentration is shown
- J = estimated value, indicating the detected value is below the RL, but above the MDL

Legend

- Groundwater Sample Location
- Site Boundary
- NYC Tax Lots

0 15 30 60 Feet

Reference:
NYC Department of City Planning, Information Technology Division

1640 Flatbush Avenue
Brooklyn, New York
Block 7577, Lot 60
BCP Site No. C224212

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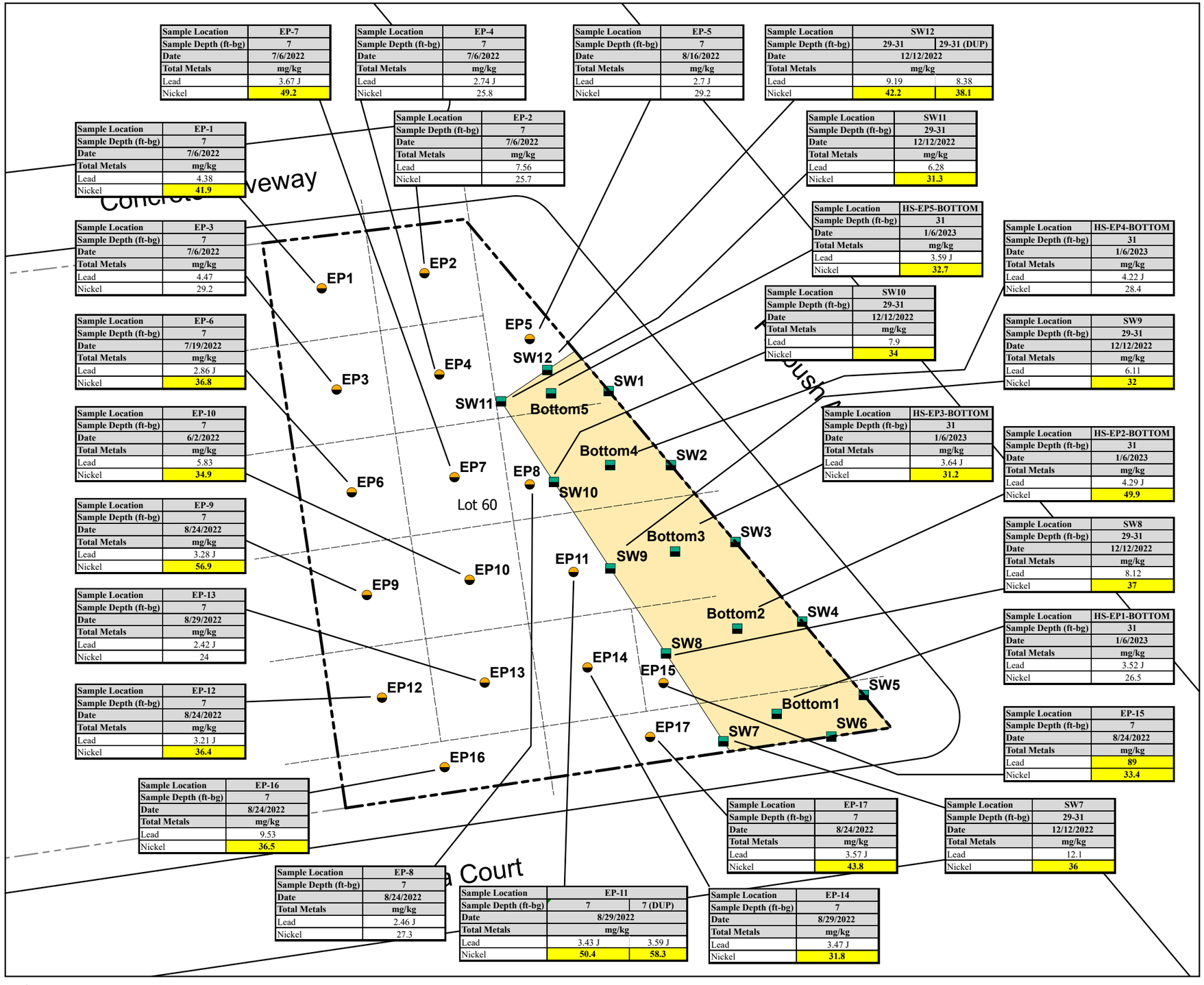
Drawn By: LM
Checked By: CZ
Date: July 2023
Scale: As Noted

Drawing Title: Remaining Groundwater Sample Exceedances

Drawing No.: Figure 5



Sample Location	EP-7
Sample Depth (ft-bg)	7
Date	7/6/2022
Total Metals	mg/kg
Lead	3.67 J
Nickel	**49.2**

Sample Location	EP-4
Sample Depth (ft-bg)	7
Date	7/6/2022
Total Metals	mg/kg
Lead	2.74 J
Nickel	25.8

Sample Location	EP-5
Sample Depth (ft-bg)	7
Date	8/16/2022
Total Metals	mg/kg
Lead	2.7 J
Nickel	29.2

Sample Location	SW12	
Sample Depth (ft-bg)	29-31	29-31 (DUP)
Date	12/12/2022	
Total Metals	mg/kg	
Lead	9.19	8.38
Nickel	**42.2**	**38.1**

Sample Location	EP-1
Sample Depth (ft-bg)	7
Date	7/6/2022
Total Metals	mg/kg
Lead	4.38
Nickel	**41.9**

Sample Location	EP-2
Sample Depth (ft-bg)	7
Date	7/6/2022
Total Metals	mg/kg
Lead	7.56
Nickel	25.7

Sample Location	SW11
Sample Depth (ft-bg)	29-31
Date	12/12/2022
Total Metals	mg/kg
Lead	6.28
Nickel	**31.3**

Sample Location	HS-EP5-BOTTOM
Sample Depth (ft-bg)	31
Date	1/6/2023
Total Metals	mg/kg
Lead	3.59 J
Nickel	**32.7**

Sample Location	HS-EP4-BOTTOM
Sample Depth (ft-bg)	31
Date	1/6/2023
Total Metals	mg/kg
Lead	4.22 J
Nickel	28.4

Sample Location	EP-3
Sample Depth (ft-bg)	7
Date	7/6/2022
Total Metals	mg/kg
Lead	4.47
Nickel	29.2

Sample Location	SW10
Sample Depth (ft-bg)	29-31
Date	12/12/2022
Total Metals	mg/kg
Lead	7.9
Nickel	**34**

Sample Location	SW9
Sample Depth (ft-bg)	29-31
Date	12/12/2022
Total Metals	mg/kg
Lead	6.11
Nickel	**32**

Sample Location	EP-6
Sample Depth (ft-bg)	7
Date	7/19/2022
Total Metals	mg/kg
Lead	2.86 J
Nickel	**36.8**

Sample Location	HS-EP3-BOTTOM
Sample Depth (ft-bg)	31
Date	1/6/2023
Total Metals	mg/kg
Lead	3.64 J
Nickel	**31.2**

Sample Location	HS-EP2-BOTTOM
Sample Depth (ft-bg)	31
Date	1/6/2023
Total Metals	mg/kg
Lead	4.29 J
Nickel	**49.9**

Sample Location	EP-10
Sample Depth (ft-bg)	7
Date	6/2/2022
Total Metals	mg/kg
Lead	5.83
Nickel	**34.9**

Sample Location	SW8
Sample Depth (ft-bg)	29-31
Date	12/12/2022
Total Metals	mg/kg
Lead	8.12
Nickel	**37**

Sample Location	EP-9
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	3.28 J
Nickel	**56.9**

Sample Location	HS-EP1-BOTTOM
Sample Depth (ft-bg)	31
Date	1/6/2023
Total Metals	mg/kg
Lead	3.52 J
Nickel	26.5

Sample Location	EP-13
Sample Depth (ft-bg)	7
Date	8/29/2022
Total Metals	mg/kg
Lead	2.42 J
Nickel	24

Sample Location	EP-12
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	3.21 J
Nickel	**36.4**

Sample Location	EP-15
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	**89**
Nickel	**33.4**

Sample Location	EP-16
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	9.53
Nickel	**36.5**

Sample Location	EP-17
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	3.57 J
Nickel	**43.8**

Sample Location	SW7
Sample Depth (ft-bg)	29-31
Date	12/12/2022
Total Metals	mg/kg
Lead	12.1
Nickel	**36**

Sample Location	EP-8
Sample Depth (ft-bg)	7
Date	8/24/2022
Total Metals	mg/kg
Lead	2.46 J
Nickel	27.3

Sample Location	EP-11	
Sample Depth (ft-bg)	7	7 (DUP)
Date	8/29/2022	
Total Metals	mg/kg	
Lead	3.43 J	3.59 J
Nickel	**50.4**	**58.3**

Sample Location	EP-14
Sample Depth (ft-bg)	7
Date	8/29/2022
Total Metals	mg/kg
Lead	3.47 J
Nickel	**31.8**

Reference:
NYC Department of City Planning, Information Technology Division

Notes:
1. Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs
2. NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives
3. J = Estimated value
4. DUP = Duplicate

Legend

- Endpoint Sampling Location
- Hot Spot Sample
- NYC Tax Lots
- Site Boundary
- Excavation to as deep as 31 ft to Remove Petroleum Contaminated Soil

0 15 30 60 Feet

1640 Flatbush Avenue
Brooklyn, New York
Block 7577, Lot 60
BCP Site No. C224212

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

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

Drawing Title: Remaining Soil Sample Exceedances

Drawing No.: Figure 6

Reference:
NYC Department of City Planning, Information Technology Division

1640 Flatbush Avenue
Brooklyn, New York
Block 7577, Lot 60
BCP Site No. C224212

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

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

Drawing Title: Institutional Control Boundaries

Drawing No.: Figure 7

TABLES

Table 1: List of Site Contacts

Name	Contact Information
Jared Donaldson, NYSDEC Project Manager	(518) 402-9176; jared.donaldson@dec.ny.gov
Jane O'Connell, NYSDEC Regional HW Engineer	(718) 482-4599; jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control	(518) 402-9543; kelly.lewandowski@dec.ny.gov
Renata Ockerby, NYSDOH Project Manager	(518) 402-7860; renata.ockerby@health.ny.gov

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

Table 2. Summary of Remaining Soil Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

LOCATION	NY-UNRES	Units	EP-10		EP-1		EP-2		EP-3		EP-4		EP-7		EP-6	
SAMPLING DATE			6/2/2022		7/6/2022		7/6/2022		7/6/2022		7/6/2022		7/6/2022		7/19/2022	
LAB SAMPLE ID			L2229302-01		L2236062-01		L2236062-02		L2236062-03		L2236062-04		L2236062-05		L2238298-03	
SAMPLE DEPTH			7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg	
				Qual		Qual		Qual		Qual		Qual		Qual		Qual
Total Metals																
Lead, Total	63	mg/kg	5.83		4.38		7.56		4.47		2.74	J	3.67	J	2.86	J
Nickel, Total	30	mg/kg	**34.9**		**41.9**		25.7		29.2		25.8		**49.2**		**36.8**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs

NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives

J = Estimated value

Table 2. Summary of Remaining Soil Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

LOCATION	NY-UNRES	Units	EP-5		EP-8		EP-9		EP-12		EP-16		EP-17		EP-15	
SAMPLING DATE			8/16/2022		8/24/2022		8/24/2022		8/24/2022		8/24/2022		8/24/2022		8/24/2022	
LAB SAMPLE ID			L2244117-02		L2245898-01		L2245898-02		L2245898-03		L2245898-04		L2245898-05		L2245898-06	
SAMPLE DEPTH			7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg	
				Qual		Qual		Qual		Qual		Qual		Qual		Qual
Total Metals																
Lead, Total	63	mg/kg	2.7	J	2.46	J	3.28	J	3.21	J	9.53		3.57	J	**89**	
Nickel, Total	30	mg/kg	29.2		27.3		**56.9**		**36.4**		**36.5**		**43.8**		**33.4**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs

NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives

J = Estimated value

Table 2. Summary of Remaining Soil Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

LOCATION	NY-UNRES	Units	EP-11		EP-11_DUP		EP-13		EP-14		SW7		SW8		SW9	
SAMPLING DATE			8/29/2022		8/29/2022		8/29/2022		8/29/2022		12/12/2022		12/12/2022		12/12/2022	
LAB SAMPLE ID			L2246764-03		L2246764-04		L2246764-05		L2246764-06		L2269684-01		L2269684-02		L2269684-03	
SAMPLE DEPTH			7 ft-bg		7 ft-bg		7 ft-bg		7 ft-bg		29-31 ft-bg		29-31 ft-bg		29-31 ft-bg	
				Qual		Qual		Qual		Qual		Qual		Qual		Qual
Total Metals																
Lead, Total	63	mg/kg	3.43	J	3.59	J	2.42	J	3.47	J	12.1		8.12		6.11	
Nickel, Total	30	mg/kg	**50.4**		**58.3**		24		**31.8**		**36**		**37**		**32**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs

NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives

J = Estimated value

Table 2. Summary of Remaining Soil Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

LOCATION	NY-UNRES	Units	SW10		SW11		SW12		SW12_DUP		HS-EP1-BOTTOM		HS-EP2-BOTTOM	
SAMPLING DATE			12/12/2022		12/12/2022		12/12/2022		12/12/2022		1/6/2023		1/6/2023	
LAB SAMPLE ID			L2269684-04		L2269684-05		L2269684-06		L2269684-07		L2301005-01		L2301005-02	
SAMPLE DEPTH			29-31 ft-bg		29-31 ft-bg		29-31 ft-bg		29-31 ft-bg		31 ft-bg		31 ft-bg	
				Qual		Qual		Qual		Qual		Qual		Qual
Total Metals														
Lead, Total	63	mg/kg	7.9		6.28		9.19		8.38		3.52	J	4.29	J
Nickel, Total	30	mg/kg	**34**		**31.3**		**42.2**		**38.1**		26.5		**49.9**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs

NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives

J = Estimated value

Table 2. Summary of Remaining Soil Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

LOCATION	NY-UNRES	Units	HS-EP3-BOTTOM		HS-EP4-BOTTOM		HS-EP5-BOTTOM	
SAMPLING DATE			1/6/2023		1/6/2023		1/6/2023	
LAB SAMPLE ID			L2301005-03		L2301005-04		L2301005-05	
SAMPLE DEPTH			31 ft-bg		31 ft-bg		31 ft-bg	
				Qual		Qual		Qual
Total Metals								
Lead, Total	63	mg/kg	3.64	J	4.22	J	3.59	J
Nickel, Total	30	mg/kg	**31.2**		28.4		**32.7**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-UNRES SCOs

NY-UNRES = 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives

J = Estimated value

Table 3. Summary of Baseline and Dewatering Groundwater Sample Exceedances
1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212

CLIENT SAMPLE ID	NY-AWQS	Units	SW-1		SW-2		MW-5		SW-1		SW-2		MW-5	
SAMPLING DATE			11/17/2022		11/17/2022		11/21/2022		12/21/2022		12/27/2022		1/9/2023	
LAB SAMPLE ID			L2265135-01		L2265135-02		L2265749-04		L2272111-01		L2272610-01		L2301162-01	
				Qual		Qual		Qual		Qual		Qual		Qual
Total Metals														
Iron, Total	300	ug/l	**2410**		**2810**		**388**		**7870**		**774**		30	J
Manganese, Total	300	ug/l	275.6		**611.8**		**3911**		**399.3**		82.76		197.4	
Nickel, Total	100	ug/l	52.33		64.86		**110.8**		90.74		60.63		10.55	
Sodium, Total	20000	ug/l	**119000**		**135000**		**108000**		**23000**		**153000**		**93800**	
Volatile Organic Compounds														
Methyl tert butyl ether	10	ug/l	ND		ND		ND		ND		1.6	J	**21**	
Semivolatile Organic Compounds														
Benzo(a)anthracene	0.002	ug/l	ND		ND		ND		ND		ND		**0.02**	**J**
Hexachlorobenzene	0.04	ug/l	ND		ND		ND		ND		ND		**0.05**	**J**
Perfluorinated Alkyl Acids														
Perfluorooctanesulfonic Acid (PFOS)	2.7	ng/l	**18.6**		**12.4**		**34.2**		**27.8**		**73**		1.07	J
Perfluorooctanoic Acid (PFOA)	6.7	ng/l	**19**		**20.5**		**19.2**		**47.8**		**45.4**		6.48	
1,4-Dioxane														
1,4-Dioxane	0.35	ug/l	ND		ND		0.0606	J	0.186		0.0922	J	**0.488**	

Notes:

Bold and shaded yellow value indicates concentration exceeds NY-AWQS

NY-AWQS = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards

J = Estimated value

ND = Not detected

Table 4.
Groundwater Elevation Measurements
1640 Flatbush Avenue
Site Management Plan
BCP #C224212

Location	Measuring Point Elevation (ft)	Depth to Water (ft)	Water Elevation - feet (MVD)
MW-1	95.39	27.75	67.64
MW-2	95.24	26.95	68.29
MW-3	93.71	25.53	68.18
MW-4	95.59	27.8	67.79
MW-5	95.14	27.73	67.41

Notes:

1. Data collected by WCD Group in August 2019.
2. Groundwater elevation data based on arbitrary onsite benchmark of 100 ft.
3. Depth to water measurements are in feet below measuring point (top of casing).

