REMEDIAL INVESTIGATION REPORT

for

2413 Third Avenue
Bronx, New York 10451
Block 2319, Lot 109

Prepared For:

RXR 2413 Third Owner LLC
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LANGAN

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LIST OF ACRONYMS

Acronym	Definition
1,1,1-TCA	1,1,1-Trichloroethane
1,1-DCE	1,1-Dichloroethane
c-1,2-DCE	Cis-1,2-Dichloroethene
CSM	Conceptual Site Model
AARCO	AARCO Environmental Services Corp.
AGV	Air Guideline Value
AOC	Area of Concern
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below Grade Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
COC	Contaminant of Concern
DER-10	Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DUSR	Data Usability Summary Report
el	Elevation
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FEMA	Federal Emergency Management Agency
FWRIA	Fish and Wildlife Resources Impact Analysis
GPR	Ground-Penetrating Radar
HA	Health Advisory
HASP	Health and Safety Plan
HWRL	Hazardous Waste Regulatory Limit
IDW	Investigation Derived Waste
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquid
NAVD88	North American Vertical Datum of 1988
NYCRR	New York Codes, Rules, and Regulations
NYSDOH	New York State Department of Health
NYSDEC	New York State Department of Environmental Conservation
NTU	Nephelometric Turbidity Units
PAH	Polycyclic Aromatic Hydrocarbon
PBS	Petroleum Bulk Storage
PCB	Polychlorinated Biphenyl
TCE	Tetrachloroethylene
PFAS	Per- and Poly-fluoroalkyl Substances

Acronym	Definition
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	Parts per million
ppt	Parts per trillion
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
RURR	Restricted Use – Restricted-Residential
SCO	Soil Cleanup Objective
SGV	Standards and Guidance Values
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TO-15	Toxic Organics – 15
TOGS	Technical and Operational Guidance Series
UN/DOT	United Nations Department of Transportation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
UU	Unrestricted Use
VOC	Volatile Organic Compound

CERTIFICATION

I, Michael D. Burke, certify that I am currently a Qualified Environmental Professional as defined in Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375 and that this Remedial Investigation Report (RIR) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

Michael D. Burke, P.G., CHMM
Principal/Vice President

1.0 INTRODUCTION

This Remedial Investigation Report (RIR) was prepared on behalf of RXR 2413 Third Owner LLC (the "Requestor") for the property located at 2413 Third Avenue in the Mott Haven neighborhood of the Bronx, New York (the "site"). The site is identified on the Bronx Borough Tax Map as Block 2319, Lot 109. The Requestor is in the process of acquiring the site as owner and also in the process of applying to the New York State Brownfield Cleanup Program (BCP) as a Volunteer. This RIR is being submitted concurrently with the BCP application.

This RIR presents environmental data and findings from a remedial investigation (RI) that was implemented by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) between June 6 and June 10, 2019, and between September 27 and October 9, 2019. The objective of the RI was to supplement the existing environmental data to determine, to the extent possible, the nature and extent of contamination in soil, groundwater, and soil vapor. Information presented in this RIR will be used to evaluate the appropriate remedial action alternatives, which are presented in the Remedial Action Work Plan (RAWP), which is also submitted with the BCP application.

This RIR is organized as follows:

- Section 2.0 describes the setting and physical characteristics of the site.
- Section 3.0 describes the site background, including results of previous investigations and identified areas of concern (AOCs).
- Section 4.0 presents the investigation field procedures.
- Section 5.0 describes the field observations and analytical results.
- Section 6.0 presents an assessment of the exposure risks of site contaminants to human, fish, and wildlife receptors.
- Section 7.0 presents the nature and extent of contamination in site media as determined through the field investigation and analysis of environmental samples.
- Section 8.0 summarizes the results of the investigation and presents conclusions based on field observations and analytical results.
- Section 9.0 presents the references used in preparation of this report.

2.0 SITE PHYSICAL CHARACTERISTICS

2.1. Site Description

The site is identified on the Bronx Borough Tax Map as Block 2319, Lot 109 in the Mott Haven neighborhood of the Bronx and is located west of the intersection of Third Avenue and Bruckner Boulevard. The approximately 24,700-square-foot site contains a five-story commercial building that was constructed in 1897 and a tenant parking lot. The northwestern portion of the site contains a gravel-graded rectangular extension that is overgrown with vegetation. The building has a partial cellar that contains mechanical equipment and a sump. The ground floor of the building is occupied by a restaurant (Empanology), a boxing gym (SouthBox Gym), and a furniture storage area, and the upper floors of the building are vacant. The site is bordered by a commercial self-storage facility to the north; two multiple-story light industrial and commercial buildings, a dog park, and an access roadway to East 135th Street to the northeast; Third Avenue and the Third Avenue Bridge overpass to the southeast; and a residential development construction site to the west. A Site Location Map is included as Figure 1 and a Site Layout Plan is included as Figure 2.

The gravel-graded rectangular extension that is overgrown with vegetation is herein referenced as the "northwestern" portion of the site. The building and the cobble stone-, asphalt-, and concrete-paved parking area northeast of the building is herein referenced as the "central" portion of the site. The gravel lot underlain by cobble stone bedding southeast of the building is herein referenced as the "southeastern" portion of the site.

2.1.1. Description of Surrounding Properties

Surrounding properties generally consist of light industrial, manufacturing, commercial, residential, and retail buildings. The Harlem River is located about 150 feet southwest of the site. The adjoining and surrounding properties are summarized in the following table:

DIRECTION	ADJOINING PROPERTIES	SURROUNDING PROPERTIES
North	Commercial self-storage facility	East 135th Street followed by industrial warehouses and commercial properties
Northeast	Two multiple-story light industrial and commercial buildings, a dog park, and an access roadway	Commercial and multiple-family residential buildings

DIRECTION	ADJOINING PROPERTIES	SURROUNDING PROPERTIES
Southeast	Third Avenue and the Third Avenue Bridge overpass	Commercial and industrial buildings
West	Residential development construction site	Commercial freight railway right-of-way and Harlem River

The nearest ecological receptor is the Harlem River, which is located about 150 feet to the southwest. Sensitive receptors, as defined in DER-10, located within 0.5 miles of the site include those listed in the following table.

NUMBER	NAME (APPROXIMATE DISTANCE FROM SITE)	ADDRESS
1	Borger High School (approximately 0.2 miles east of the site)	2511 3rd Avenue Bronx, NY 10451
2	South Bronx Classical Charter School II (approximately 0.3 miles southeast of the site)	333 East 135th Street Bronx, NY 10454
3	P.S. 154 Jonathan D. Hyatt (approximately 0.3 miles southeast of the site)	333 E 135th Street #4301 Bronx, NY 10454
4	Bronx Academy of Letters (approximately 0.5 miles northeast of the site)	339 Morris Avenue Bronx, NY 10451
5	Family Life Academy Charter School II (approximately 0.5 miles southeast of the site)	296 E 140th Street Bronx, NY 10454
6	P.S. 49 (approximately 0.5 miles southeast of the site)	383 E 139th Street Bronx, NY 10454

2.2. Topography

According to the topographic and boundary survey prepared by Gallas Surveying Group, dated August 8, 2019, the site is about 10 feet above median sea level. The topography of the site is generally level, and the surrounding area gently slopes to the southwest towards the Harlem River. A Site Location Map is included as Figure 1.

2.3. Surface Water and Drainage

The site is partially covered by impervious surfaces consisting of concrete building slabs and an asphalt- and concrete-paved parking lot in the central portion of the site. The central parking lot is also partially covered with pervious cobble-stone pavement. Other pervious portions of the site include a gravel-graded rectangular extension that is overgrown with vegetation in the northwestern portion of the site and a gravel lot underlain by cobble stone bedding in the southeastern portion of the site. A majority of runoff from the site is expected to drain to the combined city sewers via catch basins along the street curbs to the east and south. Migration of precipitation to groundwater is limited in the central and southeastern portions of the site, due to the presence of impermeable or compacted, graded surface cover.

The site is described within the National Flood Insurance Rate Maps for the City of New York published by the Federal Emergency Management Agency (FEMA); Community Panel No. 3604970091F, effective September 5, 2007. According to the map, the site is zoned "AE" for special flood hazard area and is designated as being located within a regulatory floodway on the banks of the Harlem River.

2.3.1. Wetlands

Wetlands were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands map. Wetlands are not located on the site. The nearest wetland is the Harlem River, which is located about 150 feet to the southwest.

2.4. Geology and Hydrogeology

2.4.1. Regional Geology

The site is located near the southern end of the Manhattan Prong, which is one of two southwestward extensions of the New England Upland physiographic province of the Northern Appalachians. The underlying bedrock in this area generally consists of calcite-dolomite marble (Inwood Marble) interlayered with gneiss and schist of the Fordham Gneiss. Bedrock outcrops were not observed at the site. Based on USGS reports, bedrock beneath the site is estimated at about 50 feet below grade surface (bgs).

2.4.2. Site Stratigraphy and Geology

Based on observations during the RI, the subsurface profile generally consists of historic fill material overlying silty and clayey sand or clay with varying amounts of peat and shell material. During the RI, historic fill thickness varied between 5 and 10.5 feet on the northwestern portion of the site, between 1.5 and 9 feet on the central portion of the site, and between 5.5 and 12

feet on the southeastern portion of the site. The fill generally consists of brown fine sand with varying amounts of gravel, silt, brick, coal, concrete, slag, wood, and glass fragments. Native soil consists of fine-grained sand with varying amounts of silt, clay, peat, medium- and coarse-grained sand, and fine gravel. Native clay exhibiting a sulfur-like odor contained organic material, including rootlets and shell fragments intermittently across much the site at depths between 7 and 12 feet bgs. Bedrock was not observed in borings extending to a maximum depth of 16 feet bgs during the RI.

2.4.3. Regional Hydrogeology

The upper surface of the groundwater is marked by the water table surface, which fluctuates seasonally in response to precipitation events and potential tidal effects. The overburden deposits typical to the site can have low to moderate hydraulic conductivities. Preferential flow occurs through the more permeable zones of the soil overburden.

Infiltration of precipitation to the water table is likely minimal to moderate due to the presence of an impervious concrete slab and asphalt within the footprint of the building and portions of the parking lot and pervious areas graded with gravel and cobble stones elsewhere on the site. The majority of runoff drains to combined city sewers, then to one of the several wastewater treatment plants that serve the city. Groundwater in New York City is not used as a potable water source. Potable water provided to the City of New York is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds. Based on the general local and regional topography, groundwater is inferred to flow towards the southwest towards the Harlem River

2.4.4. Site Hydrogeology

Groundwater was observed at depths between 6.62 and 8.15 feet bgs (el. 0.70 and el. 0.80) during synoptic groundwater level measurements taken from three wells in October 2019. Based on these readings, groundwater appears to flow along a shallow gradient towards the southwest. A groundwater contour map is provided as Figure 3.

3.0 SITE BACKGROUND

This section describes historical use of the site, describes the proposed redevelopment, and discusses the findings from previous environmental investigations. AOCs were developed based on data collected during the RI and a review of previous reports, and are summarized in Section 3.4.

3.1. Historical Site Use

By 1891, the central portion of the site was occupied by four 2-story buildings, one 1-story building, and one 6-story building used for cleaning shops operated by an iron works facility. The present 6-story commercial building was constructed in 1897 and was used for manufacturing in 1928. The building contained a wood flooring storage facility between 1935 and 1947, a lubrication oil storage facility between 1935 and 2007, and a commercial storage facility between 1951 and 2007.

The northwestern portion of the site was occupied by a 1-story building containing a motor truck company in 1922. The area formerly occupied by the 1-story building now contains a vacant lot covered with vegetation and gravel.

The southeastern portion of the site was occupied by a 2-story building used as a manufacturing facility in 1928 and a chemical laboratory from 1935 to 1947. The 2-story building was demolished by 1984. A freight railway easement transected the central portion of the site between 1935 and 1951.

3.2. Development Plan

The proposed development will include demolition of the existing commercial building and removal of the concrete and asphalt surface cover; removal of structurally unsuitable material; and removal of contaminated soil to accommodate construction of a 26-story residential building. The building will include affordable and market-rate rental units and will occupy a footprint of about 18,000 square feet. A full cellar will extend to about 16 feet below surface grade and will include parking, storage, and mechanical areas. The ground floor will also include parking and a lobby, and the 2nd floor will contain amenity spaces. Residential units will occupy the 2nd through 26th floors. A narrow area west of the building will be developed at grade for one level of parking. Schematic design drawings are provided in Appendix A.

3.3. Previous Environmental Reports and Documents

Previous environmental reports and documents were reviewed as part of this RIR and are listed in chronological order below:

- Phase I Environmental Site Assessment (ESA) for 2413 Third Avenue, Bronx, New York, prepared by GO Environmental, dated August 14, 2012.
- Limited Subsurface Investigation Report of Findings, prepared by Groundwork, Inc., dated December 30, 2013.
- Phase I ESA Report, 2413 Third Avenue, Bronx, New York, prepared by Langan, dated December 7, 2015.
- Phase II Environmental Site Investigation Report, 2413 Third Avenue, Bronx, New York, prepared by Langan, dated December 10, 2015.

The documents are summarized below and included in Appendix B.

Phase I Environmental Site Assessment, prepared by GO Environmental, dated August 14, 2012

GO Environmental conducted a Phase I ESA on behalf of Gibraltar Private Bank & Trust in accordance with ASTM E1527-13. The Phase I ESA identified the following Recognized Environmental Conditions (RECs):

- Historical use of the site as a cleaning and casting shop for an iron foundry (late 1800s and early 1900s); a steel and motor truck company (1920s); storage and building supply company (mid-1930s); storage facility for lubricating oils (central portion) (mid-1940s to 2005); chemical laboratory (mid- to late 1940s); and a petroleum facility on the southeastern portion of the Subject Property (mid-1950s to 1980s).
- Surrounding property use by industrial and manufacturing facilities since the 1800s.

Limited Subsurface Investigation Report of Findings, prepared by Groundwork, Inc., dated December 30, 2013

Groundwork, Inc. conducted a limited subsurface investigation consisting of the collection of seven soil samples from seven soil borings, and collection of one groundwater sample from one temporary monitoring well. The soil borings were advanced to 15 feet bgs at exterior locations. Soil samples were collected above the groundwater interface from depths of approximately 5.5 to 6 feet bgs and analyzed for Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO). One boring in the central parking lot and southeast of the building was converted into a temporary groundwater monitoring well. The groundwater sample was collected and analyzed for volatile

organic compounds (VOC) and semi-volatile organic compounds (SVOC). Findings of the investigation are as follows:

- Soil generally consisted of light brown, fine-to-medium silty sand. Staining and odors were not observed and organic vapor concentrations were generally 0.0 parts per million (ppm).
- Groundwater was encountered at approximately 6 feet bgs.
- TPH-DRO were not detected in the soil samples.

VOCs and SVOCs were not detected in the groundwater sample.

Phase I Environmental Site Assessment, 2413 Third Avenue, Bronx, New York, prepared by Langan, dated December 7, 2015

Langan prepared a Phase I ESA on behalf of Somerset Partners, LLC. The report identified the following RECs:

REC 1 – Historical Site Use

Historical site occupants included an iron foundry (1891 to 1908), a motor truck company (1922), drug and chemical companies and laboratories (1927; 1935 to 1949), an oil company (1927), manufacturing facilities (1928), and a floor treatment service (1949).

REC 2 – Historical Petroleum Bulk Storage

Sanborn maps indicate the central portion of the site was used to store lubrication oil from 1935 to 2007.

REC 3 – Historical Use of Surrounding Properties

Historical uses of adjoining and surrounding properties between 1891 and 2010 included manufacturing facilities, a machine shop, a steel company, a drug and chemical company, an oil company, and a shoring company containing an open spill and enrolled in the New York State Brownfield Cleanup Program.

Phase II Environmental Site Investigation Report, 2413 Third Avenue, Bronx, New York, prepared by Langan, dated December 10, 2015

A Phase II ESI was conducted to investigate RECs identified during Langan's 2015 Phase I ESA. The scope of the investigation included a geophysical survey, collection of soil samples from five borings, collection of groundwater samples from three monitoring wells, and collection of three soil vapor samples.

Groundwater was observed at depths between about 7.3 and 7.5 feet bgs, and an approximately 2- to 5-foot layer of historic fill material underlain by sand, silt, and a discontinuous peat layer was identified in the borings. Samples of historic fill material contained SVOCs, pesticides, and metals at concentrations above the Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs).

The VOC and gasoline additive methyl tert-butyl ether (MTBE) was detected in two groundwater samples at concentrations above the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA groundwater. Chlorinated VOCs were not detected in soil vapor samples at concentrations above the minimum threshold at which mitigation is recommended per the NYSDOH Guidance; however, the gasoline constituents n-hexane and heptane were detected in two soil vapor samples at concentrations two orders of magnitude above those detected in the third sample.

3.4. Potential Areas of Concern

Potential Areas of Concern (AOCs) were not previously established for this site. The following potential AOCs were determined based on historical use of the site and conclusions from previous environmental reports, and are shown on Figure 4.

AOC 1: Historical Site Uses

Historical site operations included the following: an iron foundry (1891 to 1908), a motor truck company (1922 to 1956), a drug and chemical corporation (circa 1927), an oil company (circa 1927), manufacturing facilities (circa 1928), a chemical laboratory (1935 to 1949), a freight railway (1935 to 1951), lubricating oil storage (mid-1940s to 2005), and a floor treatment service (circa 1949). Undocumented releases of petroleum products, solvents, or other hazardous substances associated with these former site uses may have impacted soil, groundwater, and/or soil vapor.

AOC 2: Metals- and PCB-impacted Soil

Metals, including copper, lead, mercury, and zinc, were detected at concentrations above the Part 375 Restricted Use Restricted-Residential (RURR) SCOs in the southern and central portions of the site during the 2015 Phase II ESI at depths ranging from 1 to 4 feet bgs. PCBs were detected at a concentration above the UU SCO between 3 and 4 feet bgs on the central portion of the site. The detections may be associated with historical vehicle repair, manufacturing and railway operations, and an iron foundry that occupied the site between 1891 and 1928. The metal impacts are also indicative of potential concentrations above the Resource Conservation and

Recovery Act (RCRA) Maximum Concentration for the Toxicity Characteristic (i.e., characteristic hazardous waste).

AOC 3: Historic Fill Material

Material from an unknown source was used to infill the site during historical development. During the RI, a historic fill layer was identified extending to depths between about 1.5 feet bgs in the central portion of the site to about 12 feet in the southeastern portion of the site (el 7.85 to el -2.5) and is predominantly comprised of brown fine sand with varying amounts of gravel, silt, brick, coal, concrete, slag, and glass fragments. Samples of historic fill material collected during previous investigations contained concentrations of SVOCs, PCBs, pesticides, and metals above RURR SCOs.

AOC 4: Gasoline-Impacted Groundwater

The gasoline additive MTBE was detected in two groundwater samples at concentrations above the TOGS AGV during the 2015 Phase II ESI. As MTBE was primarily used between the mid-1990s and mid-2000s, potential on-site sources for the MTBE were not identified during the Phase II ESI.

4.0 FIELD INVESTIGATION

The RI was conducted on June 6 through June 10 and September 27 through October 9, 2019. The investigation included soil boring advancement; exploratory test pit excavation; monitoring well installation; soil vapor sample point installation; and collection of soil, groundwater, soil vapor, and ambient air samples. A sample summary is provided in Table 1, and a sample location plan is provided in Figure 5.

The RI consisted of the following activities:

Soil Boring Advancement and Sampling

- Twenty-five soil borings (SB06 through SB28, SB30, and SB31) were advanced between 12 and 16 feet bgs.
- Up to two soil samples were collected from each boring. Three samples were collected from borings SB24 and SB25 to evaluate indications of petroleum impacts. Fifty-three soil samples were submitted for laboratory analysis (including quality assurance/quality control [QA/QC] samples).

Exploratory Test Pit Excavation and Sampling

- Three exploratory test pits (TP01 through TP03) were excavated to about 2.5 feet bgs within the footprint of a former railway easement.
- One soil sample was collected from each test pit.

Monitoring Well Installation and Sampling

- Four temporary and three permanent groundwater monitoring wells were installed. Permanent wells included two 2-inch diameter wells at exterior boring locations (MW18 and MW24) and one one-inch diameter well at an interior boring location (MW19). One groundwater sample was collected from each monitoring well, for a total of seven groundwater samples (including QA/QC samples).
- Permanent groundwater monitoring wells were surveyed and gauged to evaluate groundwater flow direction.

Soil Vapor Sample Point Installation and Sampling

- Five soil vapor sample points (SV06, SV12, SV16, SV22, and SV24) and two sub-slab soil vapor points (SSV10 and SSV11) were installed. Soil vapor sample points were installed at 5 feet bgs and sub-slab soil vapor points were installed at 2 inches bgs. A soil vapor sample was collected from each sample point for a total of seven samples.

- One ambient air sample (AA01) was collected from an exterior location concurrently with the three October 2019 soil vapor samples.

The RI was conducted in accordance with 6 NYCRR Part 375, the May 2010 NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, the May 2004 NYSDEC Draft BCP Guide, and the October 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (updated May 2017).

4.1. Geophysical Investigation

NOVA Geophysical & Environmental, Inc. of Douglaston, New York conducted a geophysical survey under the supervision of a Langan field scientist on June 6, 2019, prior to intrusive activities. The survey used ground-penetrating radar (GPR) and electromagnetic detection equipment to identify potential USTs and locate buried utilities and other structures. The survey identified municipal electrical, water, sewer, and gas lines entering the property and existing building from Third Avenue. A north-south-trending buried linear structure on the east side of the central portion of the site appears to coincide with the former location of railroad tracks. The survey did not reveal buried anomalies indicative of storage tanks or vaults, but noted the presence of elevated geophysical signal noise, due to the surrounding urban environment and debris covering the ground surface. Elevated signal noise can alter subsurface reflections and inhibit GPR resolution. The geophysical survey report is included in Appendix C.

Prior to advancing soil borings, locations adjacent to utility lines were hand cleared to a minimum depth of 5 feet bgs to identify any potential subsurface utilities. Once the absence of subsurface utilities was confirmed, an adjacent boring location was advanced using a Geoprobe unit.

4.2. Soil Boring and Test Pit Investigation

4.2.1. Investigation Methodology

Soil borings were advanced by AARCO Environmental Services Corp. (AARCO) of Lindenhurst, New York on June 6 through June 7 and September 27 through October 3, 2019 to investigate the AOCs listed in Section 3.4. Exploratory test pits were excavated by Kingdom Associates of Maspeth, New York on June 21, 2019. Soil boring and test pit locations are shown on Figure 5. Exterior soil borings were advanced using a Geoprobe® 7730DT or Geoprobe® 6610DT direct-push track-mounted drill rig, and interior borings were advanced using a Geoprobe® 420M direct-push limited access drill rig to depths up to 16 feet bgs. Test pits were excavated using a CAT mechanical excavator to 2 feet bgs.

Soil was collected from each soil boring into 4-foot dedicated acetate sleeves. Soil samples were taken from the acetate sleeves and were collected directly from the sidewalls of the test pits. Soil was screened for visual, olfactory, and instrumental evidence of environmental impacts, and was visually classified for soil type, grain size, texture, and moisture content. Instrumental screening for the presence of VOCs was performed with a PID equipped with a 10.6 eV lamp. Boring logs and test pit logs documenting these observations are provided in Appendix D. Following sample collection, borings and test pits were backfilled with soil cuttings that did not display evidence of environmental impacts or were converted into permanent groundwater monitoring wells. Excess soil cuttings were placed into sealed and labeled United Nations (UN)/Department of Transportation (DOT)-approved 55-gallon drums for disposal.

4.2.2. Sampling Methodology

Fifty-three soil samples (plus QA/QC samples) were collected from the soil borings and test pits for laboratory analysis. Up to two grab soil samples were collected from most borings from the following depth intervals:

- 0 to 2 feet bgs;
- Groundwater interface or soil exhibiting the greatest degree of impact, if observed, based on the presence of fill, staining, odors, and/or PID readings above background; and
- First underlying depth interval without evidence of impacts, if observed.

One soil sample was collected from each test pit.

Samples were collected using appropriate laboratory-supplied containers for the analyses. Samples collected for VOC analysis were sampled directly from the acetate liner (or directly from the test pits) using laboratory-supplied Terra Core™ samplers. Sample containers were labeled, placed in a laboratory-supplied coolers, and packed on ice to maintain a temperature of about 4°C. Coolers were retrieved at the end of each day by a laboratory courier and transported under standard chain-of-custody protocol to York Analytical Laboratories, Inc. in Stratford, Connecticut or Alpha Analytical, Inc. of Westborough, Massachusetts. York and Alpha are certified by the NYSDOH Environmental Laboratory Approval Program (ELAP).

Soil samples were analyzed for the following parameters:

- Part 375 /Target Compound List (TCL) VOCs using USEPA Method 8260C;
- Part 375 SVOCs using USEPA Method 8270;
- PCBs using USEPA Method 8082A;
- Part 375 pesticides using USEPA Method 8081B;

- Part 375 herbicides using USEPA Method 8151A;
- Part 375/Target Analyte List (TAL) metals using USEPA Methods 6010, 7473 (Mercury), and 7196A (hexavalent chromium);
- NYSDEC 21-compound list of per- and polyfluoroalkyl substance (PFAS) using Modified USEPA Method 537;
- 1,4-Dioxane using USEPA Method 8270 SIM; and/or
- Toxicity Characteristic Leaching Procedure (TCLP) metals.

Note that the PFAS analytical method, EPA Method 537, was developed and validated for the analysis of finished drinking water from surface water and groundwater sources. Laboratories have modified Method 537 to enable the analysis of groundwater and soil, and to incorporate PFAS analytes not currently addressed by the promulgated method. NYSDOH offers certification for PFOA and PFOS in the drinking water category. Non-potable water and soil certification is not available; however, the method describes acceptable modifications. EPA recommends that modified methods be assessed relative to project goals and data quality objectives.

A sample summary is provided in Table 1.

4.3. Groundwater Investigation

Three permanent groundwater monitoring wells (MW18, MW19, and MW24) and four temporary groundwater monitoring wells (TMW06, TMW08, TMW11, and TMW12) were installed. One groundwater sample was collected from each monitoring well. In total, seven groundwater samples (plus QA/QC samples) were collected. Each well was sampled to characterize groundwater conditions and to investigate potential groundwater impacts. Groundwater monitoring wells are shown on Figure 5.

4.3.1. Monitoring Well Installation and Development Methodology

Three permanent groundwater monitoring wells were installed in borings SB18, SB19, and SB24. Monitoring well MW19 was installed to 15 feet bgs by inserting a 1-inch diameter, Schedule 40 polyvinyl chloride (PVC) well screen (0.020-inch slot) with attached risers into the borehole. The remaining two permanent wells were installed to 16 feet bgs by inserting 2-inch diameter, Schedule 40 PVC well screen (0.020-inch slot) with attached risers into each borehole. Temporary monitoring wells were installed by inserting 10 feet of 1-inch diameter, Schedule 40 PVC well screen (0.020-inch slot) into the boring. Monitoring wells were installed with 10-foot screens straddling the groundwater table. The annulus of each well was filled with No. 2 clean sand to about two feet above the top of the screen, and about three feet of hydrated bentonite was placed above the filter sand. The overlying annulus was filled with clean sand or unimpacted

soil cuttings, and grout. Each permanent well was finished with a flush-mounted, bolt-down manhole set into a concrete collar.

Following installation, each well was purged with a peristaltic pump and each permanent well was developed using a submersible pump. Development water was placed into sealed and labeled UN/DOT-approved 55-gallon drums. Well construction summary logs are included in Appendix E.

Langan surveyed the top of the permanent groundwater monitoring well casings on November 14, 2019, and a Langan field engineer completed synoptic groundwater gauging of the monitoring wells on October 9, 2019. Groundwater elevations are presented in Table 2, and a groundwater contour map is provided as Figure 3.