APPENDIX 1 – LIST OF SITE CONTACTS

Name	Phone/Email Address
Danny Fitzsimmons, 1640 Flatbush Oz Owner LLC	(908-246-8487), dfitz@moiniangroup.com
Matthew Carroll, P.E.; Remedial Engineer	(646) 606-2332, mcarroll@tenen-env.com
Jared Donaldson, NYSDEC DER Project Manager	(518) 402-9176, jared.donaldson@dec.ny.gov
Jane O'Connell; Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov
Renata Ockerby, NYSDOH Project Manager	(518) 402-7860, renata.ockerby@health.ny.gov
Jon Schuyler Brooks, Abramson Brooks LLP	(516) 455-0215, jbrooks@abramsonbrooks.com

APPENDIX 2 – EXCAVATION WORK PLAN (EWP)

2-1 NOTIFICATION

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

Table 1: Notifications*

Jared Donaldson, NYSDEC DER Project Manager	(518) 402-9176, jared.donaldson@dec.ny.gov
Jane O'Connell; Regional Remediation Engineer	(718) 482-4599, jane.oconnell@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov

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

This notification will include:

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

- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix 5 of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required request to import forms and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP.

2-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional, as defined in 6NYCRR Part 375, during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC. All potentially contaminated soil/fill material will be field screened using a photoionization detector (PID) or similar equipment.

Soils will be segregated based on previous environmental data and field screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections 2-6 and 2-7 of this Appendix, respectively.

2-3 SOIL STAGING METHODS

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

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

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

2-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional, as defined in 6NYCRR Part 375, or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

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

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the site.

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

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site at a permitted facility in an appropriate manner. See Section (2-8) Fluids Management for additional details.

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

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations. See Section (2-6) Materials Disposal Off-site for additional details.

2-5 MATERIALS TRANSPORT OFF-SITE

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

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

Truck transport routes are as follows:

Entering the Site: From I-278 heading east; trucks took Exit 24 to NY-27 and turned left, heading east on Beverly Road. Trucks then turned right onto Flatbush Avenue and continued southeast on Flatbush Avenue to enter the Site on the right.

Exiting the Site: Trucks continued east on Aurelia Court to Flatbush Avenue, turning left onto Flatbush Avenue. Trucks then continued northwest on Flatbush Avenue to Beverly Road, turning left onto Beverly Road. From Beverly Road, trucks turned right onto NY-27 and took Exit 2 to I-278 heading west, which is a truck through route.

All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

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

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development. See Section (2-4) Material Excavation and Load-out for additional details.

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

2-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed at a permitted facility in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without prior formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and

associated documentation will be reported to the NYSDEC project manager in the subsequent Periodic Review Report. This documentation will include but will not be limited to: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous fill and contaminated soils taken off-site will be handled consistent with 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

2-7 MATERIALS REUSE ON-SITE

The qualified environmental professional as defined in 6 NYCRR part 375 will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) does not remain on-site.

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

Soil/fill material for reuse on-site will be segregated and staged as described in Sections 2-2 and 2-3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of site excavation activities and proximity to nearby site features. Material reuse on-site will comply with requirements of NYSDEC DER-10

Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager prior to reuse on site.

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

2-8 FLUIDS MANAGEMENT

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

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

2-9 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d) and DER-10 Appendix 5 for restricted-residential use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 2. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. Solid waste will not be imported onto the site.

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

2-10 STORMWATER POLLUTION PREVENTION

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

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

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

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

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

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

2-11 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition. The NYSDEC project manager will be notified within two hours of the discovery.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

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

2-12 COMMUNITY AIR MONITORING PLAN

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

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers on the day of exceedance. All data is to be reported in the final report for the excavation activity.

2-13 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors on- and off-site. Specific odor control methods to be used on a routine basis will include monitoring open excavations with a photoionization detector (PID). If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH project managers will be notified of all odor events within one day of the odor event and notified of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Excavation Activities Report.

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

trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

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

2-14 DUST CONTROL PLAN

Particulate monitoring must be conducted according to the Community Air Monitoring Plan (CAMP) provided in Section 2-12. If particulate levels at the site exceed the thresholds listed in the CAMP or if airborne dust is observed on the site or leaving the site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the site.

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

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

2-15 OTHER NUISANCES

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

2-16 REPORTING

A report is to be submitted to the NYSDEC within 90 days of completion of the activities performed under this EWP. This report shall contain a summary of the activities performed; a summary of all data gathered and results; information about any media that was removed from the site: volume, contamination levels, area from which removed; and any other information that may be indicate a change to the "remaining contamination" that is at the site. Such changes may require revision of the SMP.

APPENDIX 3 – ENVIRONMENTAL EASEMENT

HANSEN LAW PLLC

Attorneys at Law

Notice to Municipality

July 9, 2021

Via FedEx Delivery
Mr. Eric Adams
Brooklyn Borough President
Brooklyn Borough Hall
209 Joralemon Street
Brooklyn, NY 11201

Re: Environmental Easement

Dear Mr. Adams:

Attached please find a copy of an environmental easement granted to the New York State Department of Environmental Conservation ("Department")

On June 22, 2021 and recorded July 8, 2021,
By 1640 FLATBUSH OZ OWNER LLC,
For property at 1640 Flatbush Avenue, Brooklyn, New York 11210
Tax Map No. Section: 23, Block: 7577, Lot: 60,
DEC Site No: C224212.

This Environmental Easement restricts future use of the above-referenced property to Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv) uses. Any on-site activity must be done in accordance with the Environmental Easement and the Site Management Plan which is incorporated into the Environmental Easement. Department approval is also required prior to any groundwater use.

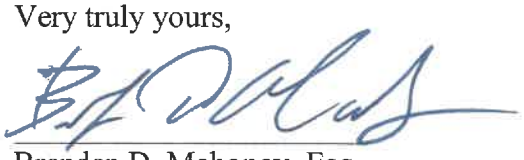
Article 71, Section 71-3607 of the New York State Environmental Conservation Law requires that:

1. Whenever the department is granted an environmental easement, it shall provide each affected local government with a copy of such easement and shall also provide a copy of any documents modifying or terminating such environmental easement.

2. Whenever an affected local government receives an application for a building permit or any other application affecting land use or development of land that is subject to an environmental easement and that may relate to or impact such easement, the affected local government shall notify the department and refer such application to the department. The department shall evaluate whether the application is consistent with the environmental easement and shall notify the affected local government of its determination in a timely fashion, considering the time frame for the local government's review of the application. The affected local government shall not approve the application until it receives approval from the department.

An electronic version of every environmental easement that has been accepted by the Department is available to the public at: http://www.dec.ny.gov/chemical/36045.html. Please forward this notice to your building and/or planning departments, as applicable, to ensure your compliance with these provisions of New York State Environmental Conservation Law. If you have any questions or comments regarding this matter, please do not hesitate to contact me.

Very truly yours,



Brenden D. Mahoney, Esq.

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

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

2021070200164001001EDD8D

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

Document ID: 2021070200164001 Document Date: 06-22-2021 Preparation Date: 07-02-2021
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
BETTER RECORDINGS, LLC
1 PARAGON DRIVE - RANY-43498
SUITE 150B
MONTVALE, NJ 07645
REC@BETTERTITLERESEARCH.COM

RETURN TO:
BETTER RECORDINGS, LLC
1 PARAGON DRIVE - RANY-43498
SUITE 150B
MONTVALE, NJ 07645
REC@BETTERTITLERESEARCH.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BROOKLYN	7577	60	Entire Lot	1640 FLATBUSH AVENUE

Property Type: NON-RESIDENTIAL VACANT LAND

CROSS REFERENCE DATA

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

PARTIES

GRANTOR/SELLER:
1640 FLATBUSH OZ OWNER LLC
C/O: THE MOINIAN GROUP, 3 COLUMBUS CIRCLE,
26TH FL
NEW YORK, NY 10019

GRANTEE/BUYER:
NEW YORK STATE DEPT OF ENVIRONMENTAL
CONSERVATION
625 BROADWAY
ALBANY, NY 12233

FEES AND TAXES

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

Filing Fee:	$	100.00
NYC Real Property Transfer Tax:	$	0.00
NYS Real Estate Transfer Tax:	$	0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 07-08-2021 14:00
City Register File No.(CRFN):
2021000259646

City Register Official Signature

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

THIS INDENTURE made as of this 22nd day of June, 2021, between Owner, 1640 Flatbush OZ Owner LLC, having an office at c/o The Moinian Group, 3 Columbus Circle, 23rd Floor, New York, New York 10019 (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

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

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

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

WHEREAS, Grantor, is the owner of real property located at the address of 1640 Flatbush Avenue in the City of New York, County of Kings and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 7577 Lot 60, being the same as that property conveyed to Grantor by deed dated December 30, 2019 and recorded in the City Register of the City of New York as CRFN #2020000009096, and by confirmatory deed dated December 30, 2020 and recorded in the City Register of the City of New York as CRFN #2021000044250. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.418 +/- acres, and is hereinafter more fully described in the Land Title Survey dated May 12, 2021 prepared by Richard Tom, L.L.S. of Perfect Point Land Surveying RT, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

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

extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C224212-06-15, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

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

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

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

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

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

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

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

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

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

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

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

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

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

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

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

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation

Law.

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

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

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

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

(i) are in-place;

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

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against

the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

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

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

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

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

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

Parties shall address correspondence to:

Site Number: C224212
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

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

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

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the

recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

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

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

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

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

Remainder of Page Intentionally Left Blank

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

1640 Flatbush OZ Owner LLC:

By: _____

Print Name: Joseph Brunner

Title: Authorized Signatory Date: June 17, 2021

Grantor's Acknowledgment

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

On the 17th day of June, in the year 2021, before me, the undersigned, personally appeared Joseph Brunner, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

SKYLAH MARIE SANCHEZ
NOTARY PUBLIC-STATE OF NEW YORK
No. 01SA6354093
Qualified in Richmond County
My Commission Expires February 6, 2025

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

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

Grantee's Acknowledgment

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

On the 22nd day of June, in the year 2021 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

Dale L. Thiel
Notary Public, State of New York
Qualified in Columbia County
No 01TH6414394
Commission Expires February 2/22/2025

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT CERTAIN plot, piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point at the comer formed by the intersection of the northerly line of Aurelia Court and the westerly line of Flatbush Avenue;

RUNNING THENCE northwesterly, along the westerly line of Flatbush Avenue, 191.82 feet (deed) and 191 feet 10 inches (survey) to a point on the southerly line of land now or formerly of the Long Island Railroad and being the southerly line of tax lot 56 on the Tax Map of the City of New York for the County of Kings;

THENCE westerly along the southerly line of land now or formerly of the Long Island Railroad, and being the division line between the southerly line of tax lot 56 and the northerly line of tax lot 60 on the Tax Map of the City of New York for the County of Kings, which division line is per correction deed in CRFN #2005000276268 filed in the Kings County Register's Office, 58.78 feet (deed) and 61 feet 5.5 inches (survey) to a point;

THENCE southerly at right angles to the last mentioned course and parallel with the easterly side of East 31st Street 165 feet to the northerly side of Aurelia Court;

THENCE easterly along the northerly line of Aurelia Court, 159.30 feet (deed) and 159 feet 3 5/8 inches (survey) to the point or place of BEGINNING.

For Information Only: Said premises are known as 1636-1652 Flatbush Avenue a/k/a 3201-3211 Aurelia Court, Brooklyn, NY and designated as Block 7577 Lot 60 as shown on the Tax Map of the City of New York, County of Kings.

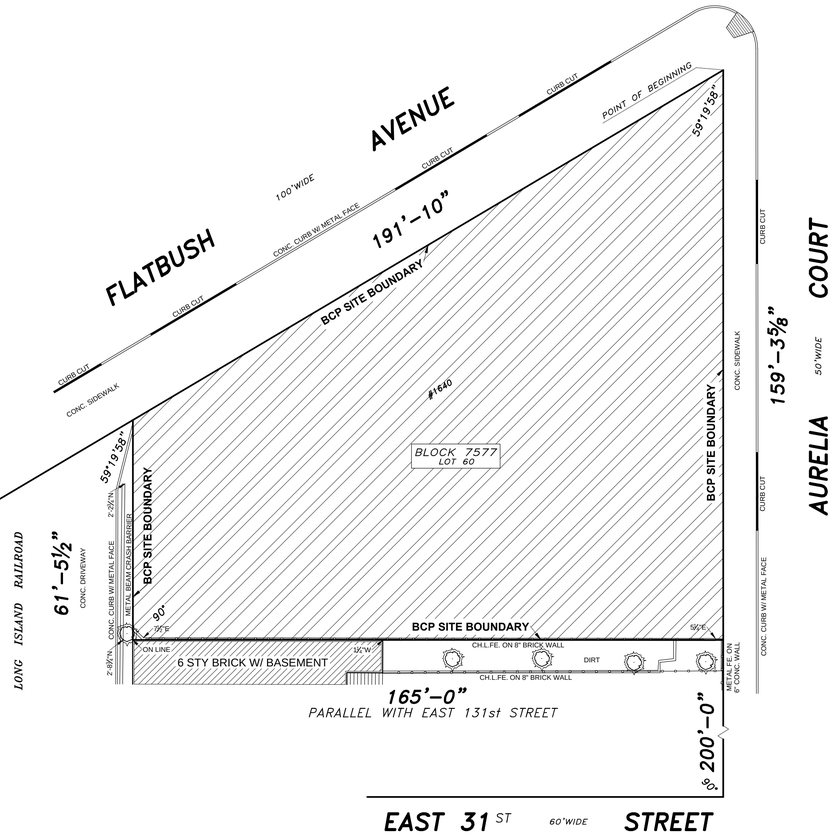
Being the same premises described in the deed to the grantor from Stath Realty Corp., by deed dated as of3/26/2015 and recorded 4/16/2015 as CRFN 2015000127191.

Containing approximately 0.418 acres more or less.

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

JOB NO. B 7577-60-ENVI
SURVEYED ON: MAY 12, 2021



SCALE 1"=20'

SYMBOLS AND ABBREVIATIONS

FENCE	CH.L.FE. / WOOD FE.
UTILITY POLE	U.P.
PARKING METER	P.M.
OIL FILL	O.F.
MONITORING WELL	M.W.
TRAFFIC LIGHT	T.L.
LIGHT	
STREET LIGHT	L.P.
FIRE HYDRANT	HYD.
SIAMESE CONNECTION	SPR.
SHUT OFF VALVE	G.V. / G.V. / W.V. / W.V.
HANDICAPPED PARKING	
EXISTING TREE	ø1.2"
DRAINS	DR. / DR.
ROOF OVER	R.O.
EXISTING ELEVATIONS	×43.15 TOP OF CURB ×42.93 BOTTOM OF CURB / ×43.78
CITY ESTABLISHED GRADES	L.G.7.52
CURB AND CURB CUT	CURB CUT
OVERHEAD SERVICE	OH.S.W.
CABLE TV MANHOLE	CTV
MANHOLES	M / E / T / W / S RIM EL. INV.EL.
CATCH BASIN	C.B.
FIRE ESCAPE	F.E.
PLATFORM	PL. or PLTF.
BASEMENT ENTRANCE	B.E.
CELLAR ENTRANCE	C.E.
AIR WAY	A.W.
BAY WINDOW	B.W.
CONCRETE	CONC.
OVERHANG	O.H.
AIR CONDITION	AC
METAL	MET.
NORTH OF PROPERTY LINE	N
SOUTH OF PROPERTY LINE	S
EAST OF PROPERTY LINE	E
WEST OF PROPERTY LINE	W

GENERAL NOTES

SUBSURFACE UTILITIES ARE NOT GUARANTEED BY SURVEYOR. HIGH CAUTION RECOMMENDED AND VERIFICATION WITH PROPER CITY AGENCIES, IS MANDATORY BEFORE COMMENCING ALL NEW WORK.