4.3.2. Groundwater Sampling

Following installation, temporary monitoring wells were developed by purging a minimum of three well volumes using a peristaltic pump. Permanent monitoring wells were sampled about one week after development in accordance with the USEPA's low-flow groundwater sampling procedure to allow for collection of a representative sample ("Low Stress [Low Flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", dated July 30, 1996). Prior to sample collection, groundwater was purged from each well until the physical and chemical groundwater parameters (pH, conductivity, turbidity, dissolved oxygen [DO], temperature, and oxidation-reduction potential [ORP]) stabilized and turbidity measurements were below 50 Nephelometric Turbidity Units (NTU), or for a minimum of one hour.

Seven groundwater samples (plus QA/QC samples) were collected into laboratory-supplied glassware. Sample containers were labeled, placed in laboratory-supplied coolers, and packed on ice to maintain a temperature of about 4°C. Coolers were retrieved at the end of each day by a laboratory courier and transported under standard chain-of-custody protocol to York and Alpha. Groundwater samples were analyzed for TCL VOCs and SVOCs, pesticides, herbicides, PCBs, and TAL metals (total and dissolved).

Groundwater samples collected from wells MW18, MW19, and MW24 were also analyzed for the NYSDEC PFAS target analyte list using Modified USEPA Method 537 and 1,4-dioxane using EPA Method 8270 SIM. The PFAS samples were collected in accordance with the NYSDEC June 2016 Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol and February 2018 Guidance for

Groundwater Sampling for Emerging Contaminants. The PFAS samples were collected using high-density polyethylene (HDPE) tubing and a peristaltic pump, and placed into HDPE bottleware.

The samples were analyzed for the following PFAS compounds:

- 6:2 Fluorotelomer sulfonate (6:2 FTS);
- 8:2 Fluorotelomer sulfonate (8:2 FTS);
- N-ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA);
- N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA);
- Perfluorobutanesulfonic acid (PFBS);
- Perfluorobutanoic acid (PFBA);
- Perfluorodecanesulfonic acid (PFDS);
- Perfluorodecanoic acid (PFDA);
- Perfluorododecanoic acid (PFDoA);
- Perfluoroheptanesulfonic acid (PFHpS);
- Perfluoroheptanoic acid (PFHpA);
- Perfluorohexanesulfonic acid (PFHxS);
- Perfluorohexanoic acid (PFHxA);
- Perfluorononanoic acid (PFNA);
- Perfluorooctanesulfonamide (FOSA);
- Perfluorooctanesulfonic acid (PFOS);
- Perfluorooctanoic acid (PFOA);
- Perfluoropentanoic acid (PFPeA);
- Perfluorotetradecanoic acid (PFTA/PFTeDA);
- Perfluorotridecanoic acid (PFTriA/PFTrDA); and
- Perfluoroundecanoic acid (PFUA/PFUnA).

Groundwater sampling logs are included in Appendix F.

4.4. Soil Vapor Investigation

NYSDEC DER-10 requires an assessment of soil vapor for contaminated sites. The assessment is to evaluate the health risk associated with potential exposure to VOCs through vapor intrusion into occupied spaces. Seven soil vapor and one ambient air sample were collected. Sampling locations are presented on Figure 5

.

4.4.1. Soil Vapor Sample Point Installation

Seven sub-surface soil vapor sampling points were installed by AARCO with a Geoprobe® direct push drill rig under the observation of a Langan engineer. The sample points were installed in accordance with the 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Five sample points (SV06, SV12, SV16, SV22, and SV24) were installed within the vadose zone at about 5 feet bgs and two sample points (SSV10 and SSV11) were installed about 2 inches below the building slab.

The sub-surface sample points were constructed with new, dedicated 1 7/8-inch polyethylene implant installed at the target depth, and connected to 3/16-inch diameter polyethylene tubing that was sealed at grade with hydrated bentonite. Soil vapor sample construction and sampling logs are provided in Appendix G.

4.4.2. Soil Vapor Sampling and Analysis

As a QA/QC measure, an inert tracer gas (i.e., helium) was introduced into an above-grade sampling chamber to ensure that the sample points were properly sealed above the target sampling depth, thereby preventing subsurface infiltration of ambient air. Direct readings of helium of less than 10 percent in the sampling tube were considered sufficient to verify a tight seal. On the same day that soil vapor sampling was conducted, a sufficiently tight seal was verified at each sample point.

Each sample point was purged using a MultiRAE meter at a rate of about 0.2 liters per minute (L/min) to evacuate a minimum of three sample tubing volumes prior to sample collection. The purged soil vapor was also monitored for VOCs. After purging, soil vapor samples were collected into laboratory-supplied, batch-certified, 2.7-liter or 6-liter Summa® canisters calibrated for a sampling rate of about 0.02 L/min or 0.05 L/min over 120 minutes (two hours) of sampling. For QA/QC purposes and for comparison to background conditions, one outdoor ambient air sample was collected during the sampling event. The canisters were labeled and transported under standard chain-of-custody protocol to Alpha and York for analysis of VOCs by USEPA Method TO-15.

4.5. Quality Control Sampling

Field blanks, trip blanks, field duplicate samples, and matrix spike/matrix spike duplicate (MS/MSD) samples were collected and submitted for laboratory analysis. QA/QC samples are summarized in Table 1 and included the following:

Soil

- Two field duplicate samples;
- Two MS/MSD samples;
- Two field blank samples; and
- Five trip blank samples.

Groundwater

- One field duplicate sample;
- One MS/MSD sample;
- One field blank sample; and
- One trip blank sample.

Soil Vapor

- One exterior ambient air sample.

Field blanks were collected to determine the effectiveness of the decontamination procedures for the groundwater sampling equipment train and the cleanliness of unused neoprene gloves and acetate liners used to collect soil samples. Field blank samples consisted of deionized, distilled water provided by the laboratory that passed through the sampling apparatus. Field blank samples were analyzed for the same list of analytes as the corresponding sampling event and sample matrix.

MS/MSD samples were collected to assess the effect of the sample matrix on the recovery of target compounds or target analytes. The field duplicates were collected to assess the precision of the analytical methods relative to the sample matrix. Each grab duplicate was collected from the same material as the primary sample by collecting one volume of material and splitting the volume in the field into two discrete aliquots that were placed in separate sample containers.

The trip blank samples were collected to assess the potential for contamination of sample containers and samples during transport between the laboratory and field. Trip blanks contain about 40 milliliters of acidic water (doped with hydrochloric acid). Trip blanks are sealed by the laboratory when the empty sample containers are shipped to the field. The trip blanks are

unsealed and analyzed by the laboratory when the sample shipment is received from the field. The trip blank samples were analyzed for VOCs.

4.6. Data Validation

Data from the RI were validated by a Langan data validator in accordance with USEPA and NYSDEC validation protocols. Copies of the data usability summary reports (DUSR) and the data validator's credentials are provided in Appendix H.

4.6.1. Data Usability Summary Report Preparation

A DUSR was prepared for each sampling matrix. The DUSR presents the results of data validation, including a summary assessment of laboratory data packages, sample-preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

For the soil and groundwater samples, the following items were assessed:

- Holding times;
- Sample preservation;
- Sample extraction and digestion;
- Laboratory blanks;
- Laboratory control samples;
- System monitoring compounds;
- MS/MSD recoveries; and
- Field duplicate, trip blank, and field blank sample results.

For the soil vapor samples, the following items were assessed:

- Holding times;
- Canister certification;
- Laboratory blanks;
- Laboratory control samples;
- System monitoring compounds; and
- Target compound identification and qualification.

Based on the results of data validation, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- "U" – The analyte was analyzed for but was not detected at a level greater than or equal to the reporting limit (RL) or the sample concentration for results impacted by blank contamination.
- "UJ" – The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
- "J" – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- "R" – The sample results are not useable due to the quality of the data generated (i.e., certain criteria were not met). The analyte may or may not be present in the sample.
- "B" – Analyte was found in the associated analysis batch blank.
- "D" – Result is from an analysis that required dilution.

After data validation activities were complete, validated data were used to prepare the tables and figures included in this report.

4.7. Field Equipment Decontamination

Handheld sampling equipment, including interface probes and water quality meters were decontaminated by hand using an Alconox®-based solution, and triple rinsed with distilled water. Liquids were temporarily contained in five-gallon buckets, and between rinses, equipment was placed such that contact with the ground was avoided. Decontamination wastewater was drummed for disposal.

4.8. Investigation-Derived Waste Management

Investigation-derived wastes (IDW) generated during the RI were properly handled and containerized, as necessary. Impacted soil waste from borings, aqueous waste from monitoring well development and purging, and decontamination water were placed into UN/DOT-approved 55-gallon steel drums with sealed tops. The drums were staged in a secured area on-site for future off-site disposal.

5.0 FIELD OBSERVATIONS AND ANALYTICAL RESULTS

This section summarizes the field observations and laboratory analytical results from the RI. Soil analytical results are compared to the 6 NYCRR Part 375 UU SCOs and Restricted Use – Restricted-Residential (RURR) SCOs. Groundwater analytical results are compared to the NYSDEC Technical and Operational Guidance Series (TOGS) Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA (drinking water). Soil vapor sample results are compared to the May 2017 Decision Matrices issued as an update to the 2006 NYSDOH Soil Vapor Intrusion Guidance, the New York State Department of Health Air Guideline Values (NYSDOH AGVs), and ambient air sample concentrations. The nature and extent of contamination is discussed in Section 7.0.

A summary of the soil, groundwater, soil vapor, and QA/QC samples is provided in Table 1. Copies of the laboratory analytical reports are provided in Appendix I. Summaries of the analytical results for the soil, groundwater, soil vapor, and QA/QC samples are provided in the following tables:

- Table 1: Remedial Investigation Sample Summary
- Table 2: Groundwater Elevation Data Summary
- Table 3: Soil Sample Analytical Results Summary
- Table 4A: Groundwater Sample Analytical Results Summary
- Table 4B: Groundwater Sample Analytical Results Summary - Emerging Contaminants
- Table 5: Soil Vapor and Ambient Air Sample Analytical Results Summary
- Table 6: QA/QC Sample Analytical Results Summary

The following sections describe the field observations and analytical data generated during the RI.

5.1. Geophysical Survey Findings

A geophysical survey was conducted on June 6, 2019, prior to intrusive activities. The June 2019 survey identified municipal electrical, water, sewer, and gas lines entering the property and existing building from Third Avenue. A north-south-trending buried linear structure on the east side of the central portion of the site appears to coincide with the former location of railroad tracks. The survey did not reveal buried anomalies indicative of storage tanks or vaults, but noted the presence of elevated geophysical signal noise, due to the surrounding urban environment and debris covering the ground surface. Elevated signal noise can alter subsurface reflections and inhibit GPR resolution. A copy of the June 2019 geophysical survey report is included in Appendix C.

5.2. Geology and Hydrogeology

Geologic and hydrogeologic observations during the RI are described below. An inferred groundwater elevation contour map is provided as Figure 3. Soil boring and test pit logs are provided in Appendix D.

5.2.1. Historic Fill Material

Historic fill material was encountered beneath the surface cover and extends to depths that vary between about 1.5 feet and 12 feet bgs. The thickness of the fill layer varies throughout the site. The fill generally consists of brown fine sand with varying amounts of gravel, silt, brick, coal, concrete, slag, and glass fragments.

5.2.2. Native Soil

The fill material is underlain by native soil generally consisting of medium-grained sand with varying amounts of silt, clay, fine sand, coarse sand, and fine gravel. A discontinuous layer of organic clay was intermittently observed in six soil borings across much of the site between about 7 and 12 feet bgs. A discontinuous layer of peat was observed in three soil borings in the same areas and at similar depths to the clay layer.

5.2.3. Bedrock

Bedrock was not encountered during the RI.

5.2.4. Hydrogeology

Synoptic groundwater-level measurements were collected in June 2019 for the temporary monitoring wells and in October 2019 for the permanent monitoring wells. Langan surveyed the top of casing of each permanent groundwater monitoring well on November 14, 2019. Groundwater was encountered between el. 0.7 (MW19) and el. 0.8 (MW24), and at depths between 6.62 feet bgs (MW19) and 8.50 feet bgs (TMW06). Based on the data, the inferred direction of groundwater flow is to the southwest towards the Harlem River. The inferred direction of regional groundwater flow is also to the southwest towards the Harlem River. A groundwater contour map is provided on Figure 3.

5.3. Soil Findings

5.3.1. Field Observations

Field observations of petroleum-like impacts, based on visual, olfactory and PID readings above background, were apparent in soil borings SB06, SB12, SB13, SB14, SB24, and SB25. A summary of observed impacts is provided in the following table:

BORING	LOCATION	STAINING (FEET BGS)	ODORS (FEET BGS)	MAXIMUM PID READING ABOVE BACKGROUND (PPM)
SB06	Northwestern portion of site	7 to 8	7 to 8	-
SB12	Southeastern portion of site	-	-	71.1 (3 feet bgs)
SB13	Southeastern portion of site	-	10 to 11	-
SB14	Southeastern portion of site	-	-	29.0 (3 to 4 feet bgs)
SB24	Northwestern portion of site	11 to 15	11 to 15	-
SB25	Northwestern portion of site	6 to 8	6 to 8	-

Evidence of petroleum or other hazardous substance impacts was not observed.

5.3.2. Analytical Results

Fifty-three soil samples and two duplicate and MS/MSD samples were collected for laboratory analysis. Soil samples were analyzed for one or more of the Part 375/TCL+30 list VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), 1,4-dioxane (via SIM), and NYSDEC-listed PFAS compounds. The target analytical parameters for each sample were specific to the AOC and sample depth and summarized in Table 1.

Summaries of laboratory detections for soil samples collected during the RI are provided in Table 3 with comparisons to the Part 375 UU SCOs and RURR SCOs. Soil sample results that exceed SCOs are shown on Figure 6.

VOCs

Two petroleum-related VOCs (total xylenes and benzene), one chlorinated VOC (cis-1,2-dichloroethene) and two other VOCs (acetone and 2-butanone) were detected in soil samples at concentrations exceeding UU SCOs. Total xylenes and cis-1,2-dichloroethene (DCE) were

detected at concentrations above the UU SCO in one sample collected from soil boring SB25 between 6 and 8 feet bgs, and benzene was detected at a concentration above the UU SCO in two samples collected from soil borings SB12 between 5 and 6 feet and SB15 between 3 and 4 feet. The total xylene and cis-1,2-DCE detections correspond with staining, petroleum-like odors, and PID detections in boring SB25, which was located on the northwestern portion of the site. The benzene detection in boring SB12, which was located on the southeastern portion of the site, corresponds with a PID detection above background at 3 feet bgs.

Acetone was detected at concentrations above the UU SCO in 10 samples collected at various depth intervals between 1 and 8.5 feet bgs from borings SB06, SB07, SB11, SB12, SB13, SB14, SB16, and SB31. 2-Butanone (methyl ethyl ketone) was detected at concentrations above the UU SCO in samples collected from soil boring SB25 between 6 and 8 feet bgs and SB31 between 0 and 2 feet bgs. Acetone and 2-butanone are common laboratory contaminants that may be laboratory artifacts and not representative of site soil.

The following list identifies VOCs detected above UU SCOs. The list includes the range of concentrations above the SCO for each VOC, followed by the Part 375 SCO in parentheses.

- 2-butanone (methyl ethyl ketone): 0.17 mg/kg in SB31_0-2 to 0.48 mg/kg in SB25_6-8 (UU SCO of 0.12 mg/kg);
- Acetone: 0.051 mg/kg in SB31_6.5-8.5 to 0.27 mg/kg in SB13_3-4 (UU SCO of 0.05 mg/kg);
- Benzene: 0.12 mg/kg in SB12_5-6 and SB15_3-4 (UU SCO of 0.06 mg/kg);
- cis-1,2-dichloroethene: 0.72 mg/kg in SB25_6-8 (UU SCO of 0.25 mg/kg); and
- Xylenes (total): 1.1 mg/kg in SB25_6-8 (UU SCO of 0.26 mg/kg).

SVOCs

Nine SVOCs were detected in 11 soil borings and three test pits at concentrations above the UU and/or RURR SCOs. The samples exceeding the SCOs were collected from historic fill material from depths between surface grade and 8 feet bgs. SVOC concentrations above the SCOs were detected in borings SB06, SB07, SB08, SB13, SB15, SB16, SB17, SB20 (and duplicate sample RISODUP02_100319), SB25, SB26, and SB30, and the three test pits.

The following list identifies SVOCs detected above the SCOs. The list includes the range of concentrations above the SCO for each SVOC, followed by the respective Part 375 SCO in parentheses.

- 2-Methylphenol (o-Cresol): 35 mg/kg in SB15_3-4 (UU SCO of 0.33 mg/kg);

- Benzo(a)anthracene: 1.2 mg/kg in SB07_2-3 to 13.6 mg/kg in SB17_5.5-7.5 (UU and RURR SCO of 1 mg/kg);
- Benzo(a)pyrene: 1.3 mg/kg in TP02_1.5-2 to 13.0 mg/kg in SB17_5.5-7.5 (UU and RURR SCO of 1 mg/kg);
- Benzo(b)fluoranthene: 1.2 mg/kg in SB07_2-3 to 13 mg/kg in SB06_ 1-2 (UU and RURR SCO of 1 mg/kg);
- Benzo(k)fluoranthene: 0.83 mg/kg in SB30_0-2 to 11.2 mg/kg in SB17_5.5-7.5 (UU SCO of 0.8 mg/kg and RURR SCO of 3.9 mg/kg);
- Chrysene: 1.16 mg/kg in SB30_0-2 to 12.90 mg/kg in SB17_5.5-7.5 (UU SCO of 1 mg/kg and RURR SCO of 3.9 mg/kg);
- Dibenz(a,h)anthracene: 0.41 mg/kg in TP03_1-1.5 to 2.84 mg/kg in SB17_5.5-7.5 (UU and RURR SCO of 0.33 mg/kg);
- Indeno(1,2,3-cd)pyrene: 0.514 mg/kg in SB25_6-8 to 8.03 mg/kg in SB17_5.5-7.5 (UU and RURR SCO of 0.5 mg/kg); and
- Phenol: 9.5 mg/kg in SB15_3-4 (UU SCO of 0.33 mg/kg).

PCBs

Total PCBs were detected above the UU SCOs and/or RURR SCOs in seven soil borings, including SB06, SB07, SB14, SB15, SB16, SB25, and SB26, and the three test pits. PCB concentrations ranged from 0.138 mg/kg in SB25_6-8 to 2.59 mg/kg in SB06_7-8 (UU SCO of 0.1 mg/kg and RURR SCO of 1 mg/kg).

Pesticides

Seven pesticides were detected at concentrations above the Part 375 UU SCOs in borings SB07, SB15, SB16, SB17, SB25, and SB26 and the three test pits. The samples were collected from fill material at depths between surface grade and 7.5 feet bgs.

The following list identifies pesticides detected above the SCOs. The list includes the range of concentrations above the SCO for each pesticide.

- 4,4'-DDD: 0.0637 mg/kg in SB15_3-4 to 0.0739 mg/kg in SB07_2-3 (UU SCO of 0.0033 mg/kg);
- 4-4' DDE: 0.00708 mg/kg in SB25_0-2 to 0.0539 mg/kg in TP03_1-1.5 (UU SCO of 0.0033 mg/kg);
- 4-4' DDT: 0.0233 mg/kg in SB07_2-3 to 0.114 mg/kg in SB17_5.5-7.5 (UU SCO of 0.0033 mg/kg);

- Alpha BHC (Alpha Hexachlorocyclohexane): 0.0884 mg/kg in SB15_3-4 (UU SCO of 0.02 mg/kg);
- Beta Bhc (Beta Hexachlorocyclohexane): 0.113 mg/kg in SB15_3-4 to 0.142 mg/kg in TP01_2-2.5 (UU SCO of 0.036 mg/kg);
- Dieldrin: 0.00505 mg/kg in TP03_1-1.5 to 0.00701 mg/kg in TP01_2-2.5 (UU SCO of 0.005 mg/kg); and
- Gamma Bhc (Lindane): 0.113 mg/kg in SB15_3-4 (UU SCO of 0.1 mg/kg).

Herbicides

Herbicides were not detected above the Part 375 UU SCOs.

Metals

Six metals (arsenic, barium, cadmium, copper, lead, and mercury) were detected at concentrations above RURR SCOs, and six additional metals were detected at concentrations above UU SCOs. Metals concentrations above the SCOs were detected in each boring and test pit, with the exception of SB08, SB09, SB10, SB19, and SB23. The metals exceeded the SCOs in samples collected from historic fill material and native soil at depths between surface grade and 16 feet bgs. The deepest sample exceeding the RURR SCOs was collected from 5.5 to 7.5 feet bgs in boring SB17 and contained lead at 969 mg/kg and barium at 624 mg/kg.

The following list identifies metals detected above the SCOs. The list includes the range of concentrations above the SCO for each metal, followed by the respective Part 375 SCOs in parentheses.

- Arsenic: 14.5 mg/kg in SB20_0-2 to 19.9 in RISODUP02_100319 (duplicate sample of SB20_0-2) (UU SCO of 13 mg/kg and RURR SCO of 16 mg/kg);
- Barium: 414 mg/kg in TP02_1.5-2 to 624 mg/kg in SB17_5.5-7.5 (UU SCO of 350 mg/kg and RURR SCO of 400 mg/kg);
- Cadmium: 2.83 mg/kg in SB12_3-4 to 7.14 mg/kg in TP01_2-2.5 (UU SCO of 2.5 mg/kg and RURR SCO: 4.3 mg/kg);
- Chromium (trivalent): 31.5 mg/kg in SB20_0-2 to 45 mg/kg in TP01-2-2.5 (UU SCO of 30 mg/kg);
- Chromium (hexavalent): 2.11 mg/kg in SB24_0-2 (UU SCO of 1 mg/kg);
- Copper: 54.2 mg/kg in SB07_3-4 to 422 mg/kg in TP01_2-2.5 (UU SCO of 50 mg/kg and RURR SCO: 270 mg/kg);
- Lead: 87.5 mg/kg in SB27_0-2 to 7,360 mg/kg in RISODUP02_100319 (duplicate sample of SB20_0-2) (UU SCO of 63 mg/kg and RURR SCO of 400 mg/kg);

- Mercury: 0.183 mg/kg in SB06_1-2 to 4.47 mg/kg in SB13_3-4 (UU SCO of 0.18 mg/kg and RURR SCO: 0.81 mg/kg);
- Nickel: 35.8 mg/kg in SB27_0-2 to 66 mg/kg in SB15_3-4 (UU SCO of 30 mg/kg);
- Selenium: 7.28 mg/kg in SB24_15-16 (UU SCO of 3.9 mg/kg);
- Silver: 15.3 mg/kg in TP01_2-2.5 (UU SCO of 2 mg/kg); and
- Zinc: 134 mg/kg in SB26_6-8 to 2,060 mg/kg in RISODUP02_100319 (duplicate sample of SB20_0-2) (UU SCO of 109 mg/kg).

Based on the total metals concentrations in borings SB06, SB07, SB11, SB13, SB14, SB15, SB16, RISODUP02 (duplicate of SB20), SB26 and in test pit TP01, corresponding soil samples were also analyzed for TCLP arsenic, barium, lead and/or mercury and compared to the Resource Conservation and Recovery Act (RCRA) Maximum Concentration of Contaminants for the Toxicity Characteristic (Toxicity Characteristic Limit). Concentrations of arsenic, barium, and mercury were not indicative of hazardous waste. The concentration of lead in sample RISODUP02_100319 (SB20_0-2) was 74.1 mg/kg, which exceeds the RCRA Toxicity Characteristic Limit of 5 mg/kg. Soil in the central portion of the site therefore contains lead at a concentration indicative of hazardous waste.

PFAS and 1,4-Dioxane

There are currently no soil standards for PFAS compounds in New York State. PFAS compounds were detected in six of the seventeen analyzed soil samples with total PFOA and PFOS concentrations between 936 nanograms per kilogram (ng/kg) in SB18_0-2 to 2,920 ng/kg in SB17_0-2.

1,4-dioxane was not detected in soil samples.

5.4. Groundwater Findings

5.4.1. Field Observations

Monitoring wells were gauged for non-aqueous phase liquid (NAPL) with an oil-water interface probe. The interface probe did not indicate the presence of NAPL, and PID headspace readings were not detected above background levels in the monitoring wells gauged. During the gauging events in June and October 2019, groundwater was encountered between 6.62 and 8.50 feet bgs. The elevations of the three permanent wells were surveyed and groundwater in those wells was encountered between el. 0.7 (6.62 feet bgs) at MW19 and el. 0.8 (8.15 feet bgs) at MW24. The inferred direction of groundwater flow is towards the southwest towards the Harlem River.

5.4.2. Analytical Results

Seven groundwater samples, one duplicate sample, and one MS/MSD sample set were collected for laboratory analysis from the monitoring wells. The samples were analyzed for TCL VOCs and SVOCs, PCBs, pesticides, herbicides, and TAL metals (total and dissolved). Samples from three monitoring wells (MW18, MW19, and MW24) were additionally analyzed for 1,4-dioxane via SIM and NYSDEC-listed PFAS. Analytical detections with comparison to the TOGS SGVs, where applicable, are summarized in Table 4A, and emerging contaminant detections in groundwater are summarized in Table 4B. Groundwater sample locations and results that exceed the TOGS SGVs are shown on Figure 7. The analytical results are compared to the TOGS SGVs as follows.

VOCs

VOCs were not detected above the TOGS SGVs.

SVOCs

Three groundwater samples (TMW06, TMW11, and TMW12) contained SVOCs at concentrations above the TOGS SGVs. The following SVOCs were detected above the TOGS SGVs:

- Benzo(a)anthracene: 0.03 micrograms per liter (µg/L) in TMW12 to 0.2 µg/L in TMW06 (TOGS SGV of 0.002 µg/L);
- Benzo(a)pyrene: 0.02 µg/L in TMW11 to 0.19 µg/L in TMW06 (TOGS SGV of non-detect);
- Benzo(b)fluoranthene: 0.06 µg/L in TMW11 to 0.25 µg/L in TMW06 (TOGS SGV of 0.002 µg/L);
- Benzo(k)fluoranthene: 0.02 µg/L in TMW11 to 0.1 µg/L in TMW06 (TOGS SGV of 0.002 µg/L);
- Chrysene: 0.01 µg/L in TMW12 to 0.18 µg/L in TMW06 (TOGS SGV of 0.002 µg/L); and
- Indeno(1,2,3-c,d)pyrene: 0.06 µg/L in TMW11 to 0.16 µg/L in TMW06 (TOGS SGV of 0.002 µg/L).

PCBs, Pesticides, and Herbicides

PCBs, pesticides, and herbicides were not detected above the TOGS SGVs.

Metals

Groundwater samples collected from each monitoring well contained total and dissolved metals at concentrations above the TOGS SGVs.

The following list identifies metals detected above the TOGS SGVs. The list includes the range of concentrations above the standard with the applicable SGVs shown in parentheses.

Total Metals

- Antimony: 6.26 µg/L in TMW06 (TOGS SGV of 3 µg/L);
- Arsenic: 34.05 µg/L in TMW06 (TOGS SGV of 25 µg/L);
- Chromium, Total: 101.6 µg/L in TMW06 (TOGS SGV of 50 µg/L);
- Copper: 372.8 µg/L in TMW06 (TOGS SGV of 200 µg/L);
- Iron: 369 µg/L in RIGWDUP01_100919 (duplicate of MW24) to 83,100 µg/L in TMW06 (TOGS SGV of 300 µg/L);
- Lead: 1,325 µg/L in TMW06 (TOGS SGV of 25 µg/L);
- Magnesium: 37,100 µg/L in MW18 to 124,000 µg/L in TMW06 (TOGS SGV of 35,000 µg/L);
- Manganese: 384.6 µg/L in TMW11 to 4,038 µg/L in TMW06 (TOGS SGV of 300 µg/L);
- Mercury: 1.55 µg/L in TMW06 (TOGS SGV of 0.7 µg/L);
- Nickel: 106.9 µg/L in TMW06 (TOGS SGV of 100 µg/L);
- Selenium: 10.9 µg/L in TMW06 to 19 µg/L in MW19 (TOGS SGV of 10 µg/L); and
- Sodium: 42,400 µg/L in TMW11 to 798,000 µg/L in TMW06 (TOGS SGV of 20,000 µg/L).