ALL SUBSURFACE AND OVERHEAD UTILITIES (AS TO SIZE , TYPE AND DEPTH) SHOWN ON THIS SURVEY ARE TAKEN FROM RECORDS OF GOVERNMENTAL AGENCIES AND UTILITY COMPANIES, UNLESS OTHERWISE NOTED AND SHOWN.

COVER OR DEPTH OF UTILITIES WHICH DERIVED FROM FIELD MEASUREMENTS SHOWN ON THIS SURVEY SHOULD BE VERIFIED WITH PROPER AGENCY PRIOR TO CONSTRUCTION OF PROJECT. INVERT ELEVATIONS ARE DERIVED FROM CITY AGENCY RECORDS WHEN NOT AVAILABLE BY FIELD SURVEY AND NOTED AS "PER RECORD" ON THE SURVEY.

ALL SUBSURFACE UTILITY AS TO LOCATION AND DEPTH, SHOULD BE RECHECKED AND LEGAL GRADES SHOULD BE VERIFIED WITH THE TOPOGRAPHICAL BUREAU, PREFERABLY IN WRITING BEFORE COMMENCING CONSTRUCTION.

THIS IS TO CERTIFY THAT THERE ARE NO STREAMS OR NATURAL WATER COURSES ON THE SURVEYED PROPERTY EXCEPT AS SHOWN AND/OR DESCRIBED ON THIS SURVEY.

ALL OPERATIONS OF UNDERGROUND FACILITIES AND ALL EXCAVATORS ARE OBLIGATED TO COMPLY WITH ARTICLE 36 OF THE GENERAL BUSINESS LAW AND WITH PROVISIONS OF INDUSTRIAL CODE PART (RULE NO.35) BEFORE ANY EXCAVATION OR DEMOLITION IS COMMENCED. EVERY EXCAVATOR IS REQUIRED BY THESE LAWS TO GIVE ADVANCE NOTICE TO EVERY OPERATOR OF UNDERGROUND FACILITIES OF HIS INTENT TO PERFORM EXCAVATION OR DEMOLITION WORK IN THE SPECIFIED AREA

ALL ELEVATIONS SHOWN REFER TO THE **NAVD 1988** DATUM. TO OBTAIN:
- NGVD 1929 DATUM - ADD 1.098 FEET
- BROOKLYN BOROUGH DATUM - SUBTRACT 1.447 FEET

EASEMENTS IF ANY ARE NOT SHOWN ON THIS SURVEY. NO INFORMATION PROVIDED TO SURVEYOR AT THIS TIME.

UNDERGROUND UTILITIES NOTES

UNDERGROUND, OVERHEAD AND GROUND LEVEL UTILITIES ARE NOT GUARANTEED AS TO ACCURACY, EXACT LOCATION, TYPE OR USE, ACTIVE OR INACTIVE. VERIFICATION IS MANDATORY WITH MUNICIPAL AGENCIES, PUBLIC AND PRIVATE UTILITY COMPANIES PRIOR TO TAKING TITLE AND OR DESIGN WORK. BOUNDARIES ARE NOT GUARANTEED UNLESS SO NOTED.

PROFESSIONAL LAND SURVEYOR
RICHARD TOM
N.Y.S. L.L.S. 049844
8629 BAY PARKWAY, UNIT CFU
BROOKLYN, NY 11214
TEL. 718-474-7700

GUARANTEED TO:
KEY DEVELOPERS INC.

COUNTY: KINGS CITY: BROOKLYN, NY 11210
SECTION: BLOCK: 7577 LOT(S): 60
PROPERTY ADDRESS: 1640 FLATBUSH AVENUE

ENVIRONMENTAL EASEMENT SURVEY

PREPARED BY

PERFECT POINT
LAND SURVEYING RT
brooklyn - queens - manhattan - bronx
staten island - nassau
phone: (718) 474-7700
fax: (718) 872-9699
info@ppsurveying.com
www.ppsurveying.com

DATE: MAY 12, 2021

N.Y.S. L.L.S. 049844

– *ENVIRONMENTAL EASEMENT*

LOT AREA = 18212.99 sq.ft. = 0.418 acre

GRAPHIC SCALE
ALL WRITTEN MEASUREMENTS AND OFFSETS NOTED ON THIS SURVEY SUPERSEDE MEASUREMENTS SCALED OF THIS PLOT.
SCALE 1:20
3.05 m 6.10 m 9.14 m 12.20 m 15.24 m 30.48 meters
0 5 f 10 f 15 f 20 f 25 f 30 f 35 f 40 f 45 f 50 f 100 feet

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

LEGAL DESCRIPTION
BLOCK 7577, LOT 60

ALL THAT CERTAIN plot, piece or parcel of land, situate. lying and being in the Borough of Brooklyn, county of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point at the corner formed by the intersection of the northerly line of Aurelia Court and the westerly line of Flatbush Avenue;

RUNNING THENCE northwesterly, along the westerly line of Flatbush Avenue, 191.82 feet (deed) and 191 feet 10 inches (survey) to a point on the southerly line of land now formerly of the Long Island Railroad and being the southerly lie of tax lot 56 on the Tax Map of the City of New York for the County of Kings;

THENCE westerly along the southerly line of land now or formerly of the Long Island Railroad, and being the division line between the southerly line of tax lot 56 and the northerly line of tax lot 60 on the Tax Map of the City of New York for the County of Kings, which division line is per correction deed in CRFN# 2005000276268 filed in the Kings County Register's Office, 58.78 feet (deed) and 61 feet 5.5 inches (survey) to a point;

THENCE southerly at right angles to the last mentioned course and parallel with the easterly side of East 31st Street 165 feet to the northerly side of Aurelia Court;

THENCE easterly along the northerly line of Aurelia Court, 159.30 feet (deed) and 159 feet 3⅝ inches (survey) to the point or place of **BEGINNING.**

For Information Only: Said premises are known as 1636-1652 Flatbush Avenue a/k/a 3210-3211 Aurelia Court, Brooklyn, NY and designated as Block 7577 Lot 60 as shown on the Tax Map of the City of New York, County of Kings.

Being the same premises described in the deed to the grantor from Stath Realty Corp., by deed dated as of 3/26/2015 and recorded 4/16/2015 as CRFN 2015000127191

APPENDIX 4 – MONITORING WELL AND SOIL BORING CONSTRUCTION LOGS

WCD GROUP For pivotal matters.™	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-1 Page 1 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 26-27' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	30 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/3/2017	End Date:	11/3/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
1	0	40"			0.0	0-6" : Asphalt 6-28" : Dark brown; medium to fine sand, some coarse gravel; dry, N/S, N/O 28-40" : Brown, medium to fine sand; dry, N/S, N/O Selected Soil Sample: SB-1 (3-4' bgs)
	1				0.0	
	2				0.0	
	3				0.0	
	4				0.0	
2	5	35"			0.0	0-12" : Brown, medium to fine sand, some fine gravel; dry, N/S, N/O 12-35" : Brown-Dark Brown, medium to fine sand; dry, N/S, N/O
	6				0.0	
	7				0.0	
	8				0.0	
	9				0.0	
3	10	40"			0.0	0-9" : Brown, medium to fine sand; dry, N/S, N/O 9-20" : Brown, medium to fine sand, some fine gravel; dry, N/S. N/O 20-40" : Brown, medium to fine sand; dry, N/S, N/O
	11				0.0	
	12				0.0	
	13				0.0	
	14				0.0	
4	15	47"			0.0	0-47" : SAA
	16				0.0	
	17				0.0	
	18				0.0	
	19				0.0	

Notes:

NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP For pivotal matters.™	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-1 Page 2 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 26-27' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	30 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/3/2017	End Date:	11/3/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
5	20	50"		▼	0.0	0-50" : SAA
	21				0.0	Selected Soil Sample: SB-1 (26-27' bgs)
	22				0.0	
	23				0.0	
	24				0.0	

Notes:
NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP For pivotal matters.™	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-2 Page 1 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
1	0	42"			0.0	0-8" : Asphalt 8-18" : Brown; medium to coarse sand, some fine gravel and asphalt; dry, N/S, N/O 18-42" : Dark Brown, medium to fine sand, some silt and fine gravel; dry, N/S, N/O Selected Soil Sample: SB-2 (3-4' bgs)
	1				0.0	
	2				0.0	
	3				0.0	
	4				0.0	
2	5	48"			0.0	0-30" : SAA 30-48" : Brown, medium to coarse sand, some fine gravel; dry, N/S, N/O
	6				0.0	
	7				0.0	
	8				0.0	
	9				0.0	
3	10	50"			0.0	0-24" : Brown, medium to fine sand, some fine gravel; dry, N/S, N/O 24-50" : Brown, medium to coarse sand, some fine gravel; dry, N/S. N/O
	11				0.0	
	12				0.0	
	13				0.0	
	14				0.0	
4	15	50"			0.0	0-50" : SAA
	16				0.0	
	17				0.0	
	18				0.0	
	19				0.0	

Notes:

NR - Not Recorded	f - fine	and - 36 to 50 %
N/O - No Odor	c - coarse	some - 21 to 35 %
N/S - No Staining		little - 11 to 20 %
BGS - below grade surface		trace - 1 to 10 %
SAA - Same as above		

WCD GROUP "For pivotal matters."	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-2 Page 2 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
5	20	50"			0.0	0-50" : SAA
	21				0.0	
	22				0.0	Selected Soil Sample: SB-2 (24-25' bgs)
	23				0.0	
	24			▼	0.0	

Notes:
NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP
For pivotal matters.
1350 Broadway, Suite 1904
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P: 212.631.9000
F: 212.631.8066

SOIL BORING LOG

Soil Boring ID: SB-3

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	2-3' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
1	0	36"			0.5	0-12" : Asphalt 12-16" : Brown; medium to coarse sand, coarse gravel,brick and concrete; dry, N/S, 16-36" : Brown, medium to coarse sand, some fine gravel and clay; dry, N/S, N/O
	1				0.0	
	2				0.0	
	3				0.0	
	4				0.0	Selected Soil Sample: SB-3 (2-3' bgs)
2	5	24"			0.0	0-8" : Brown and black, coarse sand, with fine gravel; dry, N/S, N/O 8-24" : Brown, coarse sand, some fine gravel and clay; dry, N/S, N/O
	6				0.0	
	7				0.0	
	8				0.0	
	9				0.0	
3	10	42"			0.0	0-42" : Brown, coarse sand, some fine gravel and cobble; dry, N/S, N/O
	11				0.0	
	12				0.0	
	13				0.0	
	14				0.0	
4	15	46"			0.0	0-46" : SAA
	16				0.0	
	17				0.0	
	18				0.0	
	19				0.0	

Notes:
NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP "For pivotal matters."	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-3 Page 2 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
5	20	46"			0.0	0-46" : SAA
	21				0.0	
	22				0.0	Selected Soil Sample: SB-3 (24-25' bgs)
	23				0.0	
	24			▼	0.0	

Notes:
NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP For pivotal matters.™	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-4 Page 1 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
1	0	48"			0.0	0-12" : Asphalt 12-22" : Brown; medium to coarse sand, coarse gravel and some cobble; dry, N/S, N/O 22-48" : Brown-Dark Brown, medium to fine sand, some fine gravel and clay; dry, N/S, N/O Selected Soil Sample: SB-4 (3-4' bgs)
	1				0.0	
	2				0.0	
	3				0.0	
	4				0.0	
2	5	60"			0.0	0-6" : SAA 6-18" : Brown, medium to coarse sand, some cobble; dry, N/S, N/O 18-24" : Brown, medium to fine sand, some fine gravel and clay; dry, N/S, N/O 24-60" : Brown, medium to coarse sand, fine grave, some cobble; dry, N/S, N/O
	6				0.0	
	7				0.0	
	8				0.0	
	9				0.0	
3	10	48"			0.0	0-48" : SAA
	11				0.0	
	12				0.0	
	13				0.0	
	14				0.0	
4	15	50"			0.0	0-50" : SAA
	16				0.0	
	17				0.0	
	18				0.0	
	19				0.0	

Notes:

NR - Not Recorded	f - fine	and - 36 to 50 %
N/O - No Odor	c - coarse	some - 21 to 35 %
N/S - No Staining		little - 11 to 20 %
BGS - below grade surface		trace - 1 to 10 %
SAA - Same as above		

WCD GROUP "For pivotal matters."	1350 Broadway, Suite 1904 New York, NY 10018 P: 212.631.9000 F: 212.631.8066	SOIL BORING LOG	Soil Boring ID: SB-4 Page 2 of 2

Job Name/Client:	SL Green Realty Corporation	Project Number:	16-9335
Project Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-4' bgs and 24-25' bgs
Drilling Subcontractor:	ADT	Inspector:	A. DeGrandis
Drill Rig:	Geoprobe 6610DT	Total Depth:	25 feet bgs
Sample Type:	Macrocore 2" x 60"	Water Level:	
Start Date:	11/2/2017	End Date:	11/2/2017

Sample Number	Depth (feet BGS)	Sample Recovery (inches)	Blow Count per 6"	WATER	Screening Results (ppm)	Description of Soil
5	20	50"			0.0	0-50" : SAA
	21				0.0	
	22				0.0	Selected Soil Sample: SB-4 (24-25' bgs)
	23				0.0	
	24			▼	0.0	

Notes:

NR - Not Recorded
N/O - No Odor
N/S - No Staining
BGS - below grade surface
SAA - Same as above

f - fine
c - coarse

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

WCD GROUP
For pivotal matters.
1350 Broadway, Suite 1904,
New York, NY 10018
P: 212.631.9000
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SOIL BORING LOG

Boring ID: SB-1

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1' bgs, 10-13' bgs, 34' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	35 feet
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	42"			0.0	0-1' Asphalt and crushed gravel N/O, N/S **Sample selected at 1' bgs**
	1 - 2				0.0	1-2' Historic fill; crushed brick, stone, clay, medium coarse sand N/O, N/S
	2 - 3				0.0	2-3' SAA, N/O, N/S
	3 - 4				0.0	3-5' SAA, dry, N/O, N/S
	4 - 5				0.0	
2	5 - 6	48"			0.0	5-6' Gravel, dark gray clay and silt N/O, N/S 6-7' Gravel mixed with clay N/O, N/S
	6 - 7				0.0	
	7 - 8				0.0	7-8' Brown clay, less gravel N/O, N/S
	8 - 9				0.0	8-10' Coarse sand, some gravel, yellow brown N/O, N/S
	9 - 10				0.0	
3	10 - 11	48"			0.0	10-13' Light brown coarse sand with silt, small pebbles N/O, N/S **Sample selected at 10-13' bgs**
	11 - 12				0.0	
	12 - 13				0.0	12-15' Very coarse sand with silt and clay dark brown to medium brown N/O, N/S
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	42"			0.0	15-20' Sand very coarse, brown, lighter than above, N/O, N/S
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
For pivotal matters.
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SOIL BORING LOG

Boring ID: SB-1

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1' bgs, 10-13' bgs, 34' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	35 feet
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	60"			0.0	20-25' Very coarse sand, yellow brown, moist, N/O, N/S
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	60"			0.0	25-30' SAA, N/O, N/S
	26 - 27				0.0	
	27 - 28				0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31	60"			0.0	30-34' SAA, N/O, N/S
	31 - 32				0.0	
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35			▼	0.0	**Sample selected at 34' bgs** 35' SAA, wet, N/O, N/S

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
For pivotal matters.
1350 Broadway, Suite 1904,
New York, NY 10018
P: 212.631.9000
F: 212.631.8066