Dissolved Metals

- Iron: 688 µg/L in TMW12 (TOGS SGV of 300 µg/L);
- Magnesium: 38,700 µg/L in MW18 to 58,400 µg/L in MW19 (TOGS SGV of 35,000 µg/L);
- Manganese: 331.6 µg/L in TMW12 to 996 µg/L in MW18 (TOGS SGV of 300 µg/L);
- Selenium: 19.7 µg/L in MW19 to 20.2 µg/L in MW18 (TOGS SGV of 10 µg/L); and
- Sodium: 41,700 µg/L in TMW11 to 729,000 µg/L in TMW12 (TOGS SGV of 20,000 µg/L).

PFAS and 1,4-Dioxane

There are currently no groundwater standards for PFAS compounds in New York State. The USEPA has a recommended lifetime health advisory (HA) of 70 nanograms per liter (ng/L) for the combined concentrations of PFOA and PFOS. PFAS compounds were detected in the three sampled monitoring wells with total PFOA and PFOS concentrations between 98.4 ng/L in MW24 and 121 ng/L in MW18. There were no reported detections of 1,4-dioxane in groundwater samples.

5.5. Sub-Surface Soil Vapor Findings

Five sub-surface soil vapor samples, two sub-slab soil vapor samples, and one companion ambient air sample were collected and submitted for laboratory analysis of USEPA TO-15 VOCs. No standard exists for soil vapor in New York State. The samples were evaluated using the NYSDOH Air Guideline Values (AGVs) and Decision Matrices published in the 2006 NYSDOH Soil Vapor Intrusion Guidance, updated in 2017, as comparison criteria for soil vapor concentrations. The matrix evaluation requires both soil vapor and indoor air data. Indoor air samples were not collected; however, the matrices provide a minimum soil vapor concentration above which monitoring and/or mitigation is recommended, regardless of indoor air concentrations.

The analytical results are summarized below.

- Methylene chloride was detected at a concentration (60.8 µg/m^3) above the AGV of 60 µg/m^3 in sample SV10, which was collected from the central portion of the site. The detected methylene chloride concentrations were below the minimum threshold for which NYSDOH Decision Matrix B recommends mitigation.
- Trichloroethylene (TCE) was detected at concentrations (11.2 and 85 µg/m^3) above the AGV of 5 µg/m^3 in samples SV06 and SV24, which were collected from the northwestern portion of the site. The recommendations in NYSDOH Decision Matrix A for the detected TCE concentrations were "no further action" and "mitigate".
- Tetrachloroethene (PCE) was detected at a concentration (32 µg/m^3) above the AGV of 30 µg/m^3 in sample SV16, which was collected from the southeastern portion of the site. Detected PCE concentrations were below the minimum threshold for which NYSDOH Decision Matrix B recommends mitigation.
- Several VOCs were detected in each soil vapor sample. The petroleum-related compounds n-heptane, and n-hexane were detected at anomalously high concentrations in SV12 and SV16 on the southeastern portion of the site, with maximum concentrations of 51,200 µg/m^3 (SV12) and 109,000 µg/m^3 (SV12), respectively. Other petroleum-related VOCs, including benzene, toluene, ethyl benzene, and xylenes, were either not detected or detected in samples at concentrations below 100 µg/m^3. However, the detection limits in SV12 were elevated above 100 µg/m^3, due to sample dilution associated with the high n-heptane and n-hexane concentrations.

The analytical results of the sub-surface soil vapor sampling are summarized in Table 5 and shown on Figure 8.

5.6. Quality Control Results

Duplicates, MS/MSD sample pairs, field blanks, and trip blanks collected during the RI are summarized in Table 1. Quality control sample results were evaluated during data validation. The analytical results of field blank and trip blank samples are summarized in Table 6.

Field duplicate and parent sample pairs were collected and analyzed for the parameters described in the preceding sections. For results less than five times the reporting limit, analytes meet the precision criteria if the absolute difference is less than plus or minus two times the reporting limit. For results greater than five times the reporting limit, analytes meet the precision criteria if the relative percent difference is less than or equal to 50 percent. The analytes for the two soil duplicate/parent sample pairs and the analytes for the groundwater duplicate/parent sample pair met the precision criteria.

5.7. Data Usability

New York Analytical Services Protocols (ASP) Category B laboratory reports for the soil, groundwater, and soil vapor samples were provided by Alpha and York and reviewed by a Langan data validator for samples collected during the RI. The soil, groundwater, and soil vapor data were determined to be acceptable. Completeness, defined as the percentage of analytical results that are judged to be valid, is 100% for each sample set. Copies of the DUSRs are provided in Appendix H.

5.8. Evaluation of Potential AOCs

This section discusses the results of the RI and previous investigations with respect to the AOCs described in Section 3.4. The RURR SCOs are the applicable soil standards for comparison, based on the anticipated use of the site as a multiple-unit residential development. The results were also compared to the Part 375 UU SCOs to evaluate whether unrestricted land use is practical. AOC locations are shown on Figure 4. Details of field observations of impacts and associated depths are included in the boring logs in Appendix D

5.8.1. AOC 1: Historical Site Uses

Historical site occupants included an iron foundry (1891-1908), a motor truck company (1922-1956), a drug and chemical corporation (circa 1927), an oil company (circa 1927), manufacturing facilities (circa 1928), a chemical laboratory (1935-1949), lubricating oil storage (mid-1940s to 2005), a freight railroad (1935-1951), and a floor treatment service (circa 1949). Undocumented releases of petroleum products, solvents, or other hazardous substances associated with these former uses may have impacted soil, groundwater, and/or soil vapor.

AOC 1 Findings

Investigation of AOC 1 included the collection of samples from all borings, monitoring wells, and soil vapor probes.

Borings SB06, SB12, SB13, SB14, SB24, and SB25 on the southeastern and northwestern portions of the site contained soil exhibiting staining, petroleum-like odors, and PID readings up to 71 ppm above background concentrations at depths between 3 and 15 feet bgs. Boring SB14 on the southeastern portion of the site contained soil exhibiting a maximum PID reading of about 29 ppm at about 3 to 4 feet bgs. The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs between 3 and 8 feet bgs in boring SB25 and boring SB15. Soil samples collected from borings SB06 (1 to 2 feet bgs), SB20 (0 to 2 feet bgs), SB16 (0 to 2 feet bgs), and SB17 (5.5 to 7.5 feet bgs) also contained SVOCs above the RURR SCOs and at levels potentially indicative of petroleum impacts. Soil vapor samples collected from the southeastern portion of the site (SV12 and SV16) contained the petroleum-related compounds n-heptane and n-hexane. The locations of the VOC and SVOC detections and petroleum nuisance condition observations in soil did not coincide with detections of the gasoline-additive MTBE in groundwater on the central portion of the site during the 2015 Phase II ESI.

Combined PFOA and PFOS concentrations in soil collected from borings SB17, SB18, SB21, SB22, and SB25 ranged from 936 ng/kg to 2,920 ng/kg. Combined PFOA and PFOS concentrations in groundwater samples collected from MW18 and MW24 ranged from 45.7 ng/L to 121 ng/L.

Soil vapor samples collected from the northwestern portion of the site (SV06 and SV24) contained the chlorinated compound TCE; however, corresponding soil and groundwater data did not indicate an on-site source of TCE.

Metals impacts associated with historical site use are discussed under AOC 2.

AOC 1 Conclusions

The RI indicated localized petroleum impacts potentially associated with historical vehicle repair and commercial oil storage on the northwestern portion of the site, railway operations on the central portion of the site, and manufacturing operations throughout the site. Nuisance conditions (i.e., staining, odors, and/or PID readings above background concentrations) were apparent in soil samples collected from the southeastern and northwestern portions of the site. VOCs and SVOCs were also detected in soil samples collected throughout the site at

concentrations indicative of potential impacts from historical site use. Evidence of petroleum impacts to groundwater and soil vapor were limited to detections of gasoline additives in two groundwater samples collected from the central portion of the site during the 2015 Phase II ESI, and two soil vapor samples collected from the central portion of the site.

Although PFAS compounds were detected in soil and groundwater samples collected throughout the site, the documented historical site operations are not commonly associated with PFAS usage. Based on the soil and groundwater sampling analytical results, an on-site source for the TCE detected in soil vapor on the northwestern portion of the site was not identified.

5.8.2. AOC 2: Metals- and PCB-impacted Soil

Metals and PCBs were previously detected at concentrations above the SCOs and indicative of potential impacts associated with historical vehicle repair, manufacturing operations, railway operations, and an iron foundry.

AOC 2 Findings

Investigation of AOC 2 included the collection of soil samples from borings SB06, SB07, SB11, SB13, SB14, SB15, SB16, SB17, SB20, SB21, SB22, SB26, SB28, and TP01 through TP03.

Multiple metals, including lead, copper, mercury, arsenic, cadmium, and barium, were detected above the RURR SCOs and at levels potentially indicative of impacts from historical site use. These detections were identified in samples collected at locations throughout the site between surface grade and 4 feet bgs in borings SB11, SB13, SB15, SB16, SB20 (duplicate sample), and SB26, and in test pits TP01 and TP03. The duplicate sample collected from boring SB20 on the central portion of the site contained total lead at a concentration of 7,360 mg/kg and TCLP lead at a concentration of 74.1 mg/L, which exceeds the RCRA Toxicity Characteristic Limit.

Total PCBs were also detected in borings SB06, SB07, SB14, SB15, SB25, and SB26, and in the three test pits excavated along the railway right-of-way at concentrations above the UU and/or RURR SCOs. Maximum PCB concentrations of 2.59 ppm and 2.12 ppm were detected in boring SB06 (1 to 2 feet bgs and 7 to 8 feet bgs) on the northwestern portion of the site.

AOC 2 Conclusions

Metals were detected in the upper four feet of soil at locations throughout the site at concentrations above those commonly associated with background concentrations in urban fill. A lead concentration above the RCRA Toxicity Characteristic Limit was identified in shallow soil on the central portion of the site, and mercury and lead were identified in each test pit sample

along the former railroad right-of-way at concentrations above the RURR SCOs. Potential sources of metal impacts in these areas include historical manufacturing, an iron foundry, and railway operations.

The presence of total PCBs at concentrations above the UU and/or RURR SCOs in soil samples collected throughout the site is indicative of potential impacts from historical oil storage, vehicle repair, manufacturing, and/or railroad operations. Potential sources of the PCBs include releases of waste oil, hydraulic oil, and dielectric fluids (i.e., transformers).

5.8.3. AOC 3: Historic Fill Material

Material from an unknown source was used to infill the site during historical development. The fill extends to depths between 1.5 and 12 feet bgs and varies in thickness throughout the site. Based on the findings of the RI, the historic fill material is impacted with SVOCs and metals at concentrations above the RURR SCOs.

AOC 3 Findings

Investigation of AOC 3 included the collection of samples from all borings, monitoring wells, and soil vapor probes.

Soil Samples

Historic fill material was observed across the site below the surface cover (i.e., concrete slabs, concrete and asphalt pavement, block pavers, and gravel). Shallow fill material was sampled from 0 to 5 feet bgs in all borings, with deeper intervals of fill material sampled in borings SB06, SB08, SB10, SB12, SB13, SB17, SB25, SB26, SB27, and SB28.

Field screening and analytical results from historic fill samples are summarized as follows:

- Historic fill material exhibited PID readings above background in SB12, SB14, and SB25 (3 to 8 feet bgs), and staining and petroleum odors in SB25 (6 to 8 feet bgs).
- The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs between 3 and 8 feet bgs in borings SB15 and SB25.
- Eight SVOCs (2-methylphenol [o-cresol], benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene) were detected at concentrations above the UU and/or RURR SCOs in historic fill samples collected from borings SB06, SB07, SB15, SB17, SB25, and SB30 and the three test pits.

- One or more of the following metals were detected at concentrations above the UU and/or RURR SCOs in historic fill samples collected from all borings, with the exception of SB08: arsenic, barium, cadmium, chromium (trivalent), chromium (hexavalent), copper, lead, mercury, nickel, selenium, silver, and zinc. One metal, selenium, was also detected at a concentration above the UU SCO in a native soil sample collected from 15 to 16 foot bgs in boring SB24. One sample of historic fill material (duplicate of SB20_0-2]) collected from the central portion of the site contained a total lead at a concentration of 7,360 mg/kg and TCLP lead at a concentration of 74.1 mg/L, which exceeds the RCRA Toxicity Characteristic Limit.
- Pesticides were detected above the UU SCOs in samples collected between 0 and 7.5 feet bgs in borings SB07, SB15, SB17, SB25, and SB26 on the southeastern and northwestern portions of the of the site and in the three test pits in the central portion of the site.
- PCBs were detected in historic fill material at concentrations above the UU and/or RURR SCOs in samples collected from borings SB06, SB07, SB14, SB15, SB16, SB25, SB26 and in the three test pits.
- PFOA and PFOS were detected in historic fill material at combined concentrations ranging from 936 ng/kg to 2,920 ng/kg in samples collected from borings SB17, SB18, SB21, SB22, and SB25.

Groundwater and Soil Vapor Samples

Six SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, and indeno[1,2,3-cd]pyrene) were detected above the TOGS SGVs in monitoring wells TMW06, TMW11, and TMW12. Low groundwater recharge in wells TMW06 and TMW12 resulted in the collection of groundwater samples without stabilization of sampling parameters. Therefore, SVOC detections in these wells likely reflect sample interference from entrained historic fill material as these contaminants are relatively insoluble. Five dissolved-phase metals (iron, magnesium, manganese, selenium, and sodium), were detected at concentrations above the TOGS AGVs in multiple groundwater samples. Total PFOA and PFOS compounds were detected at concentrations ranging from 45.7 ng/L to 121 ng/L.