SOIL BORING LOG

Boring ID: SB-2

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 10-13' bgs, 32-34 bgs'
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35'
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	35
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	34 ''			0.0	0-3' crushed concrete, N/O, N/S
	1 - 2				0.0	
	2 - 3				0.0	
	3 - 4				0.0	3-4' brown clay, some stone and gravel, wet, N/O, N/S 4-4.5' brown clay, wet N/O, N/S
	4 - 5				0.0	**Sample collected 3-5'** 4.5-5' brown clay, wet N/O, N/S
2	5 - 6	36''			0.0	5-7' small stone subbase, N/O, N/S
	6 - 7				0.0	
	7 - 8				0.0	7-10' medium to coarse sand mixed with some stone, N/O, N/S
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	27''			0.0	10-11' coarse sand mixed with stone, N/O, N/S **Sample collected 10-13'**
	11 - 12				0.0	11-15' very moist clay layer with sand mixed in, N/O, N/S
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	48''			0.0	15-16' stone mixed in sand, N/O, N/S
	16 - 17				0.0	16-20' light colored coarse sand, N/O, N/S
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
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F - fine
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SOIL BORING LOG

Boring ID: SB-2

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 10-13' bgs, 32-34 bgs'
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35'
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	35
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	58''			0.0	20-25' SAA plus some traces of stone, N/O, N/S
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	56"			0.0	25-30' SAA, no stone, N/O, N/S
	26 - 27				0.0	
	27 - 28				0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31	26"			0.0	30-35' SAA, coarse light brown sand, 30-31'- moist clay/sand mix, N/O, N/S
	31 - 32				0.0	**Sample collected 32-34'**
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35				0.0	
				▼		water table was not encountered

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
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SOIL BORING LOG

Boring ID: SB-3

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 10-13' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	30"			0.0	0-1' crushed concrete, N/O, N/S **Sample collected 1-3'**
	1 - 2				0.0	1-5' fill(coarse to medium sand, stones and pebbles) dry, N/O, N/S
	2 - 3				0.0	2-5' crushed gravel and red brick, N/O, N/S
	3 - 4				0.0	
	4 - 5				0.0	
2	5 - 6				0.0	5-10' N/R
	6 - 7				0.0	
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	26"			0.0	10-11' moist clay layer, medium to fine sand, trace pebbles, N/O, N/S, **Sample collected 10-13'**
	11 - 12				0.0	11-15' coarse to medium brown sand, some rocks, trace fines, trace pebbles, moist, N/S, N/O
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	56''			0.0	15-20' SAA
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-3

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 10-13' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	47"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	40"			0.0	25-30' SAA, soil began to get moist at 25'
	26 - 27				0.0	**Sample collected 26-28'**
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31					
	31 - 32					
	32 - 33					
	33 - 34					
	34 - 35					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-4

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs,10-13' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	22"			0.0	0-4' crushed concrete, N/O, N/S
	1 - 2				0.0	
	2 - 3				0.0	**Sample collected 3-5' bgs**
	3 - 4				0.0	
	4 - 5				0.0	4-5' moist clay layer, N/O, N/S
2	5 - 6	17"			0.0	5-10' clay layer, some crushed stone
	6 - 7				0.0	
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	19"			0.0	10-11' SAA **Sample collected 10-13 bgs**
	11 - 12				0.0	11-15' coarse sand with some stone
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	44"			0.0	15-20' coarse sand, no stone
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB4

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs,10-13' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	53"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	55"		▼	0.0	25-30' SAA, some stone
	26 - 27				0.0	**Sample collected 26-28 bgs**
	27 - 28				0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31				0.0	
	31 - 32				0.0	
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-5

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5 bgs, 10-13 bgs, 26-28 bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	46''			0.0	0-2.5' crushed concrete
	1 - 2				0.0	
	2 - 3				0.0	2.5-5' brown clay layer with some stone,
	3 - 4				0.0	**Sample collected at 3-5' bgs, duplicate VOC sample collected 4'**
	4 - 5				0.0	
2	5 - 6	37"			0.0	5-10' sandy clay with some gravel
	6 - 7				0.0	
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	32"			0.0	10-15 mostly coarse brown sand, some gravel **Sample collected at 10-13 bgs**
	11 - 12				0.0	
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	52"			0.0	15-20 SAA, less gravel
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-5

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5 bgs, 10-13 bgs, 26-28 bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	42"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	44"			0.0	25-30' moist, SAA,
	26 - 27				0.0	**Sample collected 26-28, duplicate sample taken for PFAS**
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31					
	31 - 32					
	32 - 33					
	33 - 34					
	34 - 35					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-6

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 10-15' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	32 "			0.0	0-2.5' crushed concrete, N/O, N/S
	1 - 2				0.0	
	2 - 3				0.0	2.5-5' brown clay with some stone, N/O, N/S
	3 - 4				0.0	**Sample collected 3-5', matrix spike and matrix spike duplicate collected**
	4 - 5				0.0	
2	5 - 6	32"			0.0	5-6' crushed stone
	6 - 7				0.0	6-10' brown clay with some crushed stone
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	25"			0.0	10-12' brown clay, N/O, N/S **Sample collected at 10-15' bgs**
	11 - 12				0.0	
	12 - 13				0.0	12-15' brown coarse sand, N/O, N/S
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	42"			0.0	15-20' brown coarse sand, no stone, N/O, N/S
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
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SOIL BORING LOG

Boring ID: SB-6

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 10-15' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	45"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	34"			0.0	25-30' SAA **Sample collected at 26-28' bgs**
	26 - 27				0.0	
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31				0.0	
	31 - 32				0.0	
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-7

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 13-15' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	33"			0.0	0-2' crushed concrete, N/O, N/S
	1 - 2				0.0	
	2 - 3				0.0	2-3' light yellow sand over clay, N/O, N/S
	3 - 4				0.0	3-5' clay and crushed stone, N/O, N/S **Sample collected at 3-5' bgs**
	4 - 5				0.0	
2	5 - 6	36 "			0.0	5-6' crushed stone and clay, N/O, N/S
	6 - 7				0.0	6-9' brown clay, no stone, N/O, N/S
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	9-10' coarse sand and clay mix, N/O, N/S
3	10 - 11	49"			0.0	10-12' coarse sand and gravel, quantity of gravel increases going down the sample, N/O, N/S
	11 - 12				0.0	
	12 - 13				0.0	13-15' crushed concrete, brick, sand mix, N/O, N/S
	13 - 14				0.0	**Sample collected at 13-15' bgs**
	14 - 15				0.0	
4	15 - 16	29"			0.0	15-20 coarse brown sand, N/O, N/S
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-7

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	3-5' bgs, 13-15' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	39"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	24"			0.0	25-30' SAA, sand is moist
	26 - 27				0.0	**Sample collected at 26-28' bgs**
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31					
	31 - 32					
	32 - 33					
	33 - 34					
	34 - 35					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-8

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 8-10' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	34 "			0.0	0-1' crushed stone, N/O, N/S
	1 - 2				0.0	1-3' sand overlaying clay, NO, NS **Sample collected at 1-3 bgs**
	2 - 3				0.0	
	3 - 4				0.0	3-5' some crushed stone in clay layer, N/O,N/S
	4 - 5				0.0	
2	5 - 6	37"			0.0	
	6 - 7				0.0	6-7' crushed stone, N/O,N/S
	7 - 8				0.0	7-8' brown clay layer, N/O, N/S
	8 - 9				384.0	8-10' clay sand mix, petroleum odor, soil is very dark, VOC spike **Sample is collected 8-10'**
	9 - 10				0.0	
3	10 - 11	45"			36.0	10-12' clay and stone mix, petroleum odor, N/S
	11 - 12				36.0	
	12 - 13				0.0	12-15' brown coarse sand, N/O, N/S
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	46"			0.0	15-20' coarse sand
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-8

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 8-10' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD IN/Spector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	41"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	54"			1711.0	25-26' coarse sand, some odor, N/S
	26 - 27				1711.0	26-27' coarse sand with some crushed stone, N/S, slight petroleum odor **Sample collected at 26-28' bgs**
	27 - 28			▼	1711.0	27-28' brown coarse sand
	28 - 29				1711.0	28-30' black sand, strong petroleum odor
	29 - 30				1711.0	
7	30 - 31					
	31 - 32					
	32 - 33					
	33 - 34					
	34 - 35					

N/Otes:

NR - N/O Recovery
N/O - N/O Odor
N/S - N/O Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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New York, NY 10018
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SOIL BORING LOG

Boring ID: SB-9

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3 bgs, 6-8 bgs, 26-28 bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	37 "			0.0	0-1' crushed concrete, N/O, N/S **Sample collected at 1-3 bgs**
	1 - 2				0.0	1-1.5' yellow sand, N/O, N/S 1.5-4' brown clay layer with some stone, N/O, N/S
	2 - 3				0.0	
	3 - 4				0.0	
	4 - 5				0.0	4-5' crushed concrete and clay mix, N/O, N/S
2	5 - 6	36 "			0.0	5-6' crushed stone (probably subbase for fuel line) and clay mix, N/O, N/S
	6 - 7				0.0	6-8' brown clay and stone, N/O, N/S **Sample collected at 6-8' bgs**
	7 - 8				0.0	
	8 - 9				0.0	8-10' very light brown/yellow clay over sand, N/O, N/S
	9 - 10				0.0	
3	10 - 11	51"			0.0	10-15' coarse brown sand, N/O, N/S
	11 - 12				0.0	
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	43"			0.0	15-20' SAA
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-9

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3 bgs, 6-8 bgs, 26-28 bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	38"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	37"			0.0	25-30' SAA, moist sand
	26 - 27				0.0	**Sample collected at 26-28' bgs**
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31				0.0	
	31 - 32				0.0	
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35				0.0	
					0.0	
					0.0	
					0.0	
					0.0	
					0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

S

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212.631.8066

SOIL BORING LOG

Boring ID: SB-10

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 6-8' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	26"			0.0	0-2' crushed concrete, N/O, N/S
	1 - 2				0.0	**Sample collected at 1-3' bgs**
	2 - 3				0.0	2-5' brown clay and stone mix, N/O, N/S
	3 - 4				0.0	
	4 - 5				0.0	
2	5 - 6	47"			0.0	5-6' crushed stone (subbase), N/O, N/S
	6 - 7				0.0	6-10' reddish brown clay, N/O, N/S **Sample collected at 6-8' bgs**
	7 - 8				0.0	
	8 - 9				0.0	
	9 - 10				0.0	
3	10 - 11	22"			0.0	10-15' red clay, sand and fine crushed stone mix, N/O, N/S
	11 - 12				0.0	
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	11"			0.0	15-20' SAA
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

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M - medium
C - coarse

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SOIL BORING LOG

Boring ID: SB-10

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	1-3' bgs, 6-8' bgs, 26-28' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	30 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	28 feet
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	41"			0.0	20-25' SAA
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	17"			0.0	25-30' SAA, moist sand
	26 - 27				0.0	**Sample collected at 26-28' bgs**
	27 - 28			▼	0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31					
	31 - 32					
	32 - 33					
	33 - 34					
	34 - 35					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

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C - coarse

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SOIL BORING LOG

Boring ID: SB-11

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	4-5' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	
Start Date:	3/22/2019	Boring End Date:	3/22/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	34 "			0.0	0-1' crushed stone, N/O, N/S
	1 - 2				0.0	
	2 - 3				0.0	2-4' muddy sand, N/S, N/O
	3 - 4				365.0	
	4 - 5				365.0	4-5' black sand, strong odor, N/S, **Sample collected at 4-5' bgs**
2	5 - 6					
	6 - 7					
	7 - 8					
	8 - 9					
	9 - 10					
3	10 - 11					
	11 - 12					
	12 - 13					
	13 - 14					
	14 - 15					
4	15 - 16					
	16 - 17					
	17 - 18					
	18 - 19					
	19 - 20					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

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SOIL BORING LOG

Boring ID: MW-5

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	0.5-2' bgs, 6-8' bgs, 40' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
1	0 - 1	31 "			0.0	0-1' asphalt top layer, N/O, N/S **sample collected at 0.5-2' bgs**
	1 - 2				0.0	1-2' coarse yellow sand, N/O, N/S
	2 - 3				0.0	2-3' sandy clay with trace stones, N/O, N/S
	3 - 4				0.0	
	4 - 5				0.0	4-5' sandy clay with less stone than above, N/O, N/S
2	5 - 6	48 "			0.0	5-6' SAA
	6 - 7				0.0	6-8' light brown clay, N/O, N/S **Sample collected at 6-8' bgs**
	7 - 8				0.0	
	8 - 9				0.0	8-9' sand with some clay and some stone, stone is gravel size, N/O, N/S
	9 - 10				0.0	9-10' sand with some stone, N/O, N/S
3	10 - 11	50 "			0.0	10-15' coarse yellow sand with some stone, N/O, N/S
	11 - 12				0.0	
	12 - 13				0.0	
	13 - 14				0.0	
	14 - 15				0.0	
4	15 - 16	48 "			0.0	15-20' SAA, less stone, N/S, N/O
	16 - 17				0.0	
	17 - 18				0.0	
	18 - 19				0.0	
	19 - 20				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
For pivotal matters.
1350 Broadway, Suite 1904,
New York, NY 10018
P: 212.631.9000 F: 212.631.8066

SOIL BORING LOG

Boring ID: MW-5

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	0.5-2' bgs, 6-8' bgs, 40' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
5	20 - 21	48 "			0.0	20-25' SAA, no stone, N/O, N/S, uniform light brown coarse sand
	21 - 22				0.0	
	22 - 23				0.0	
	23 - 24				0.0	
	24 - 25				0.0	
6	25 - 26	60 "			0.0	25-30' SAA, N/O, N/S
	26 - 27				0.0	
	27 - 28				0.0	
	28 - 29				0.0	
	29 - 30				0.0	
7	30 - 31	60"			0.0	30-35' SAA
	31 - 32				0.0	
	32 - 33				0.0	
	33 - 34				0.0	
	34 - 35				0.0	
8	35-36	60 "				35-40' SAA
	36-37					
	37-38					
	38-39					
	39-40					

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP
For pivotal matters.
1350 Broadway, Suite 1904,
New York, NY 10018
P: 212.631.9000 F: 212.631.8066

SOIL BORING LOG

Boring ID: MW-5

Project Name:	SL Green Realty Corporation	Project Number:	16-9335
Address:	1640 Flatbush Avenue, Brooklyn, NY	Sample Elevation:	0.5-2' bgs, 6-8' bgs, 40' bgs
Driller (Sub):	AARCO	WCD Inspector:	TJ Motley
Drill Rig:	Geoprobe 7822DT	Depth of Boring:	35 feet
Sample Type:	Macrocore 2" x 60" and Dualcore 1" x 60"	Water Level:	
Start Date:	3/19/2019	Boring End Date:	3/19/2019

Sleeve #	Depth (ft bgs)	Recovery (%)	VOC Grab Location	WATER	PID Screening Results	Description of Soil
9	40-41	60 "			0.0	40-45' SAA, moist, trace quarter sized stones, N/O, N/S, **sample collected at 40' bgs**
	41-42				0.0	
	42-43				0.0	
	43-44				0.0	
	44-45				0.0	

Notes:

NR - No Recovery
N/O - No Odor
N/S - No Staining

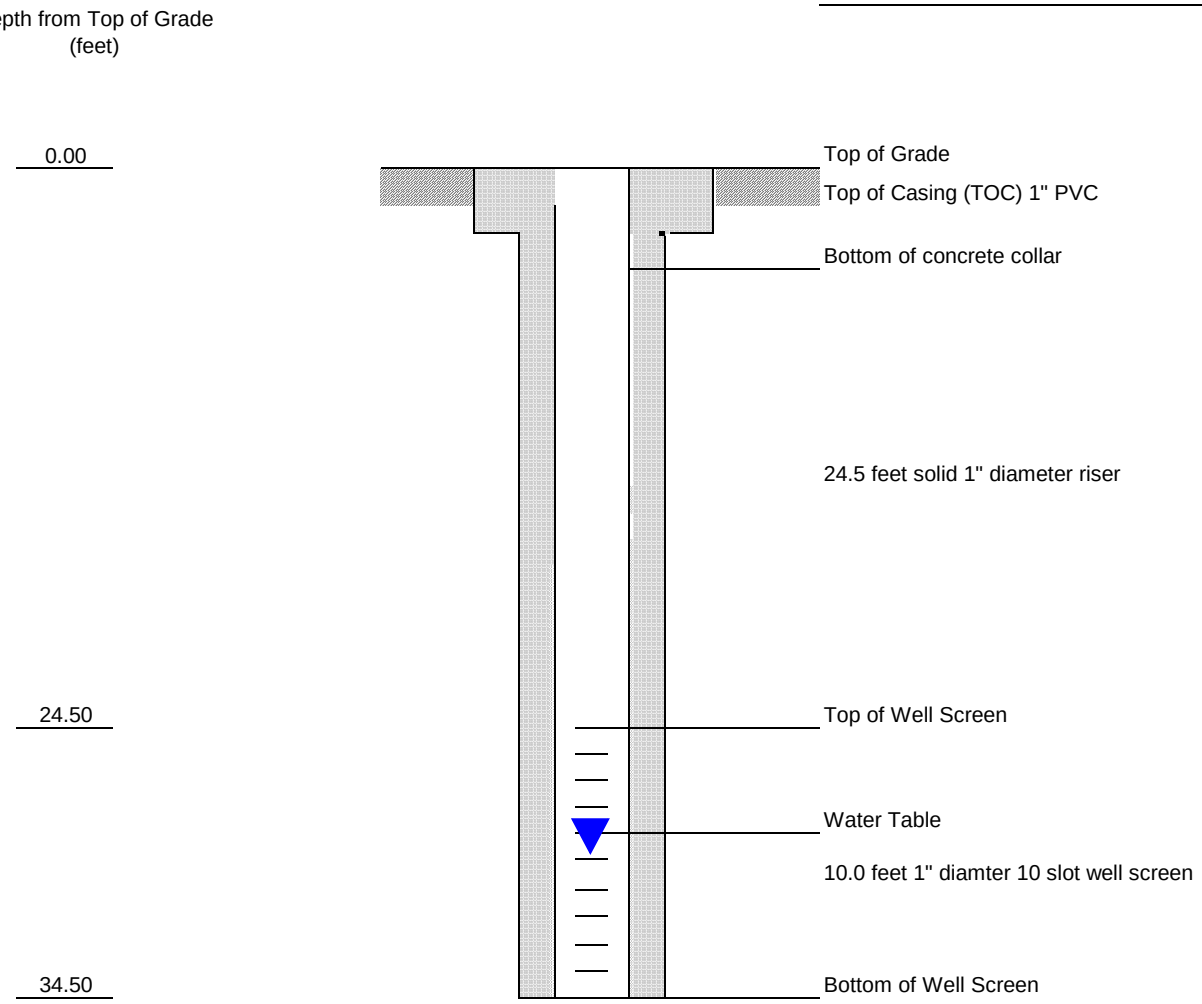
BGS - below grade surface
SAA - Same as above

and - 36 to 50 %
some - 21 to 35 %
little - 11 to 20 %
trace - 1 to 10 %

F - fine
M - medium
C - coarse

WCD GROUP *For pivotal matters.™*	WCD Group 1350 Broadway New York, NY 10018 Phone: 212-631-9000	**WELL INSTALLATION LOG**	**WELL: MW-1** **SHEET 1 OF 1**

JOB NAME:	1640 Flatbush	DRILLING METHOD:	Direct push Geoprobe
ADDRESS:	1640 Flatbush Ave	DRILLER:	ADT
	Brooklyn, NY	INSTALLATION DATE:	11/3/2017
ELEVATION[1]:	NA	DEVELOPMENT DATE:	11/3/2017
INSPECTOR:	AD	DEPTH TO WATER[2]:	28.33
		PRODUCT THICKNESS:	ND



Not to Scale

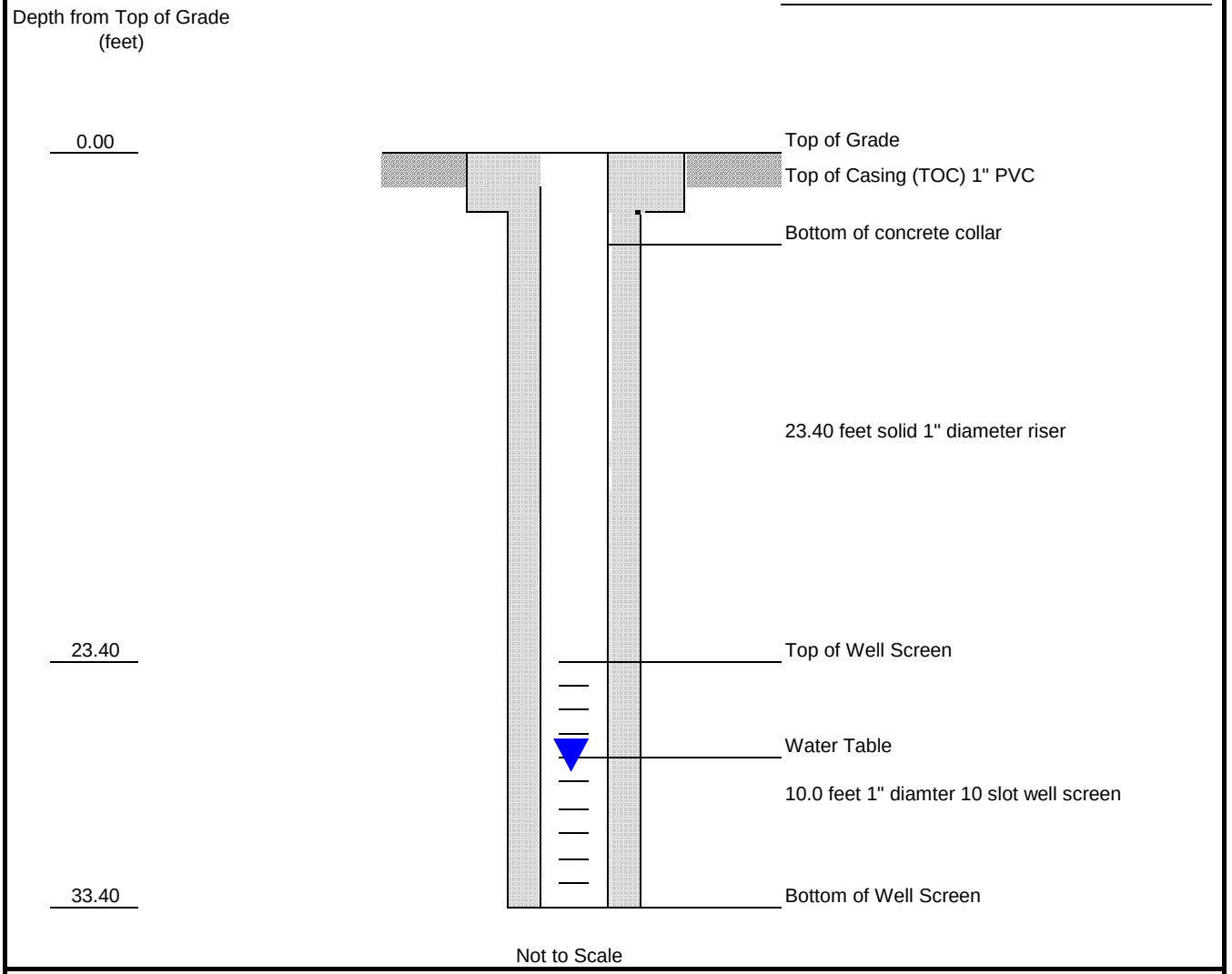
Notes:

[1]Feet above sea level

[2]Feet below top of riser

WCD GROUP *For pivotal matters.™*	WCD Group 1350 Broadway New York, NY 10018 Phone: 212-631-9000	**WELL INSTALLATION LOG**	**WELL: MW-2** **SHEET 1 OF 1**

JOB NAME:	1640 Flatbush	DRILLING METHOD:	Direct push Geoprobe
ADDRESS:	1640 Flatbush Ave	DRILLER:	ADT
	Brooklyn, NY	INSTALLATION DATE:	11/3/2017
ELEVATION[1]:	NA	DEVELOPMENT DATE:	11/3/2017
INSPECTOR:	AD	DEPTH TO WATER[2]:	27.6
		PRODUCT THICKNESS:	ND



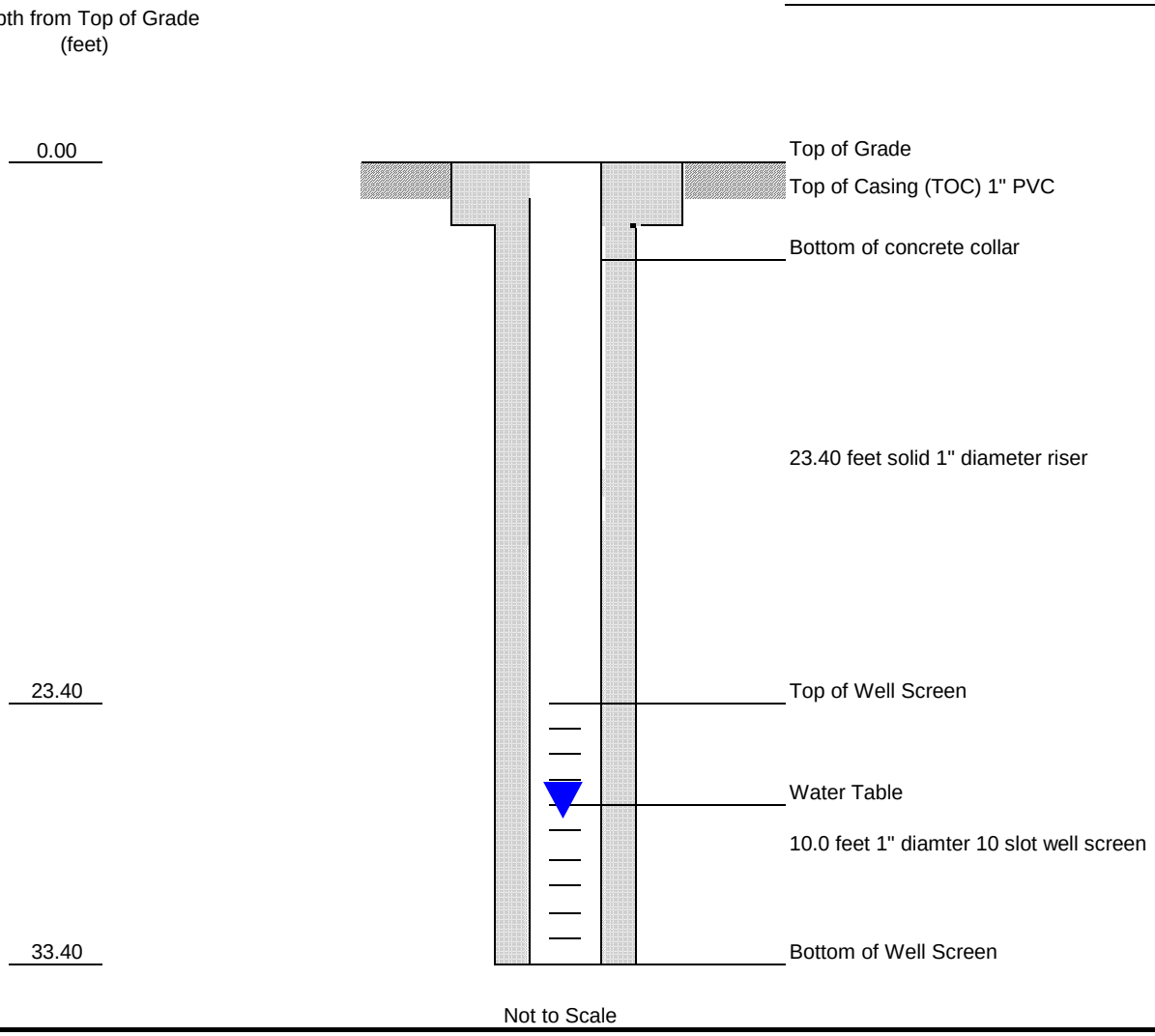
Not to Scale

Notes:

[1]Feet above sea level
[2]Feet below top of riser

WCD GROUP *For pivotal matters.™*	WCD Group 1350 Broadway New York, NY 10018 Phone: 212-631-9000	**WELL INSTALLATION LOG**	**WELL: MW-3** **SHEET 1 OF 1**

JOB NAME:	1640 Flatbush	DRILLING METHOD:	Direct push Geoprobe
ADDRESS:	1640 Flatbush Ave	DRILLER:	ADT
	Brooklyn, NY	INSTALLATION DATE:	11/3/2017
ELEVATION[1]:	NA	DEVELOPMENT DATE:	11/3/2017
INSPECTOR:	AD	DEPTH TO WATER[2]:	26.2
		PRODUCT THICKNESS:	ND



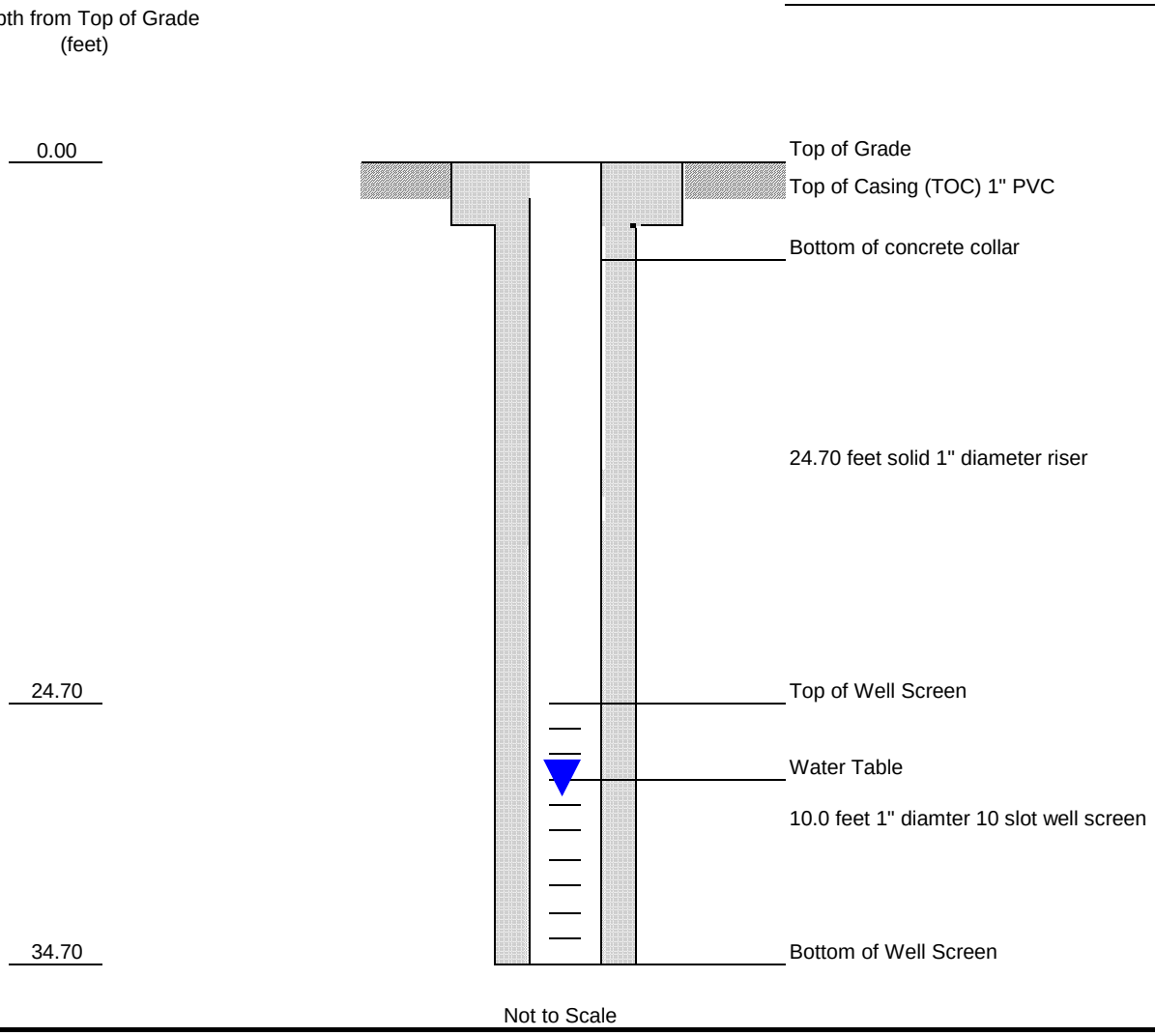
Not to Scale

Notes:

[1]Feet above sea level
[2]Feet below top of riser

WCD GROUP *For pivotal matters.™*	WCD Group 1350 Broadway New York, NY 10018 Phone: 212-631-9000	**WELL INSTALLATION LOG**	**WELL: MW-4** **SHEET 1 OF 1**