Several VOCs were detected in each soil vapor sample. The gasoline-related compounds n-heptane and n-hexane were detected in two samples (SV12 and SV16) at concentrations of up to 51,200 µg/m^3 and 109,000 µg/m^3, respectively, and up to four orders of magnitude higher than those detected elsewhere on site. The chlorinated solvent TCE was detected at concentrations above the minimum threshold for which the NYSDOH Decision Matrix recommend mitigation (2

µg/m^3) in two soil vapor samples (SV06 and SV24) collected from the northwestern portion of the site.

AOC 3 Conclusions

The fill material contains VOCs, SVOCs, pesticides, PCBs, and metals at concentrations above the UU and/or RURR SCOs. As discussed for AOC 1, nuisance conditions observed in borings on the northwestern and southeastern portions of the site, petroleum-related VOC detections in borings SB15 and SB25, SVOC concentrations in borings SB06, SB16, SB17, and SB20, and gasoline-related VOC detections in soil vapor samples SV12 and SV16 reflect localized petroleum impacts likely associated with historical use of the site. Releases from historical site operations are also the likely source of PCB detections throughout the site and the source of detections of metals at concentrations above those commonly associated with historic fill material in borings SB11, SB13, SB20, and SB26 (see AOCs 1 and 2).

With the exception of the petroleum-, PCB-, and metal-impacted soil discussed above, the detected SVOC, pesticide, and metals concentrations are typical of fill material throughout New York City. The detection of SVOCs above the TOGS SGVs in monitoring well TMW11 does not correspond with SVOC detections above the SCOs in soil samples collected from the same boring. Based on the absence of documented historical site operations associated with the use of PFAS compounds, historic fill material may be the source of total PFOS and PFOA in the upper two feet of borings SB17, SB18, SB21, SB22, and SB25. PFAS compounds in historic fill material may also be the source of total PFOS and PFOA detected in wells MW18 and MW24.

Historic fill material is not the likely source of TCE detections in soil vapor samples, based on the absence of corresponding detections in soil. The magnesium, manganese, and sodium detections in groundwater samples likely reflect the infiltration of saline water into the local groundwater aquifer from encroachment of tidally influenced brackish water from the Harlem River to the southwest or via vertical infiltration from surface runoff.

5.8.4. AOC 4: Gasoline-Impacted Groundwater

The gasoline additive MTBE was detected in two groundwater samples collected from the central portion of the site at concentrations above the TOGS AGV during the 2015 Phase II ESI. As MTBE was primarily used between the mid-1990s and mid-2000s, potential on-site sources for the MTBE were not identified during the Phase II ESI.

AOC 4 Findings

Investigation of AOC 4 included the collection of groundwater samples from monitoring wells, TMW06, TMW08, TMW11, TMW12, MW18, MW19, and MW24.

MTBE was detected in two groundwater samples (MW18 and TMW11) at concentrations below the TOGS SGV. VOCs and the gasoline-related SVOC naphthalene were not detected in groundwater samples above the TOGS SGVs. Gasoline-impacted groundwater is therefore not considered an AOC.

AOC 4 Conclusions

The groundwater sampling analytical results indicate that gasoline-related impacts are limited to those identified on the central portion of the site during the 2015 Phase II ESI. As discussed for AOC 1, the location of the MTBE detections does not correspond with the locations petroleum impacts identified in soil during the RI. An on-site source for the MTBE has not been identified, and gasoline-impacted groundwater is not considered an AOC.

6.0 QUALITATIVE HUMAN AND FISH/WILDLIFE EXPOSURE ASSESSMENT

Human health exposure risk was evaluated for both current and future on-site and off-site conditions, in accordance with the NYSDEC DER-10. The assessment includes an evaluation of potential sources and migration pathways of site contamination, potential receptors, exposure media, and receptor intake routes and exposure pathways.

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. Based on the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, there was no need to prepare an FWRIA for the site. A completed form of DER-10 Appendix 3C is included in Appendix J.

6.1. Current Conditions

The site is approximately 24,700 square feet and contains a five-story commercial building that was constructed in 1897 and a tenant parking lot. The northwestern portion of the site contains a gravel-graded rectangular extension that is overgrown with vegetation. The building has a partial cellar that contains mechanical equipment and a sump. The ground floor of the building is occupied by a restaurant, a boxing gym, and a furniture storage area, and the upper floors of the building are vacant. The site is bordered by a commercial self-storage facility to the north; two multiple-story light industrial and commercial buildings, a dog park, and an access roadway to East 135th Street to the northeast; Third Avenue and a Third Avenue Bridge overpass to the southeast; and a residential development construction site to the west. A site layout plan is included as Figure 2.

6.2. Proposed Conditions

The proposed development will include demolition of the commercial building and removal of the concrete and asphalt surface cover; removal of structurally unsuitable material; and removal of contaminated soil to accommodate construction of a 26-story residential building. The building will include affordable and market-rate rental units and will occupy a footprint of about 18,000 square feet. A full cellar will extend to a depth of about 16 feet below surface grade and will include parking, storage, and mechanical areas. The ground floor will also include parking and a lobby, and the 2nd floor will contain amenity spaces. Residential units will occupy the 2nd through 26th floors. A narrow area west of the building will be developed at grade for one level of parking. Design drawings are provided in Appendix A.

6.3. Summary of Environmental Conditions

Based on field and sampling data obtained during the RI, the following parameters were detected above applicable screening criteria and are considered contaminants of concern (COCs):

- Petroleum-related VOCs, SVOCs, PCBs, pesticides, and metals in soil; and
- Petroleum-related and chlorinated VOCs in soil vapor.

Petroleum-impacted Soil

Localized petroleum impacts were identified in borings on the northwestern (SB06, SB24, and SB25), central (SB20), and southeastern (SB12 through SB17) portions of the site. Petroleum nuisance conditions (i.e., staining, odors, and/or PID readings above background concentrations) were apparent on the southeastern and northwestern portions of the site at various depths between 3 and 15 feet bgs. The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs between 3 and 8 feet bgs, and SVOCs were detected at concentrations above the RURR SCOs and at levels potentially indicative of petroleum impacts between 0 and 7.5 feet bgs.

Soil Impacted with SVOCs, PCBs, Pesticides, and Metals

Several SVOCs, PCBs, pesticides, and metals were detected at concentrations above the UU and/or RURR SCOs in soil samples throughout the site. The impacts were generally detected in historic fill material, which extends to depths between about 1.5 feet and 12 feet bgs. A lead concentration exceeding the RCRA Toxicity Characteristic Limit was detected in a sample collected from 0 to 2 feet bgs on the central portion of the site, and multiple samples collected throughout the site between 0 and 4 feet bgs contained other metals, including copper, mercury, arsenic, cadmium, and barium, and PCBs at concentrations indicative of potential releases from historical site use, which included vehicle repair, manufacturing, an iron foundry, railroad operations, and lubrication oil storage. Elevated metals concentrations were also detected in samples collected from a former railroad right-of-way.

Petroleum-Related and Chlorinated VOCs in Soil Vapor

Soil vapor samples collected from the northwestern portion of the site contained TCE above the minimum concentration for which the NYSDOH Decision Matrix recommends mitigation. An on-site source for TCE has not been identified. The gasoline additives n-heptane and n-hexane were also detected in soil vapor samples collected from the southeastern portion of the site at concentrations up to four orders of magnitude greater than those detected elsewhere. The

detections may be associated with localized petroleum impacts identified in soil collected from nearby borings.

6.4. Conceptual Site Model

A conceptual site model (CSM) has been developed based on the findings of the RI. The purpose of the CSM is to develop a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways.

6.4.1. Potential Sources of Contamination

Potential sources of contamination include petroleum- and PCB-impacted soil and petroleum-impacted soil vapor resulting from historical site use (AOC 1), metals-impacted soil associated with historical site use, including hazardous lead concentrations (AOC 2), and historic fill material (AOC 3).

The findings of the RI indicate that localized petroleum- and PCB-related soil impacts are present throughout the site. The impacts occur as nuisance conditions between 3 and 15 feet bgs and as VOC, SVOC, and PCB detections above UU and/or RURR SCOs within the upper 8 feet of soil. Petroleum-impacted soil vapor was also identified on the southeastern portion of the site. Historical use of the site for vehicle repair, commercial oil storage, and railroad and manufacturing operations are the probable source of the impacts.

Metals-impacted soil is present in the upper four feet of soil throughout the site, and hazardous lead-impacted soil was identified in the upper two feet of soil on the central portion of the site. Potential sources of metal impacts in these areas include historical manufacturing, an iron foundry, and railway operations.

Historic fill material extending from surface grade to depths varying between 1.5 and 12 feet bgs contains SVOCs, pesticides, and metals above the UU and/or RURR SCOs. Historic fill material may also be the source of localized occurrences of SVOCs (via matrix interference) in groundwater. Off-site historical manufacturing on adjoining properties to the northeast and southwest may be the source of the chlorinated solvent TCE in soil vapor on the northwestern portion of the site.

6.4.2. Exposure Media

The impacted media include soil, groundwater, and soil vapor.

Petroleum-Impacted Soil

Localized petroleum impacts were identified throughout the site. Petroleum nuisance conditions (i.e., staining, odors, and/or PID readings above background concentrations) were apparent on the northwestern and southeastern portions of the site at various depths between 3 and 15 feet bgs. The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs between 3 and 8 feet bgs, and SVOCs were detected at concentrations above the RURR SCOs and at levels potentially indicative of petroleum impacts between 0 and 7.5 feet bgs.

SVOC, PCB, Pesticide, and Metals Impacts in Soil

Several SVOCs, PCBs, pesticides, and metals were detected at concentrations above the UU and/or RURR SCOs in soil throughout the site. The impacts were generally observed in historic fill material, which extends to depths between about 1.5 feet and 12 feet bgs. Lead was detected at a level above the hazardous waste limit between 0 and 2 feet bgs on the central portion of the site, and soil throughout the site between 0 and 4 feet bgs contained copper, mercury, arsenic, cadmium, barium, and PCBs at concentrations indicative of potential releases from historical site use, including a former railroad right-of-way and foundry.

Petroleum-Related and Chlorinated VOCs in Soil Vapor

Soil vapor on the northwestern portion of the site contains the chlorinated solvent TCE above the minimum concentration for which the 2017 NYSDOH Decision Matrix recommends mitigation. Soil vapor on the southeastern portion of the site also contains the gasoline additives n-heptane and n-hexane at concentrations up to four orders of magnitude greater than those detected elsewhere on the site.

6.4.3. Receptor Populations

The site is currently occupied by a restaurant, a boxing gym, and a furniture storage area; the upper floors of the building are vacant. During site redevelopment, human receptors will be limited to construction and remediation workers, authorized guests visiting the site, and the public adjacent to the site. Under future conditions, receptors will include the new building tenants, workers, and visitors to the property, including children.

6.5. Potential Exposure Pathways – On-Site

6.5.1. Current Conditions

The site is partially covered by impervious surfaces consisting of concrete building slabs and an asphalt- and concrete-paved parking lot in the central portion of the site, respectively. Pervious portions of the site include a gravel-graded rectangular extension that is overgrown with vegetation in the northwestern portion of the site; a cobble stone paved parking lot on the central portion of the site; and a gravel lot underlain by cobble stone bedding in the southeastern portion of the site. Soil is exposed in portions of the northwestern extension, which contains dense vegetation and is located in an area that is separated from the utilized portions of the site by the western parking lot. Direct human exposure to contaminated soil is limited in the remaining areas by impermeable and compacted surface cover, and the likelihood of human exposure to contaminated soil through dermal absorption, inhalation, and ingestion is minimal.

Because groundwater in this area of New York City is not used as a potable water source, there is no complete exposure pathway under current site conditions. There is a potential exposure pathway through dermal absorption, inhalation, and ingestion during groundwater sampling associated with site investigation, but it is controlled through implementation of the health and safety plan (HASP).

The potential for soil vapor intrusion exists in the current building. However, portions of the ground floor and the upper floors are vacant, and the occupied portions of the ground floor are utilized during business hours only for a restaurant and boxing gym. The partial cellar is unoccupied and solely used for maintenance.

6.5.2. Construction/Remediation Conditions

Potential exposure pathways exist to site workers and the surrounding community via dermal absorption, inhalation, and ingestion of site contaminants during construction and remediation. These exposure pathways would be avoided through the implementation of a HASP and Community Air Monitoring Plan (CAMP), as well as vapor and dust suppression techniques, when warranted. Construction and remedial activities will include excavation and off-site disposal of hazardous and non-hazardous fill and native material, dewatering, and construction of foundation components.

6.5.3. Proposed Future Conditions

The proposed redevelopment will include residential usage. Upon completion of the new development, a majority of the contaminated soil will be excavated to accommodate a cellar and

allow for grading of the rear parking lot. The central and southeastern portion of the site will be covered by a water/vapor proofing membrane and capped by concrete building slabs and foundations, and the northwestern portion of the site will be covered by an asphalt- or concrete-paved parking lot. These barriers will prevent direct human exposure to residual impacted soil and groundwater. A soil vapor intrusion evaluation will be necessary after the remedial action has been completed to determine if the soil vapor pathway has been addressed.

There is no risk of ingesting groundwater COCs, because the site and surrounding area will continue to obtain municipally-supplied drinking water originating from upstate surface water reservoirs. In addition, the site will be capped with concrete building slabs and asphalt or concrete pavement.

6.6. Potential Exposure Pathways – Off-Site

In the absence of CAMP and a HASP, soil can potentially be transported off-site by wind in the form of dust, or on vehicle tires or equipment leaving the site during the remediation, excavation, and foundation construction stage of redevelopment. This could create an exposure risk to the public adjacent to the site. Based on the potential for dewatering during construction activities, there is also a potential for public exposure to groundwater. Soil vapor will primarily migrate vertically through the subsurface and dissipate and dilute with ambient air during the construction phase. Based on concentrations of contaminants detected in soil vapor samples, there is limited potential for exposure to soil vapor intrusion off site.

The potential off-site migration of site soil, groundwater, and/or soil vapor contaminants is not expected to result in a complete exposure pathway for current, construction-phase, or future conditions for the following reasons:

- The site is located in an urban area and mostly covered with impervious and compacted surface material (i.e., concrete building slab and asphalt, concrete, cobble stone, and gravel paving).
- During site excavation, foundation construction, and remediation, the following protective measures will be implemented:
    - Air monitoring will be conducted for particulates (i.e., dust) and VOCs during intrusive activities as part of a CAMP. Dust and/or vapor suppression techniques will be employed to limit the potential for off-site migration of soil and vapors.
    - Vehicle tires and undercarriages will be washed as necessary prior to leaving, to prevent tracking material off-site.

    - A soil erosion and sediment control plan will be implemented during construction to control off-site migration of soil.
- A majority of contaminated soil will be excavated to accommodate the proposed building cellar and residual soil will be capped by a continuous impervious surface covering comprised of the proposed building slabs. The new building will include a waterproofing/vapor barrier to be installed beneath the cellar slab. The northwestern area will be capped by an asphalt- or concrete-paved parking lot.
- Groundwater in New York City is not used as a potable water source.

6.7. Evaluation of Human Health Exposure

Based on the CSM and the review of environmental data, complete on-site exposure pathways appear to be present, in the absence of institutional and engineering controls, in construction-phase conditions. The complete exposure pathways indicate there is a risk of exposure to humans from site contaminants via exposure to soil, groundwater, and soil vapor if institutional and engineering controls are not implemented.

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the site is provided below.

6.7.1. Current Conditions

Contaminant sources include:

- Soil containing VOCs, SVOCs, PCBs, pesticides, and metals above Part 375 UU SCOs and/or RURR SCOs.
- Groundwater containing VOCs, SVOCs, and metals above TOGS SGVs.
- Petroleum-related and chlorinated VOCs in soil vapor.

Contaminant release and transport mechanisms include contaminated soil transported as dust, exposure to contaminated groundwater via well purging, and intrusion of contaminated soil vapor.

Under current conditions, the likelihood of exposure to humans is limited due to the following:

- The site is predominantly covered with a building slab and impervious and compacted paving materials, which prevent direct contact with soil and limit vapor intrusion.
- The partial cellar of the building, which presents the greatest potential for exposure to contaminated soil vapor, is unoccupied.

- The northwestern portion of the site, which contains exposed soil, is vacant, covered with gravel and/or vegetation, and not accessed by building tenants or visitors.
- Soil at the site is not being disturbed.
- Groundwater at the site is not a potable water source.
- Management of purge water during any groundwater sampling activities will be conducted in accordance with a HASP.

6.7.2. Construction/Remediation Activities

During remediation and the excavation and foundation construction stage of redevelopment, points of exposure include disturbed and exposed soil during excavation, and dust and potential organic vapors generated during excavation. Groundwater may also be encountered during construction dewatering. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of potential organic vapors arising from contaminated soil vapor, and inhalation of dust arising from contaminated soil. The receptor population includes construction and remediation workers and the public adjacent to the site.

All five elements exist; therefore, the potential for completed exposure pathways is present. The risk can be minimized by applying appropriate health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, maintaining site security, and wearing the appropriate personal protective equipment (PPE). In accordance with a HASP, a Remedial Action Work Plan (RAWP), and a CAMP, measures such as conducting an air monitoring program, donning PPE, managing groundwater, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. Such measures would prevent completion of these potential exposure pathways.

6.7.3. Proposed Future Conditions

For the proposed future conditions, residual contaminants may remain on site, depending on the remedy, and may, to a lesser extent, include those listed under current conditions. If institutional and/or engineering controls are not implemented, points of exposure include potential cracks in the foundation or lowest-level slab and in concrete or asphalt pavement of the proposed development, and exposure during future soil-disturbing activities. Routes of exposure may include inhalation of vapors entering the building. The receptor population includes the building tenants, employees, visitors, and maintenance/utility workers. The possible routes of exposure can be avoided or mitigated by construction and maintenance of a site capping system (i.e., vapor proof membrane and concrete building slab), and implementation of a Site Management Plan. A

soil vapor intrusion evaluation will be necessary after the remedial action has occurred to determine if the soil vapor pathway has been addressed.

6.7.4. Human Health Exposure Assessment Conclusions

1. Under current conditions, there is a marginal risk for exposure. The primary exposure pathways are dermal contact, ingestion, and inhalation of soil, groundwater, or soil vapor by site workers. The exposure risks can be avoided or minimized by following the appropriate health and safety and vapor and dust suppression measures during investigation activities.

2. In the absence of engineering controls, there is a moderate risk of exposure during the construction-phase activities. The primary exposure pathways, which can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety, vapor and dust suppression, and site security measures, are:

   A. Dermal contact, ingestion, and inhalation of contaminated soil, groundwater, and soil vapor by construction workers.

   B. Dermal contact, ingestion, and inhalation of soil (dust) and inhalation of soil vapor by the community in the vicinity of the site.

3. The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely. The site will be remediated and engineering and institutional controls will be in place to mitigate exposure risk related to residual contamination that may remain on site. Further, groundwater is not used as a potable water source in New York City.

4. It is possible that a complete exposure pathway exists for the migration of site contaminants to off-site human receptors for current, construction-phase, and/or future conditions. Monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the site will be remediated and engineering controls will be implemented as necessary to prevent completion of this pathway.

7.0 NATURE AND EXTENT OF CONTAMINATION

This section evaluates the nature and extent of soil, groundwater, and soil vapor contamination. The nature and extent of the contamination is derived from a combination of field observations and analytical data that were discussed in Section 5.0.

7.1. Soil Contamination

Soil contamination is primarily categorized by localized petroleum, PCB, and metals impacts associated with historical site use at several locations and by historic fill material containing SVOCs, PCBs, pesticides, and metals at concentrations above the UU and RURR SCOs. Soil contamination is generally contained within the historic fill layer, which extends to depths between about 1.5 feet and 12 feet bgs, with the exception of nuisance conditions observed between 11 feet and 15 feet bgs within native soil on the northwestern portion of the site.

7.1.1. Petroleum-impacted Soil

Localized petroleum impacts were identified in borings on the northwestern (SB06, SB24, and SB25), central (SB20), and southeastern (SB12 through SB17) portions of the site. Petroleum nuisance conditions (i.e., staining, odors, and/or PID readings above background concentrations) were apparent on the southeastern and northwestern portions of the site at various depths between 3 and 15 feet bgs. The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs between 3 and 8 feet bgs, and SVOCs were detected above the RURR SCOs and at levels potentially indicative of petroleum impacts between 0 and 7.5 feet bgs. The impacts may be associated with releases during historical activities, including vehicle repair and commercial oil storage on the northwestern portion of the site, railroad operations on the central portion of the site, and manufacturing operations throughout the site.

7.1.2. Metals- and PCB-impacted Soil

PCBs and multiple metals, including lead, copper, mercury, arsenic, cadmium, and barium, were detected in the upper four feet of soil at locations throughout the site above the RURR SCOs and/or UU SCOs and at levels potentially indicative of impacts from historical site use. The metals detections were identified in borings SB11, SB13, SB20 (duplicate sample), and SB26, and in test pits TP01 and TP03. The duplicate sample collected from boring SB20 on the central portion of the site contained total lead at a concentration of 7,360 mg/kg and TCLP lead at a concentration of 74.1 mg/L, which exceeds the RCRA Toxicity Characteristic Limit. Mercury and lead were above the RURR SCOs and PCBs were above the UU SCOs in each test pit sample along the former railroad right-of-way. Total PCBs were also detected in borings SB06, SB07, SB14, SB15,

SB25, and SB26 at concentrations above the UU and/or RURR SCOs. Maximum PCB concentrations of 2.59 mg/kg and 2.12 mg/kg were detected in boring SB06 (1 to 2 feet bgs and 7 to 8 feet bgs) on the northwestern portion of the site.

Potential sources of metal and PCB impacts in these areas include releases during historical site use, including oil storage, vehicle repair, manufacturing, an iron foundry, and railroad operations. The PCB detections may be associated with releases of waste oil, hydraulic oil, and dielectric fluids (i.e., transformers).

7.1.3. Historic Fill Material

Historic fill material predominantly consisting of brown fine sand with varying amounts of gravel, silt, brick, coal, concrete, slag, and glass fragments extends across the site beneath the surface cover to depths that vary between about 1.5 feet and 12 feet bgs. The fill material contains several SVOCs, pesticides, and metals at concentrations above the UU and/or RURR SCOs. The detected concentrations are generally consistent with urban fill in New York City.

7.2. Groundwater Contamination

Detections of dissolved metals and SVOCs in groundwater are likely indicative of matrix interference from historic fill material, infiltration of brackish groundwater originating from the nearby Harlem River, and/or vertical migration of saline surface water into the local aquifer.

7.3. Soil Vapor Contamination

Soil vapor on the northwestern portion of the site (SV06 and SV24) contains TCE at documented concentrations of up to 85 µg/m^3, which is above the minimum concentration for which the NYSDOH Decision Matrix recommends mitigation. An on-site source for TCE has not been identified. The gasoline additives n-heptane and n-hexane were also detected in soil vapor on the southeastern portion of the site (SV12 and SV16) at maximum concentrations of 51,200 µg/m^3 and 109,000 µg/m^3, respectively, which are up to four orders of magnitude greater than those detected elsewhere. The detections may be associated with localized petroleum impacts identified in soil collected from nearby borings.

8.0 CONCLUSIONS

The conclusions are based on RI data collected between June 6 and October 9, 2019 and results from sampling data obtained prior to conducting the RI.

The findings summarized herein are based on qualitative data (field observations and instrumental readings) and laboratory analytical soil, groundwater, and soil vapor sample results. Relevant findings from previous investigations are also referenced.

The findings and conclusions are as follows:

1. Stratigraphy: The subsurface profile generally consists of historic fill material extending to depths that vary between about 1.5 feet and 12 feet bgs. The fill layer generally increases in thickness in the northwestern portion of the site and consists of brown fine sand with varying amounts of gravel, silt, brick, coal, concrete, slag, wood, and glass fragments. The fill material is underlain by native soil generally consisting of medium-grained sand with varying amounts of silt, clay, fine sand, coarse sand, and fine gravel. A discontinuous layer of organic clay was observed in six soil borings between about 7 and 10 feet bgs.

2. Hydrogeology: Groundwater was observed at depths between 6.62 and 8.15 feet bgs (el. 0.70 and el. 0.80) during synoptic groundwater level measurements taken from three wells in October 2019. The inferred direction of groundwater flow is to the southwest towards the Harlem River, which is about 150 feet from the site.

3. Petroleum-Impacted Soil: Localized petroleum impacts were identified in borings throughout the site. Petroleum nuisance conditions (i.e., staining, odors, and/or PID readings above background concentrations) were apparent on the southeastern and northwestern portions of the site at various depths between 3 and 15 feet bgs. The petroleum-related VOCs benzene and total xylenes were detected at concentrations above the UU SCOs and SVOCs were detected above the RURR SCOs and at levels potentially indicative of petroleum impacts between 0 and 8 feet bgs. The impacts may be associated with releases during historical activities, including vehicle repair and commercial oil storage on the northwestern portion of the site, railroad operations on the central portion of the site, and manufacturing operations throughout the site (i.e., AOC 1).

4. Metals- and PCB-Impacted Soil: PCBs and multiple metals, including lead, copper, mercury, arsenic, cadmium, and barium, were detected in the upper four feet of soil at locations throughout the site at levels above the RURR SCOs and/or UU SCOs and

potentially indicative of impacts from historical site use. A sample collected from the upper two feet on the central portion of the site (SB20) contained total lead at a concentration of 7,360 mg/kg and TCLP lead at a concentration of 74.1 mg/L, which exceeds the RCRA Toxicity Characteristic Limit. Mercury and lead concentrations were above the RURR SCOs and total PCB concentrations were above the UU SCOs in each sample from the former railroad right-of-way. A maximum PCB concentration of 2.59 mg/kg, which exceeds the RURR SCO, was detected between 7 and 8 feet bgs on the northwestern portion of the site (SB06). Potential sources of metal and PCB impacts include historical oil storage, vehicle repair, manufacturing, an iron foundry, and railroad operations.

5. Historic Fill Material: Historic fill material throughout the site contains several SVOCs, pesticides, and metals at concentrations above the UU and/or RURR SCOs. The detected concentrations are generally consistent with urban fill in New York City.

6. Groundwater Impacts: Detections of dissolved metals and SVOCs are likely indicative of matrix interference from historic fill material, infiltration of brackish groundwater originating from the nearby Harlem River, and/or vertical migration of saline surface water into the local aquifer.

7. Soil Vapor Impacts: Soil vapor on the northwestern portion of the site contains TCE at concentrations of 11.2 µg/m^3 (SV06) and 85 µg/m^3 (SV24), which exceed the minimum concentration for which the NYSDOH Decision Matrix recommends mitigation (6 µg/m^3). An on-site source for TCE was not identified. The gasoline additives n-heptane and n-hexane were also detected in soil vapor on the southeastern portion of the site (SV12 and SV16) at maximum concentrations of 51,200 µg/m^3 and 109,000 µg/m^3, respectively, which are up to four orders of magnitude greater than those detected elsewhere. The detections may be associated with localized petroleum impacts identified in soil collected from nearby borings.

8. Sufficient analytical data were gathered during the RI to establish soil cleanup levels and to develop a remedy for the site. The remedy will be described and evaluated in a RAWP prepared in accordance with New York State BCP guidelines. The remedy will address impacts to soil, groundwater, and soil vapor described in this RIR.

9.0 REFERENCES

1. Go Environmental, Phase I Environmental Site Assessment (ESA) for 2413 Third Avenue, Bronx, New York, dated August 14, 2012.

2. Groundwork Inc., Limited Subsurface Investigation Report of Findings, dated December 30, 2013.

3. Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., Phase I ESA, dated December 7, 2015.

4. Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., Phase II ESI, dated December 10, 2015.

5. New York State Department of Environmental Conservation, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, effective December 14, 2006.

6. New York State Department of Environmental Conservation, DER-10 Technical Guidance for Site Investigation and Remediation, issued May 3, 2010; effective June 18, 2010.

7. New York State Department of Environmental Conservation, Guidance on Groundwater Sampling for Emerging Contaminants, dated April 2018.