JOB NAME:	1640 Flatbush	DRILLING METHOD:	Direct push Geoprobe
ADDRESS:	1640 Flatbush Ave	DRILLER:	ADT
	Brooklyn, NY	INSTALLATION DATE:	11/3/2017
ELEVATION[1]:	NA	DEVELOPMENT DATE:	11/3/2017
INSPECTOR:	AD	DEPTH TO WATER[2]:	28.4
		PRODUCT THICKNESS:	ND



Not to Scale

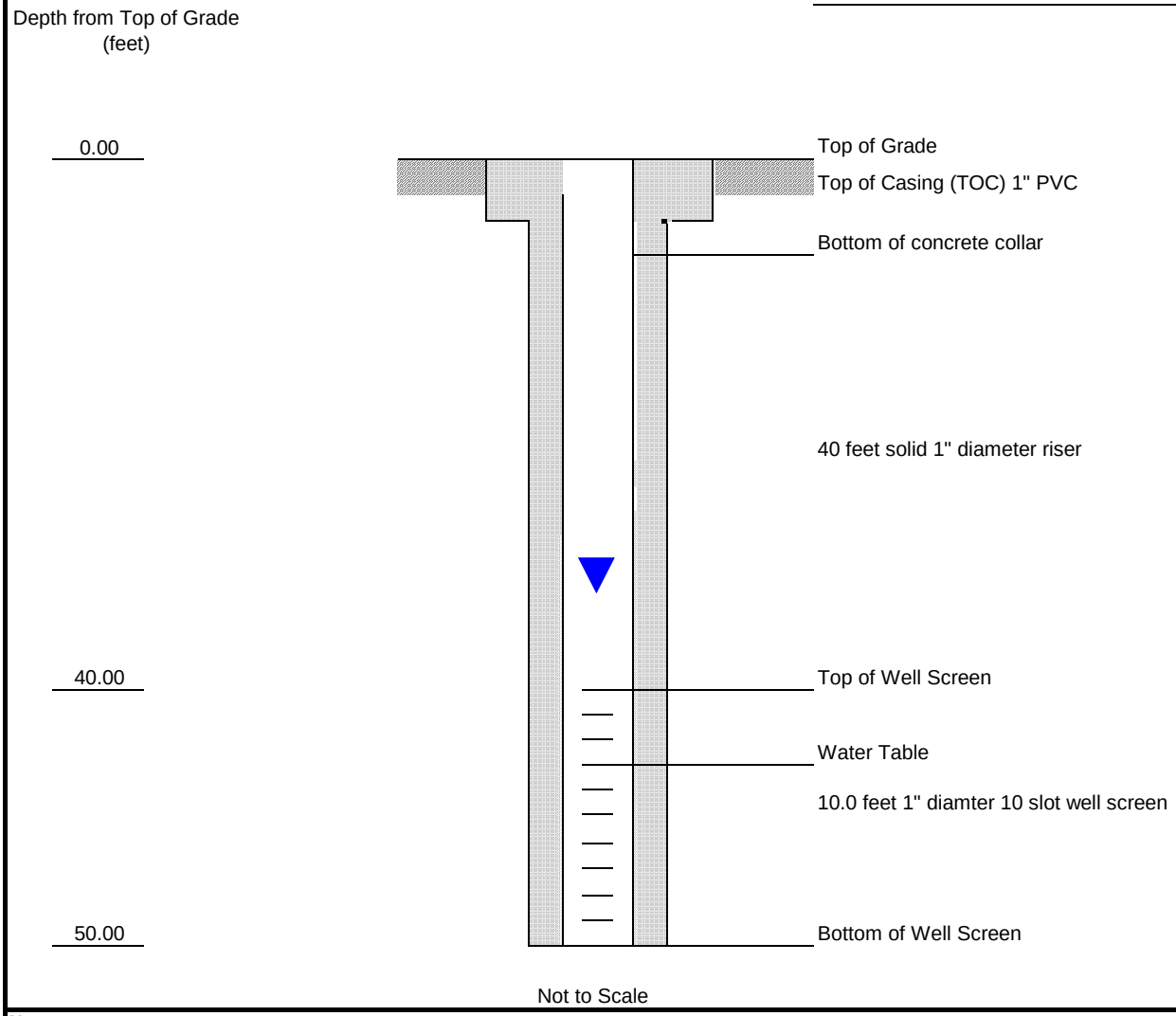
Notes:

[1]Feet above sea level

[2]Feet below top of riser

WCD GROUP *For pivotal matters.*	WCD Group 1350 Broadway New York, NY 10018 Phone: 212-631-9000	**WELL INSTALLATION LOG**	**WELL: MW-5** **SHEET 1 OF 1**

JOB NAME:	1640 Flatbush	DRILLING METHOD:	Direct push Geoprobe
ADDRESS:	1640 Flatbush Ave	DRILLER:	AARCO
	Brooklyn, NY	INSTALLATION DATE:	3/19/2019
ELEVATION[1]:	NA	DEVELOPMENT DATE:	3/19/2019
INSPECTOR:	TJM	DEPTH TO WATER[2]:	27.73 (Not Detected on day of installation)
		PRODUCT THICKNESS:	ND



Notes:

[1]Feet above sea level
[2]Feet below top of riser

APPENDIX 5 – HEALTH AND SAFETY PLAN

Health and Safety Plan

for
1640 Flatbush Avenue
Site Management Plan

1640 Flatbush Avenue
Brooklyn, New York 11210
Block 7577, Lot 60
BCP Site # C224212

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

Prepared for:
1640 Flatbush Oz Owner LLC
c/o The Moinian Group
3 Columbus Circle, 23rd Floor
New York, NY 10019

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

November 2023

TABLE OF CONTENTS

Figures

Tables

Appendices

1.0 INTRODUCTION

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

The Site, located at 1640 Flatbush Avenue in the Flatbush section of Brooklyn, New York is an irregularly-shaped parcel of land located at the northwestern corner of the intersection of Flatbush Avenue and Aurelia Court. The Site is bounded by a commercial shopping center, Flatbush Avenue, a strip mall shopping center, and mid-rise residential housing developments to the north, Aurelia Court followed by medium-rise residential apartment buildings to the south, Flatbush Avenue followed by a large residential housing complex to the east, and a mid-rise housing complex followed by East 31st Street to the west.

The Site is currently occupied by a new 13-story mixed commercial and residential building with a full cellar. Prior to redevelopment, the Site was vacant and unimproved. Previously, the Site was occupied by a gasoline filling station operated by BP until the end of October 2017. The gasoline station consisted of a convenience store and a canopy structure that covered four gasoline pump islands in the center of the Site. The former gasoline pump islands were reportedly removed prior to implementation of the Remedial Action and the tanks were closed in place. The Site is an approximate 17,985 square foot parcel of land and is generally identified as Block 7577 and Lot 60 on the New York City Tax Map.

1.1 Scope of HASP

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

- Implementation of the Excavation Work Plan (EWP).

Subcontractors will ensure that performance of the work is in compliance with this HASP and applicable laws and regulations.

2.0 PROJECT SAFETY AUTHORITY

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

- Project Manager, Claire Zaccheo
- Health and Safety Officer (HSO), Ashley Platt

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

2.1 Designated Personnel

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

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

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

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

The Site was historically occupied by several structures from at least 1930 including an automotive repair shop, a 70-car parking garage, a dry cleaner, a metal working shop, and a store. Prior to redevelopment, the Site was developed with a former gasoline station and a one-story convenience store. The building occupied the footprint of approximately 1,000 square feet (SF) in the center of the lot, and four pump islands covered by a canopy also occupied the lot.

Environmental investigations conducted to date at the Site include two Phase I Environmental Site Assessments (ESAs), two Phase II Environmental Site Investigations (ESIs), and a Remedial Investigation (RI). Summaries of each report are provided below.

Phase I Environmental Site Assessment Report, 1640 Flatbush Avenue, Brooklyn, NY, Enviroscience Consultants, Inc., September 25, 2009.

Enviroscience Consultants, Inc. (Enviroscience) prepare a Phase I ESA for the Site in September 2009. The Phase I ESA identified the following Recognized Environmental Conditions (RECs) in association with the Site:

- The past and present operation of the subject property as a gasoline station with underground storage tanks (USTs) and stormwater drainage structures. Through operations as a gasoline station, there is a reasonable potential for hazardous substances and/or petroleum products to have been released to the environment.
- The former use of the property as an automotive repair shop and dry cleaning businesses. Through operations as an automotive repair shop and dry cleaner, there is a reasonable potential for hazardous substances and/or hazardous wastes to have been released to the environment.

In addition, one historic recognized environmental condition (HREC) was also identified in connection with the Site:

- Three closed NYSDEC Spills (Spill Nos. 87-03389, 95-10099, and 03-13334) that are assigned to the subject property. Based on their closed status, the closed NYSDEC Spills do not represent present RECS in connection with the property.

Phase II Environmental Site Assessment, 1640 Flatbush Avenue, Brooklyn, NY, Enviroscience Consultants, Inc., February 4, 2010.

Following the Phase I ESA, Enviroscience performed a Phase II Environmental Site Assessment which included the installation of seven soil borings, collection of five soil samples, installation of five temporary groundwater monitoring wells, collection of five groundwater samples, and collection of one sediment sample from each onsite stormwater drain. All soil, groundwater, and sediment samples were analyzed for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Resource Conservation and Recovery Act (RCRA) metals. The results of the Phase II Environmental Site Assessment indicated no significant contamination was identified in soil or sediment samples. Elevated concentrations of methyl tert butyl ether (MTBE) were detected in one monitoring well (130 ug/L). No other significant concentrations of VOCs were identified in groundwater.

Phase I Environmental Site Assessment Report, 1640 Flatbush Avenue, Brooklyn, NY, WCD Group LLC, August 29, 2014.

A Phase I ESA was prepared for the Site by WCD Group LLC (WCD) in August 2019. The Phase I ESA identified the following RECs in connection with the Site:

- Documented elevated concentrations of petroleum-related compounds in onsite groundwater;
- Historic and current presence of rail road line and train yard located adjacent to the Site;
- Current and historic use of the Site as a gasoline filling station from 1950 to present day;
- Historic structures formerly located onsite were demolished. Historic fill of unknown origin and suspect buried structures have the potential to impact the Site;
- Historic uses of the Site as an automotive repair shop and garage including grease pits and a filling station, a dry cleaner, and a metal working shop;
- The Site is registered with the NYSDEC as petroleum bulk storage (PBS) Facility ID 2-258245 and 2-601622 with five active 4,000-gallon gasoline USTs, two active 500-gallon USTs, and ten 500-gallon gasoline USTs that were closed and removed on October 1, 1993. The presence of onsite active gasoline USTs and historic presence of multiple closed-removed gasoline USTs is considered a REC; and,
- The current and historic presence of underground gasoline storage tanks at nearby and adjacent properties from 1955 to present day and discussed below:
    - The PBS facility identified as "The Junction" is located at 1610-1628 Flatbush Avenue immediately north of the Site. The facility is assigned PBS No. 2-609445 for the presence of six closed-removed USTs. Although the tanks have been removed, the historic presence of USTs in close proximity to the Site is considered a REC. Details regarding the USTs identified at the property are listed below. In addition, a spill is associated with this property.
    - The PBS facility identified as "Livingston Garden Inc." is located at 3111 Aurelia Court immediately south of the Site. The facility is assigned PBS No. 2-331589 and contains one active 10,000-gallon No. 2 fuel oil UST. In addition, the facility is listed in the Spills database for Spill No. 9814680 associated with the release of 25 gallons of No. 2 fuel oil on March 9, 1999. The NYSDEC closed the spill on March 10, 1999. The presence of the 10,000-gallon No. 2 fuel oil UST is considered a REC.
    - The PBS facility identified as "Philip Howard Apartments" is located at 1655 Flatbush Avenue, east of the Site across Flatbush Avenue. The facility is assigned PBS No. 2-045217 and contains two active 30,000-gallon No. 6 fuel oil USTs. In addition, the facility is listed in the Spills database for Spill No. 9109512 associated with the release of 100 gallons of No. 6 fuel oil. The presence of the two 30,000-gallon USTs in close proximity to the Site is considered a REC.

In addition, the following HRECs were identified in connection with the Site:

- The Site is listed in the Spills database as "AMOCO SVCE". A spill was reported to NYSDEC on November 12, 1995 following a gasoline tank overflow incident. The quantity of petroleum spilled was not reported. The NYSDEC assigned Spill No. 9510099 to the Site. No further information was provided and the Spill case was closed on March 17, 2005. Due to the closed status of the spill, this listing is considered a HREC.
- The Site is listed in the Spills database as "AMOCO SVCE". A spill was reported to the NYSDEC on March 4, 2004 following a gasoline tank test failure. The NYSDEC assigned Spill No. 0313334 to the Site. A tank tightness report was submitted to the NYSDEC on April 23, 2007 from Delta Environmental Consultants Inc. indicating no release to the environment. A No Further Action (NFA) letter was submitted to the responsible party and the Spill case was closed on April 23, 2007. Due to the closed status of the spill, this listing is considered a HREC.
- The Site is listed in the Spill database as "1642 Flatbush Avenue/BRO". A spill was reported to the NYSDEC on July 26, 1987 due to a tank overflow incident at the Site resulting in gasoline in the sewer. Approximately 20 gallons of petroleum was spilled. The NYSDEC assigned the Spill No. 8703389 to the Site. The spilled material was absorbed with Speedi Dry and the spill was closed on July 26, 1987. Due to the closed status of the spill, this listing is considered a HREC.

LLC, February 2, 2015.

The Phase II ESI conducted by WCD included the installation of four soil borings, collection of eleven soil samples, installation of three temporary groundwater monitoring wells, collection of three groundwater samples, installation of three temporary soil vapor sample points, and collection of three soil vapor samples. All soil and groundwater samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), metals, pesticides, herbicides, and polychlorinated biphenyls (PCBs). All soil vapor samples were analyzed for VOCs. The results of the Phase II ESI are as follows:

- In general, soil at the Site consists of fill material consisting of red/brown/gray sand, silt, gravel, red brick, concrete, and ash to a maximum depth of 25 feet below grade (ft-bg), underlain by native soil consisting of fine to coarse sand to 25 ft-bg (maximum boring depth). Bedrock was not encountered during the investigation.
- Field observations and screening during soil sampling revealed the presence of petroleum-like odor and sheen at soil samples WCD-SB-01 from 25 to 35 ft-bg, and WCD-SB-02 from 32 to 35 ft-bg. The petroleum contamination in soil was identified at or below the observed groundwater table.
- The results of the analyses of soil samples revealed VOCs, SVOCs, and metals at concentrations exceeding Unrestricted Use SCOs. SVOCs and the following VOCs were detected in one or more soil samples at concentrations above the Unrestricted Use SCOs: 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, n-butylbenzene, n-propylbenzene, naphthalene, o-xylene, p-isopropyltoluene, m&p-xylenes, sec-butylbenzene, tetrachloroethene (PCE), and total xylenes. The metals lead, nickel, and zinc were detected at concentrations above the Unrestricted Use SCOs in one or more samples. WCD suspected the VOCs and SVOCs detected in soil may be attributed to petroleum contamination observed at the Site and the historic use of the Site as a dry cleaner. The concentrations of metals exceeding the Unrestricted Use SCOs may be attributed to the characteristics of surficial fill material at the Site. No PCBs or pesticides/herbicides were detected in any of the soil samples at concentrations above Unrestricted Use SCOs.
- Visual indications of petroleum contamination, including petroleum-like odor and sheen, were identified in groundwater samples collected from onsite temporary well point WCD-GW-1. No elevated PID readings were recorded in the headspace from any of the wells. Groundwater was encountered at approximately 27 to 29 ft-bg.
- The results of the analyses of groundwater samples revealed VOCs, SVOCs, and metals above Class GA Standards in one or more groundwater samples. The VOCs detected above Class GA Standards include 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-butylbenzene, n-propylbenzene, naphthalene, o-xylene, m&P-xylenes, sec-butylbenzene, toluene, PCE, trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE). WCD suspected the VOCs in groundwater were attributable to petroleum contamination observed at the Site and historic use of the Site as a dry cleaner. WCD suspected the SVOC, naphthalene, detected in groundwater was attributable to petroleum contamination observed at the Site. WCD attributed the metals detected above Class GA Standards to the characteristics of the aquifer. No PCBs or pesticides/herbicides were detected in any groundwater samples exceeding Class GA Standards.
- The results of the analysis of soil vapor samples identified elevated concentrations of PCE, TCE, 1,2-dichloroethane, and chloroform in one or more soil vapor samples.

Remedial Investigation Report, 1640 Flatbush Avenue, Brooklyn, NY, WCD Group LLC, September 18, 2019.

A Remedial Investigation (RI) consisting of a combined 2017 subsurface investigation and a supplemental 2019 investigation was completed at the Site, and documented in a Remedial Investigation Report (RIR) dated September 18, 2019. The goals of the RI were to define the nature and extent of contamination in soil, groundwater, and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Action Work Plan (RAWP) to address the contamination. The following activities were completed as part of the RI:

- The installation of a total of 15 soil borings (four soil borings in 2017 and eleven soil borings in 2019) to collect 43 soil samples (eight soil samples in 2017 and 35 soil samples in 2019) for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, metals, and emerging contaminants;
- The installation of five permanent groundwater monitoring wells (four installed in 2017, one installed in 2019) to establish groundwater flow and the collection of ten groundwater samples for laboratory analysis VOCs, SVOCs, total and dissolved metals, pesticides, PCBs, and PFAS to evaluate groundwater quality; and,
- The collection of ten soil vapor samples for laboratory analysis of VOCs (all collected in 2017).

The results of the sampling performed during the RI indicated the presence of historic fill material across the Site to depth of five to seven feet, underlain by variable texture sands with gravel and some clay. Finer, more uniform sands and some gravel were encountered beneath this interval. Depending on location, the historic fill material contains one or more of the metals cadmium, copper, lead, mercury, nickel, and zinc above Unrestricted Use and/or Restricted-Residential and/or Commercial Use SCOs. The chlorinated VOC (cVOC) PCE was detected within both the deep and shallow soil samples collected in 2017 at concentrations below Protection of Groundwater SCOs and Unrestricted Use SCOs. The soil samples collected in 2019 were not analyzed for cVOCs.

Several VOCs related to petroleum-products were detected at concentrations above Unrestricted Use SCOs in samples collected from soil borings SB-8, SB-9, and SB-11. Exceedances of Restricted-Residential and Commercial Use SCOs were reported only at SB-8 (near a former fuel pump), including exceedances of Commercial Use SCOs at 26-28 feet below grade (ft-bg) (1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene at 950 mg/kg and 230 mg/kg, respectively, and xylenes at 610 mg/kg) and exceedance of Restricted-Residential Use SCOs at nine ft-bg (1,2,4-trimethylbenzene at 100 mg/kg). One SVOC, naphthalene, was detected above the Unrestricted Use SCO at SB-8 at a sampling depth of 26-28 ft-bg. No pesticides, herbicides, or emerging contaminants (1,4-dioxane and per- and polyfluoroalkyl substances [PFAS]) were detected in any samples.

Soil contamination at concentrations above Restricted-Residential Use SCOs is limited to the petroleum compounds identified in SB-8, near a former fuel pump in the eastern portion of the Site, and to a single low-grade exceedance of lead in one surface soil sample. Exceedances of Unrestricted Use SCOs are reported for petroleum compounds in SB-11, also in the eastern portion of the Site, for metals throughout the Site, and for SVOCs in limited areas. No significant PCE contamination has been reported in soil (one sample from an earlier investigation contained PCE concentrations above Unrestricted Use SCOs).

Petroleum contamination appears to be related to released at a former onsite fuel pump island. Based on the vertical distribution in the soil column, which documents the most significant impacts in soils near the groundwater interface, contamination may extend under Flatbush Avenue. Impacts from SVOCs are likely primarily related to the presence of onsite fill soils, with limited contributions from former onsite operations.

Groundwater samples were collected from four newly installed permanent groundwater monitoring wells on November 20, 2017. PCE was detected above the Class GA Standard in MW-3 (9.30 ug/L), and at low

concentrations in all other monitoring wells. Low concentrations of TCE were detected in MW-1 and MW-3. Elevated concentrations of chloroform (max. 20 ug/L) were reported at all wells except MW-2. Several metals (total concentrations), including iron (max. 889 ug/L), magnesium (max. 40,000 ug/L), manganese (max. 337.9 ug/L), and sodium (max. 145,000 ug/L) were detected in one or more samples above the Class GA Standards. Analysis of laboratory filtered groundwater samples identified dissolved magnesium (max. 38,800 ug/L) and sodium (max. 136,000 ug/L) above the Class GA Standards. Metal concentrations are consistent with results of prior investigations and are likely to be representative of local groundwater conditions. No SVOCs were detected in any of the samples. Additional groundwater samples were collected from the four monitoring wells installed in 2017, and one newly installed groundwater monitoring well (MW-5) on April 15 and 16, 2019. PCE concentrations increased in MW-3 (34.3 ug/L) and MW-4 (5.66 ug/L), and an elevated concentration of TCE was detected in MW-4 (8.01 ug/L). A PCE breakdown product, cis-1,2-DCE, was detected at low concentrations in MW-1, MW-3, and MW-4. Elevated concentrations of acrylonitrile (8.22 ug/L) and methyl tert butyl ether (MTBE) (54.4 ug/L) were detected in MW-5. Total and dissolved metals values were generally consistent with the 2017 results. Low concentrations of several PAHs were found in one or more samples. Groundwater samples were also analyzed for emerging contaminants. The following PFAS compounds were detected in groundwater samples: perfluorobutanesulfonic acid (PFBS), perfluoro-n-butanoic acid (PFBA), perfluoroheptanoic acid (PFHpA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), perfluorohexanoic acid (PFHxA), and perfluoropentanoic acid (PFPeA). Detectable concentrations ranged from 2.1 nanograms per liter (ng/L) (PFPeA in MW-5) to a maximum concentration of 97.9 ng/L (PFOA in MW-3). Peak levels for combined PFOA and PFOS were 122.6 ng/L at MW-3.

Groundwater contamination is primarily limited to low-grade impacts from chlorinated solvents (PCE and breakdown products TCE and cis-1,2-DCE), MTBE, metals, and PFAS. Chlorinated compounds and MTBE may be the result of historical onsite releases (no significant concentrations of these compounds, however, were found in soil during the RI) or may be the result of migration from offsite areas (historical commercial uses at nearby properties have included automobile repair, other filling stations, and a freight yard). There may also be offsite petroleum impacts in groundwater under Flatbush Avenue in the vicinity of soil boring SB-8. Contamination by metals and PFAS is likely to be associated with general regional conditions rather than specific onsite releases.

Five soil vapor samples were collected from one to two feet above the groundwater interface (approximately 25 ft-bg) and five soil vapor samples were collected between five and eight ft-bg in 2017. The results of the analysis of soil vapor indicated low-grade contamination throughout the Site, including petroleum compounds related to gasoline, and the chlorinated solvents PCE and TCE found in both shallow and deep samples. Soil vapor concentrations are not consistent with a significant source area at the Site. In general, concentrations of contaminants are similar to values typically reported in urban areas; iven an overall absence of significant onsite sources of VOCs in soil and groundwater, soil vapor contamination is likely to be indicative of local area conditions (detections of chlorinated solvents are likely to be associated with low-grade onsite groundwater contamination).

3.1 Human Exposure Pathways

The media of concern at the Site include potentially-impacted soil, groundwater and soil vapor. Potential exposure pathways include dermal contact, incidental ingestion and inhalation of vapors. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE. The risk of inhalation will be minimized through the use of an air monitoring program for VOCs and particulates.

3.2 Chemical Hazards

Based on previous investigations and the RI, the following contaminants of concern may be present at the Site:

VOCs
- Chlorinated Solvents
- Petroleum-Related Compounds

Metals
- Lead

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

3.3 Physical Hazards

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

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

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

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

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

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

Thermal Stress
The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed

skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind, sleet, snow or freezing.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Care should be taken by all Site workers to avoid slip, trip, and fall hazards. Workers shall not enter areas that do not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the site.

Any worker or oversight personnel with a medical condition that may require attention must inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered and care

should be taken to avoid contact.

4.0 COVID-19 HEALTH AND SAFETY

The following requirements apply to all Tenen employees working on project sites for the duration of the COVID-19 pandemic. These guidelines are based on information provided by the Centers for Disease Control, the Occupational Safety and Health Administration and the New York State "New York Forward" Covid-19 management plans. Information regarding the health status of Tenen employees will be kept confidential, with the exception of required notifications to health authorities. The following are guidelines. **As with any potential workplace hazard, employees should report any concerns related to potential Covid-19 exposure to the Project Manager.**

Communication/Reporting:

Employees should not report to work and should notify the Project Manager immediately in the event of the following:

- You are exhibiting flu-like symptoms (fever, body aches, cough, difficulty breathing). Contact your health care provider and follow their instructions.
- You do not exhibit symptoms but have a sick (i.e., diagnosed with Covid-19 or exhibiting flu-like symptoms) family member at home. Remember that the virus can be spread by asymptomatic individuals.
- You have been exposed to someone who has been diagnosed with Covid-19.

In each of the above cases, inform your Project Manager regarding others who may have been exposed in order to facilitate any necessary notification or contact tracing efforts.

Hygiene

- Wash hands frequently with soap and water for at least 20 seconds or use hand sanitizer with at least 60% alcohol if soap and water are not available. Key times for employees to clean their hands include:
    - Before and after work shifts
    - Before and after work breaks
    - After blowing the nose, coughing, or sneezing
    - After using the restroom
    - Before eating or preparing food
    - After putting on, touching, or removing face coverings
- Avoid touching the eyes, nose, and mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- To the extent possible, avoid sharing tools and sampling equipment. Shared tools and equipment should be regularly disinfected.

Physical Distancing

- Minimize contact with others, maintaining a distance of at least six feet to the extent possible
- Employees should wear masks over their nose and mouth to prevent spread of the virus; this is especially important when a minimum 6-foot distance cannot be maintained.
- Maintain the 6-foot distance to the extent possible during sampling efforts and pickup and delivery of sampling equipment and containers.

- Keep job site meetings to a minimum and of short duration; limit the number of people involved and maintain social distance.

5.0 AIR MONITORING

The NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix 1A of DER-10, will be implemented during all ground-intrusive sampling activities if work is performed after approval of the RIWP.

VOC Monitoring, Response Levels, and Actions

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

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.
4. All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.
2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls

are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear" and the Centers for CDC COVID-19 "Guidelines on How to Protect Yourselves and Others".

Tenen field personnel and other site personnel will wear Modified Level D-1 personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, Modified Level D-2 equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A six-foot minimum distance between individuals (both workers and non-workers) will be maintained at all times. A description of the personnel protective equipment for Levels D and C is provided below.

Modified Level D-1
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D-2
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C
Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.
Protective Clothing: Same as Modified Level D-2

7.0 EXPOSURE MONITORING

7.1 Hazardous Materials

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO. All monitoring will comply with the CDCs Guidance on Social Distancing.

7.2 COVID-19

For any employee that may have come into contact with a person who has COVID-19, a 14-day quarantine will be imposed for that individual and any employee that individual was in contact with.

8.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the sampling areas.

9.0 WORK AREAS

During any activities involving drilling or other subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, clarify the type of protective equipment needed, and provide an area for decontamination.

The Exclusion Zone is defined as the area where potentially contaminated materials are generated as the result of drilling, sampling, or similar activities. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located adjacent to the Exclusion Zone. The Support Zone is the area where support facilities such as vehicles, a field phone, fire extinguisher and/or first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all Site workers will assemble in the event of an emergency. These zones shall be designated daily, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins.

Control measures such as "Caution" tape and traffic cones will be placed around the perimeter of the work area when work is being done in the areas of concern (i.e., areas with exposed soil) to prevent unnecessary access.

10.0 DECONTAMINATION PROCEDURES

Personnel Decontamination
Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan.

Disposal of Materials
Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

11.0 GENERAL SAFE WORK PRACTICES

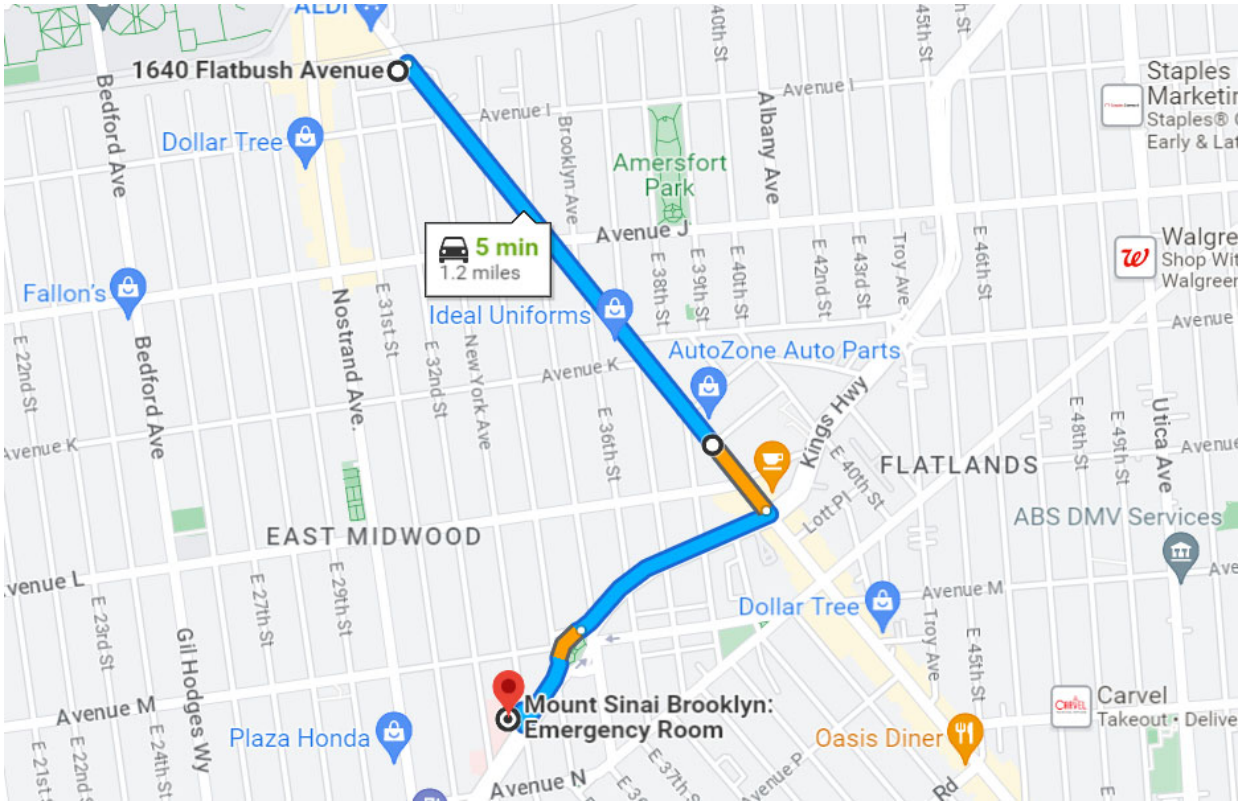
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

12.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—onsite personnel should drive injured person to a hospital. **The nearest emergency room is located at the Mount Sinai Brooklyn hospital located at 3201 Kings Highway, Brooklyn, NY 10024. The phone number is (718) 252-3000.** The route to the hospital is shown and detailed on the next page.

12.1 Route to Hospital



Driving directions to **Mount Sinai Brooklyn Emergency Room** from **1640 Flatbush Avenue, Brooklyn, New York.**

Driving Directions

1. Head southeast on Flatbush Avenue toward Aurelia Court (0.7 mi).
2. Turn right onto Kings Highway (0.3 mi).
3. At the traffic circle, take the second exit and stay on Kings Highway (0.1 mi).
4. Sharp right onto New York Avenue (92 ft). Destination will be on the left.

12.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 918-5000
NYSDEC Spill Hotline	(800) 457-7362
NYSDEC	(518) 402-8013
Project Manager, Claire Zaccheo	(646) 606-2332

13.0 TRAINING

All personnel performing the field activities described in this HASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

14.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

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

AFFIDAVIT

I have read the Construction Health and Safety Plan (HASP) for the 1640 Flatbush Avenue site in Brooklyn, NY. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____

Appendix B

Injury Reporting Form (OSHA Form 300)

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__ __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name ______________________

City ______________________ State ______________

Identify the person			Describe the case			Classify the case: CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:		Check the "Injury" column or choose one type of illness: (M)					
								Remained at Work									
(A) Case no.	(B) Employee's name	(C) Job title (*e.g., Welder*)	(D) Date of injury or onset of illness	(E) Where the event occurred (*e.g., Loading dock north end*)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (*e.g., Second degree burns on right forearm from acetylene torch*)	(G) Death	(H) Days away from work	(I) Job transfer or restriction	(J) Other record-able cases	(K) Away from work	(L) On job transfer or restriction	(1) Injury	(2) Skin disorder	(3) Respiratory condition	(4) Poisoning	(5) Hearing loss	(6) All other illnesses
			/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
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					Page totals ➤	___	___	___	___	___	___	___	___	___	___	___	___
												Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Appendix C

Material Safety Data Sheets (MSDS)

Benzene - ToxFAQs™

CAS # 71-43-2

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

HIGHTLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is benzene?

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

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

What happens to benzene when it enters the environment?

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

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Working in industries that make or use benzene.

How can benzene affect my health?

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

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

Benzene

CAS # 71-43-2

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the bloodforming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

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

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

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

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

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

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Ethylbenzene- ToxFAQs™

CAS # 100-41-4

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

HIGHLIGHTS: Ethylbenzene is a colorless liquid found in a number of products including gasoline and paints. Breathing very high levels can cause dizziness and throat and eye irritation. Breathing lower levels has resulted in hearing effects and kidney damage in animals. Ethylbenzene has been found in at least 829 of 1,699 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is ethylbenzene?

Ethylbenzene is a colorless, flammable liquid that smells like gasoline.

It is naturally found in coal tar and petroleum and is also found in manufactured products such as inks, pesticides, and paints.

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

What happens to ethylbenzene when it enters the environment?

- Ethylbenzene moves easily into the air from water and soil.
- It takes about 3 days for ethylbenzene to be broken down in air into other chemicals.
- In surface water, ethylbenzene breaks down by reacting with other chemicals found naturally in water.
- Ethylbenzene can move through soil into groundwater.
- In soil, it is broken down by bacteria.

How might I be exposed to ethylbenzene?

- If you live in a city or near many factories or heavily traveled highways, you may be exposed to ethylbenzene in air.
- Releases of ethylbenzene into the air occur from burning oil, gas, and coal and from industries using ethylbenzene.
- Ethylbenzene is not often found in drinking water. Higher levels may be found in residential drinking water wells near landfills, waste sites, or leaking underground fuel storage tanks.
- Exposure can occur if you work in an industry where ethylbenzene is used or made.
- Exposure can occur if you use products containing it, such as gasoline, carpet glues, varnishes, and paints.

How can ethylbenzene affect my health?

Exposure to high levels of ethylbenzene in air for short periods can cause eye and throat irritation. Exposure to higher levels can result in dizziness.

Irreversible damage to the inner ear and hearing has been observed in animals exposed to relatively low concentrations of ethylbenzene for several days to weeks.

Exposure to relatively low concentrations of ethylbenzene in air for several months to years causes kidney damage in animals.

How likely is ethylbenzene to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that ethylbenzene is a possible human carcinogen.

Ethylbenzene

CAS # 100-41-4

How does ethylbenzene affect children?

There are no studies evaluating the effects of ethylbenzene exposure on children or immature animals. It is likely that children would have the same health effects as adults. We do not know whether children would be more sensitive than adults to the effects of ethylbenzene.

We do not know if ethylbenzene will cause birth defects in humans. Minor birth defects and low birth weight have occurred in newborn animals whose mothers were exposed to ethylbenzene in air during pregnancy.

How can families reduce the risk of exposure to ethylbenzene?

- Use adequate ventilation to reduce exposure to ethylbenzene vapors from consumer products such as gasoline, pesticides, varnishes and paints, and newly installed carpeting.
- Sometimes older children sniff household chemicals, including ethylbenzene, in an attempt to get high. Talk with your children about the dangers of sniffing chemicals.
- Household chemicals should be stored out of reach of children to prevent accidental poisoning. Always store household chemicals in their original containers; never store them in containers that children would find attractive to eat or drink from, such as old soda bottles. Gasoline should be stored in a gasoline can with a locked cap.

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

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

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

Has the federal government made recommendations to protect human health?

The EPA has determined that exposure to ethylbenzene in drinking water at concentrations of 30 mg/L for 1 day or 3 mg/L for 10 days is not expected to cause any adverse effects in a child.

The EPA has determined that lifetime exposure to 0.7 mg/L ethylbenzene is not expected to cause any adverse effects.

The Occupational Health and Safety Administration (OSHA) has limited workers' exposure to an average of 100 ppm for an 8-hour workday, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2010. Toxicological Profile for Ethylbenzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Lead - ToxFAQs™

What is lead?

Lead is a metal found naturally in the earth's crust. It can be found in all parts of our environment, including air, water, and soil. Lead can combine with other chemicals to make different compounds.

Lead is used in the production of batteries, ammunition, and metal products (solder and pipes). Because of health concerns, the use of lead in paints, ceramic products, caulking, and pipe solder has been dramatically reduced. The use of lead as an additive to automobile gasoline was banned in 1996 in the United States.

What happens to lead in the environment?

- Lead is an element, so it does not break down.
- When lead is released into the air, it may be transported long distances before it lands and stays on the ground.
- Once on the ground, lead can often stick to soil particles.
- Lead in soil can get into groundwater, but the amount of lead that moves into groundwater will depend on the lead compound and soil type.

How can I be exposed to lead?

Lead can cause health problems in almost every organ and system in your body.

- Eating food or drinking water that contains lead.
- Drinking water from pipes that were soldered with lead can cause exposure.
- Spending time or living in homes with lead-based paints can result in exposure when the paint breaks down and forms dust, which can get on your hands, or into your mouth and nose and be swallowed.
- Spending time in areas where the soil is contaminated with lead.
- Working in a job where lead is used or participating in certain hobbies where lead is used, such as making stained glass.
- Using healthcare products from other countries, alternative treatments, or folk remedies.

How can lead affect my health?

The effects of lead are the same whether it enters the body by breathing it in or eating it. Lead can affect almost every organ and system in your body. The nervous system is the main target for lead poisoning in children and adults. Long-term exposure can result in decreased learning, memory, and attention, and weakness in fingers, wrists, or ankles. Lead exposure can cause anemia (low iron in the blood) and damage to the kidneys. It can also cause increases in blood pressure, particularly in middle-aged and older individuals. Exposure to high lead levels can severely damage the brain and kidneys and can cause death. In pregnant women, exposure to high levels of lead may cause a miscarriage. In men, it can cause damage to reproductive organs.

Lead

How can lead affect children?

Children are more vulnerable to lead poisoning than adults because their nervous system is still developing. Children can be exposed to lead in their environment and before birth from lead in their mother's body. At lower levels of exposure, lead can decrease mental development, especially learning, intelligence, and behavior. Physical growth may also be decreased. A child who swallows large amounts of lead may develop anemia, severe stomachache, muscle weakness, and brain damage. Exposure to lead during pregnancy can also result in premature births. Some effects of lead poisoning in a child may continue into adulthood.

Can lead cause cancer?

Several agencies and organizations both in the United States and internationally have reviewed studies and made an assessment about whether lead can cause cancer.

- The Department of Health and Human Services (HHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens (causing cancer in people).
- The U.S. Environmental Protection Agency (EPA) has classified lead as a probable human carcinogen.
- The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans, and that there is insufficient information to determine whether organic lead compounds will cause cancer in humans.

Can I get a medical test to check for lead?

A blood test is available to measure the amount of lead in your blood. Blood tests are commonly used to screen children for lead poisoning. Your doctor can draw blood samples and send them to appropriate laboratories for analysis. If you think you or anyone in your family has been exposed to lead, contact your doctor, nurse, or poison control center.

How can I protect my family from lead exposure?

- Avoid exposure to sources of lead.
- Do not allow children to chew or mouth surfaces that may have been painted with lead-based paint.
- If your home contains lead-based paint (built before 1978), or if you live in an area contaminated with lead, wash children's hands and faces often to remove lead dusts and soil, and regularly clean the house to remove lead dust and lead tracked in soil.
- Certain water pipes may contain lead, so if you know that pipes have lead solder, you should avoid drinking from that source.
- Check for lead in some products such as toys and jewelry and avoid such products.
- Lead is sometimes in candies imported from other countries or traditional home remedies; find out if yours has any lead and avoid using these products or giving them to children.
- You can learn more about preventing lead poisoning here: https://www.cdc.gov/nceh/lead/faqs/lead-faqs.htm

Want more information?

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at https://wwwn.cdc.gov/dcs/ContactUs/Form

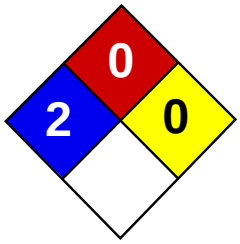
Go to ATSDR's Toxicological Profile for Lead

CDC Lead Poisoning Prevention Program https://www.cdc.gov/nceh/lead/default.htm

Environmental Protection Agency https://www.epa.gov/lead/protect-your-family-exposures-lead

Go to ATSDR's Toxic Substances Portal: https://wwwn.cdc.gov/TSP/index.aspx

If you have any more questions or concerns, you can also find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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Toluene - ToxFAQs™

What is toluene?

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

Toluene is a good solvent (a substance that can dissolve other substances). It is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber and in some printing and leather tanning processes. Toluene is also used in the manufacture of other chemicals, nylon, and plastics. It is also added to gasoline along with benzene and xylene to improve octane ratings.

What happens to toluene in the environment?

Toluene can enter the air from car exhaust or when materials that contain it (such as paints or fingernail polish) are used. It can get into surface waters (like lakes and streams), groundwater, or soil if solvents or petroleum products are accidently spilled, or from leaking underground storage tanks at gasoline stations and other facilities. When toluene-containing products are placed in landfills or waste disposal sites, toluene can enter the soil or water near the waste site.

Toluene does not usually stay in the environment long. In surface water or soil, it will readily evaporate into the air or be degraded by bacteria. In the air, toluene rapidly breaks down by reacting with other chemicals or oxygen in the air. Below the surface, microorganisms will break down toluene.

How can I be exposed to toluene?

You may be exposed to toluene by breathing contaminated air or touching products that contain this chemical. Car exhaust contains toluene; therefore, if you spend time in or near vehicles or traffic, you may be exposed to this chemical. People who work with gasoline, paint, or dyes may be exposed to higher levels of toluene than most people.

Toluene is not frequently detected in drinking water or food. People that abuse (inhale) certain products such as glue or paint thinner can be exposed to toluene.

How can toluene affect my health?

Toluene may affect the nervous system. Low to moderate levels can cause headaches, dizziness, tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, and loss of appetite. These symptoms usually disappear when exposure stops.

Toluene can be found in gasoline products, paints, stain removers, and fingernail polish. Breathing toluene can cause headaches, dizziness, and nausea.

Long-term daily exposure to toluene in the workplace may cause some hearing and color vision loss. Repeatedly breathing toluene from glue or paint thinners may permanently damage the brain.

Exposure to high levels of toluene during pregnancy, such as those associated with solvent abuse, may lead to developmental effects, such as reduced mental abilities and growth in children.

In animal studies, the effects of toluene were similar to those seen in humans. In addition, it was found that animals that drank toluene also had decreased immune responses.

Toluene

Can toluene cause cancer?

Studies in workers and animals exposed to toluene generally show that toluene does not cause cancer.

The U.S. Department of Health and Human Services (DHHS) has not evaluated the carcinogenicity (ability to cause cancer) of toluene.

The U.S. Environmental Protection Agency (EPA) has determined that there is inadequate information to assess the carcinogenicity of toluene.

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

Can I get a medical test to check for toluene?

Toluene and its breakdown products can be measured in blood and urine. These tests are only useful if done within several days after exposure. These tests cannot predict whether you will have health problem from exposure to toluene.

How can I protect myself and my family from toluene?

To reduce exposure to toluene, you should use products that contain it (such as paints, nail polish, glues, inks, and stain removers) in well-ventilated areas. When not in use, these products should be tightly covered to prevent evaporation into the air and, if possible, stored in a shed or an outside location. Always store household chemicals in their original labeled containers.

Have your tap water tested if you are concerned it may have toluene and, if necessary, take steps to protect yourself. Keep children from eating or playing in the dirt if you live near a waste site.

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

For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at https://wwwn.cdc.gov/dcs/ContactUs/Form

Go to ATSDR's Toxicological Profile for Toluene: https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=161&tid=29

Go to ATSDR's Toxic Substances Portal: https://wwwn.cdc.gov/TSP/index.aspx

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

XYLENE

CAS # 1330-20-7

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

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

HIGHLIGHTS: Exposure to xylene occurs in the workplace and when you use paint, gasoline, paint thinners and other products that contain it. People who breathe high levels may have dizziness, confusion, and a change in their sense of balance. Xylene has been found in at least 840 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is xylene?

There are three forms of xylene in which the methyl groups vary on the benzene ring: *meta*-xylene, *ortho*-xylene, and *para*-xylene (*m*-, *o*-, and *p*-xylene). These different forms are referred to as isomers.

Xylene is a colorless, sweet-smelling liquid that catches on fire easily. It occurs naturally in petroleum and coal tar. Chemical industries produce xylene from petroleum. It is one of the top 30 chemicals produced in the United States in terms of volume.

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

What happens to xylene when it enters the environment?

❑ Xylene evaporates quickly from the soil and surface water into the air.
❑ In the air, it is broken down by sunlight into other less harmful chemicals in a couple of days.
❑ It is broken down by microorganisms in soil and water.
❑ Only a small amount of it builds up in fish, shellfish, plants, and other animals living in xylene-contaminated water.

How might I be exposed to xylene?

❑ Using a variety of consumer products including gasoline, paint varnish, shellac, rust preventatives, and cigarette smoke. Xylene can be absorbed through the respiratory tract and through the skin.
❑ Ingesting xylene-contaminated food or water, although these levels are likely to be very low.
❑ Working in a job that involves the use of xylene such as painters, paint industry workers, biomedical laboratory workers, automobile garage workers, metal workers, and furniture refinishers.

How can xylene affect my health?

No health effects have been noted at the background levels that people are exposed to on a daily basis.

High levels of exposure for short or long periods can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure of people to high levels of xylene for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and even death at very high levels.

How likely is xylene to cause cancer?

Both the International Agency for Research on Cancer (IARC) and the EPA have found that there is insufficient information to determine whether or not xylene is carcinogenic.

How can xylene affect children?

The effects of xylene have not been studied in children, but it is likely that they would be similar to those seen in exposed adults. Although there is no direct evidence, children may be more sensitive to acute inhalation exposure than adults because their narrower airways would be more sensitive to swelling effects.

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

How can families reduce the risks of exposure to xylene?

❑ Exposure to xylene as solvents (in paints or gasoline) can be reduced if the products are used with adequate ventilation and if they are stored in tightly closed containers out of the reach of small children.
❑ Sometimes older children sniff household chemicals in attempt to get high. Talk with your children about the dangers of sniffing xylene.
❑ If products containing xylene are spilled on the skin, then the excess should be wiped off and the area cleaned with soap and water.

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

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

Has the federal government made recommendations to protect human health?

The EPA set a limit of 10 parts xylene per million parts drinking water (10 ppm).

The Occupational Safety and Health Administration (OSHA) has set limits of 100 parts xylene per million parts of workplace air (100 ppm) for 8 hour shifts and 40 hour work weeks.

References

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

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

APPENDIX 6 – SITE MANAGEMENT FORMS

1640 Flatbush Avenue - Brooklyn, NY
BCP Site No. C224212
Site Management - Annual Inspection Checklist

Condition	Field Notes/Observations:
Verify the Site usage is compliant with the allowable uses (restricted-residential, commercial, and industrial)	
Describe Site conditions at the time of inspection	
Verify if ICs in place continue to be protective of human health and the environment	
Verify the Site is compliant with the SMP and Environmental Easement	
Inspect Site records to confirm all records are complete and up to date	

Comments/Notes: _____

Name of inspector: _____

Signature of inspector: _____

Date of inspection: _____