8. New York State Department of Environmental Conservation, Guidance on Collection of Groundwater Samples for Perfluorooctanoic Acid and Perfluorinated Compounds from Monitoring Wells Sample Protocol, dated 29 June, 2016.

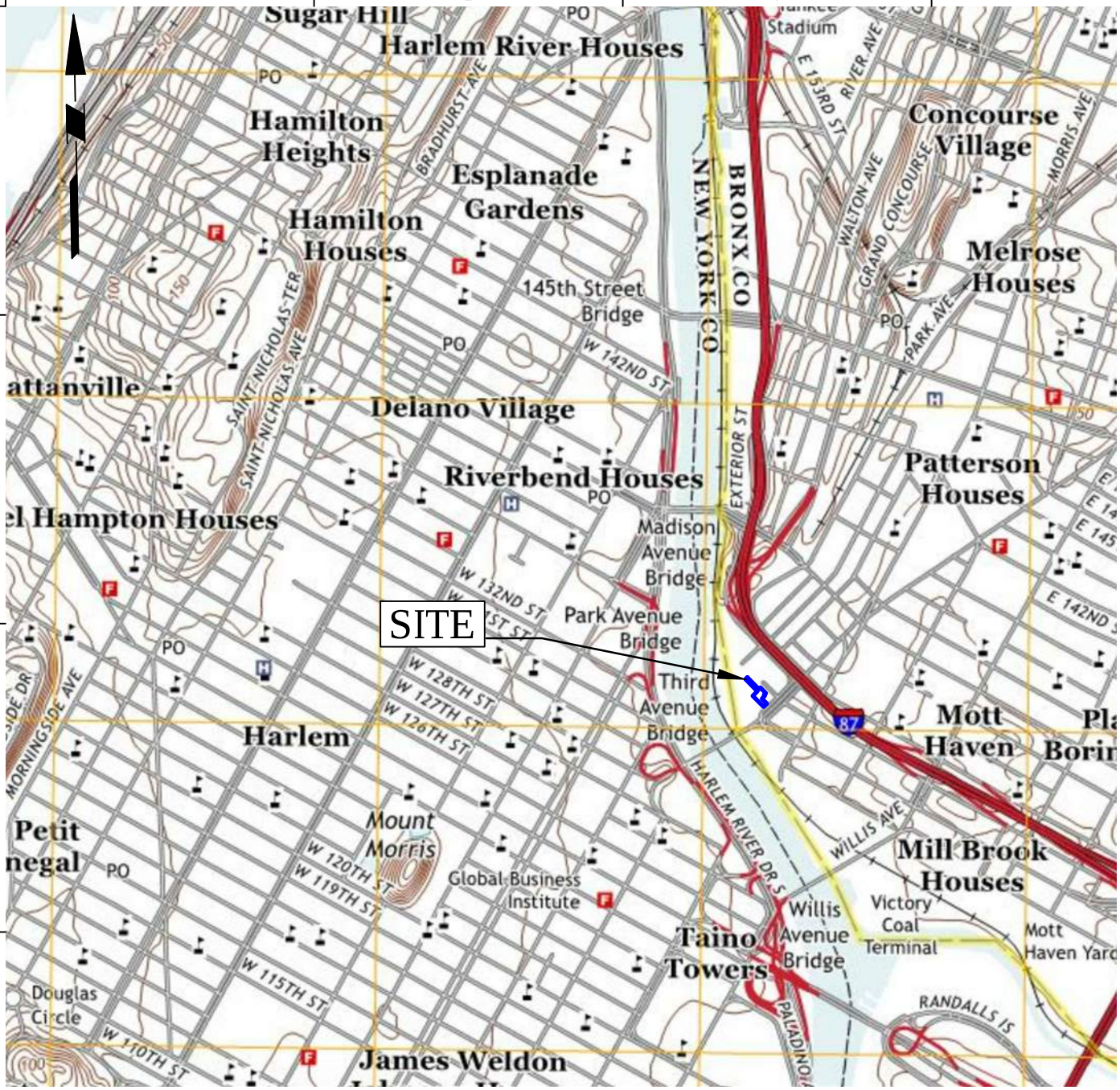
9. New York State Department of Health, Final Guidance for the Evaluation of Soil Vapor Intrusion in the State of New York, dated October 2006, revised May 2017.

10. New York State Division of Water TOGS 1.1.1, dated June 1998.

11. United States Environmental Protection Agency, Low Flow Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW 001, dated January 19, 2010.

12. United States Geological Survey (USGS), Bedrock and Engineering Geologic Maps of Bronx County and Parts of New York and Queens Counties, New York, dated 1987.

FIGURES



LEGEND:

APPROXIMATE SITE BOUNDARY

NOTES:

1. BASE MAP FROM UNITED STATES GEOLOGICAL SURVEY (USGS) CENTRAL PARK, NY-NJ 7.5 MINUTE SERIES, TOPOGRAPHIC QUADRANGLE MAP, DATED 2013

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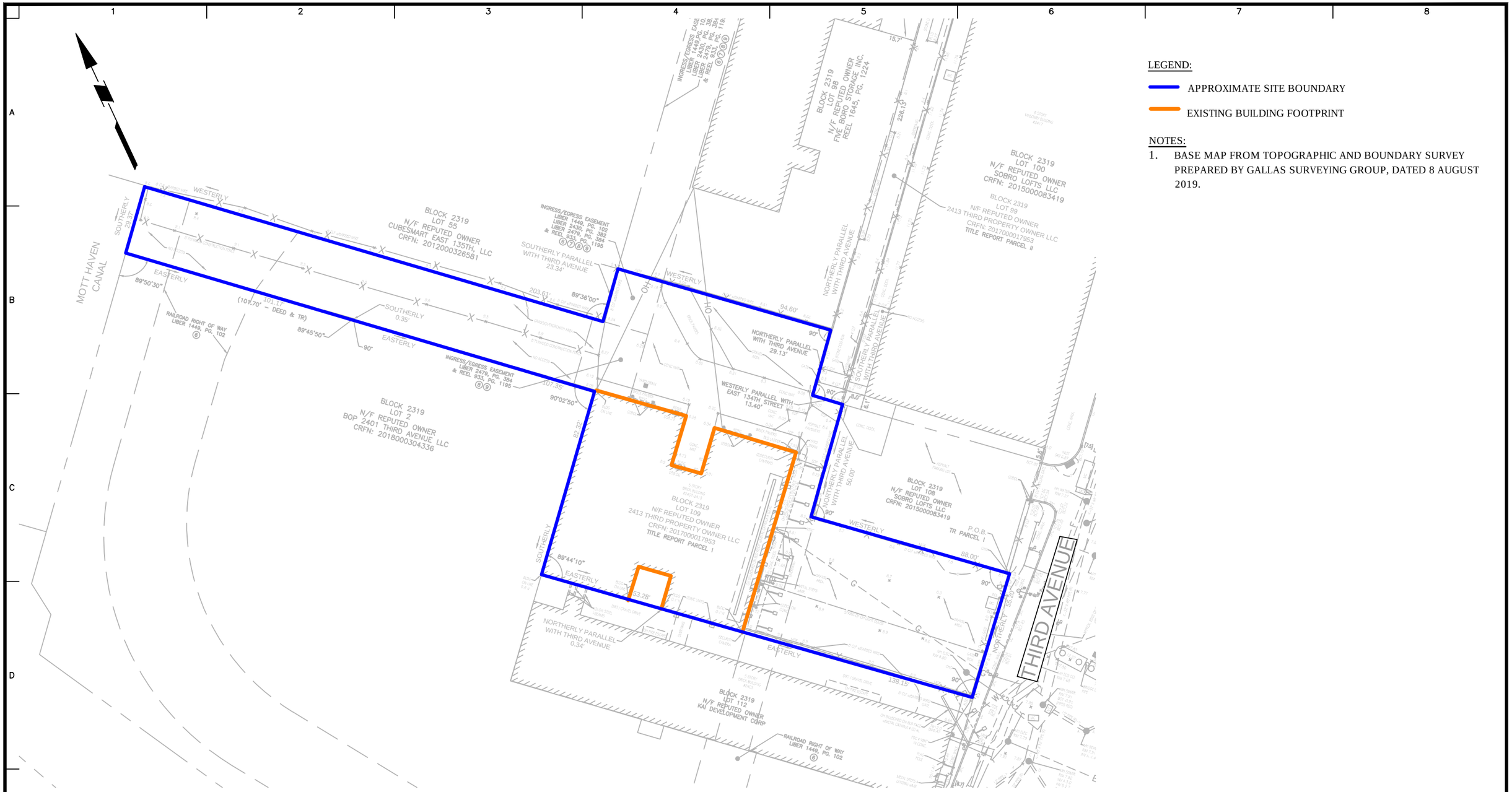
Project
2413 THIRD AVE
BLOCK No. 2319, LOT No. 109
NEW YORK CITY
BRONX NY

Figure Title
SITE LOCATION MAP

Project No. 170396002
Date 11/11/2019
Drawn By EM
Checked By SK

Figure No. 1
Sheet 1 of 8

Filename: \\langan.com\data\NYC\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 1 - Site Location Map.dwg Date: 1/30/2020 Time: 15:37 User: tschiefer Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

- APPROXIMATE SITE BOUNDARY
- EXISTING BUILDING FOOTPRINT

NOTES:

1. BASE MAP FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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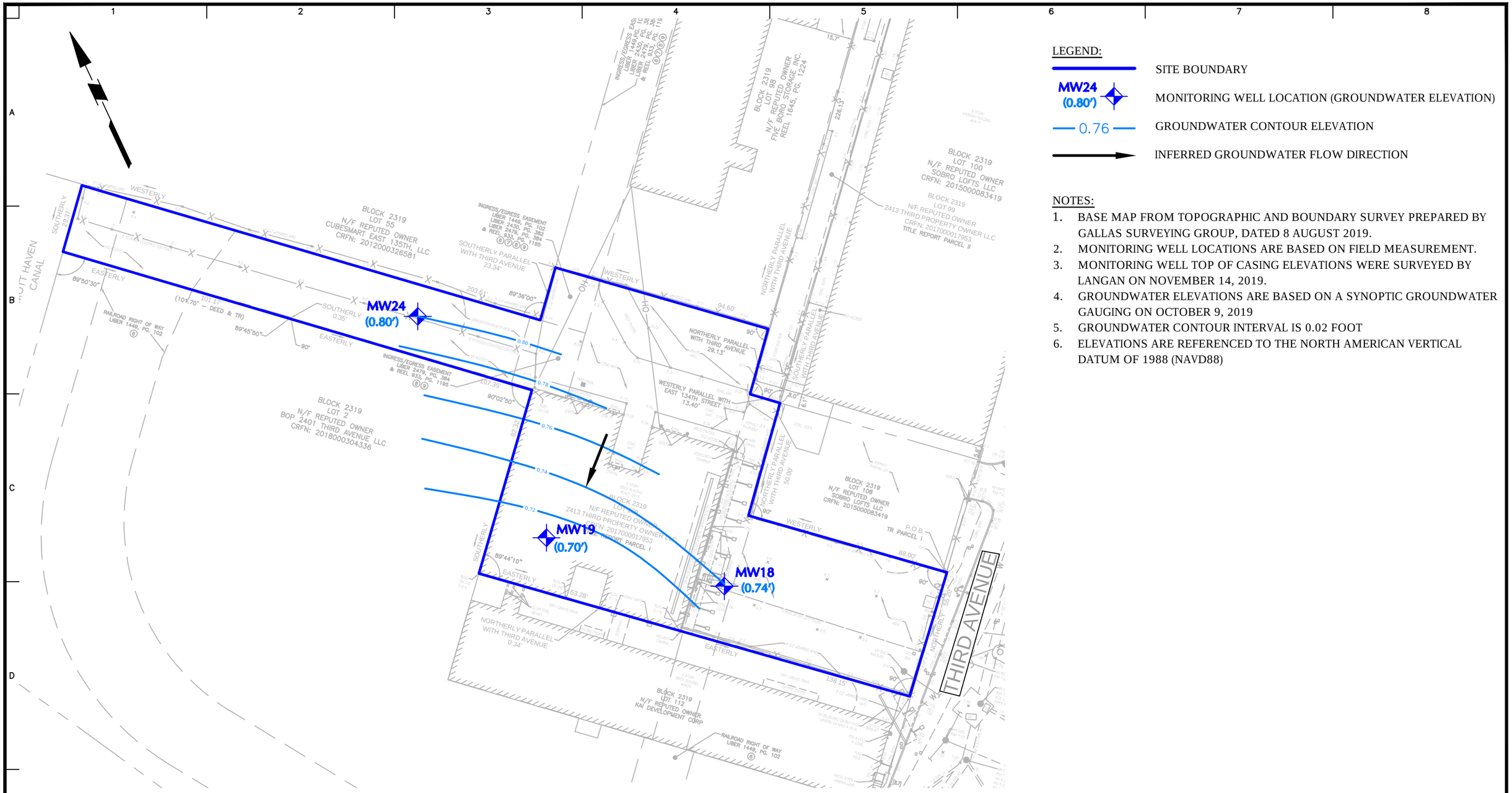
	CITY BRONX NEW YORK
Figure Title	SITE LAYOUT PLAN
Project No.	170396002
Date	11/11/2019
Drawn By	EM
Checked By	SK
Figure No.	2
Sheet	2 of 8

Filename: \\langan.com\data\NYC\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 2 - Site Layout Plan.dwg Date: 1/31/2020 Time: 16:46 User: tschiefer Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- SITE BOUNDARY
- MW24 (0.80') — MONITORING WELL LOCATION (GROUNDWATER ELEVATION)
- 0.76 — GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. MONITORING WELL LOCATIONS ARE BASED ON FIELD MEASUREMENT.
3. MONITORING WELL TOP OF CASING ELEVATIONS WERE SURVEYED BY LANGAN ON NOVEMBER 14, 2019.
4. GROUNDWATER ELEVATIONS ARE BASED ON A SYNOPTIC GROUNDWATER GAUGING ON OCTOBER 9, 2019
5. GROUNDWATER CONTOUR INTERVAL IS 0.02 FOOT
6. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

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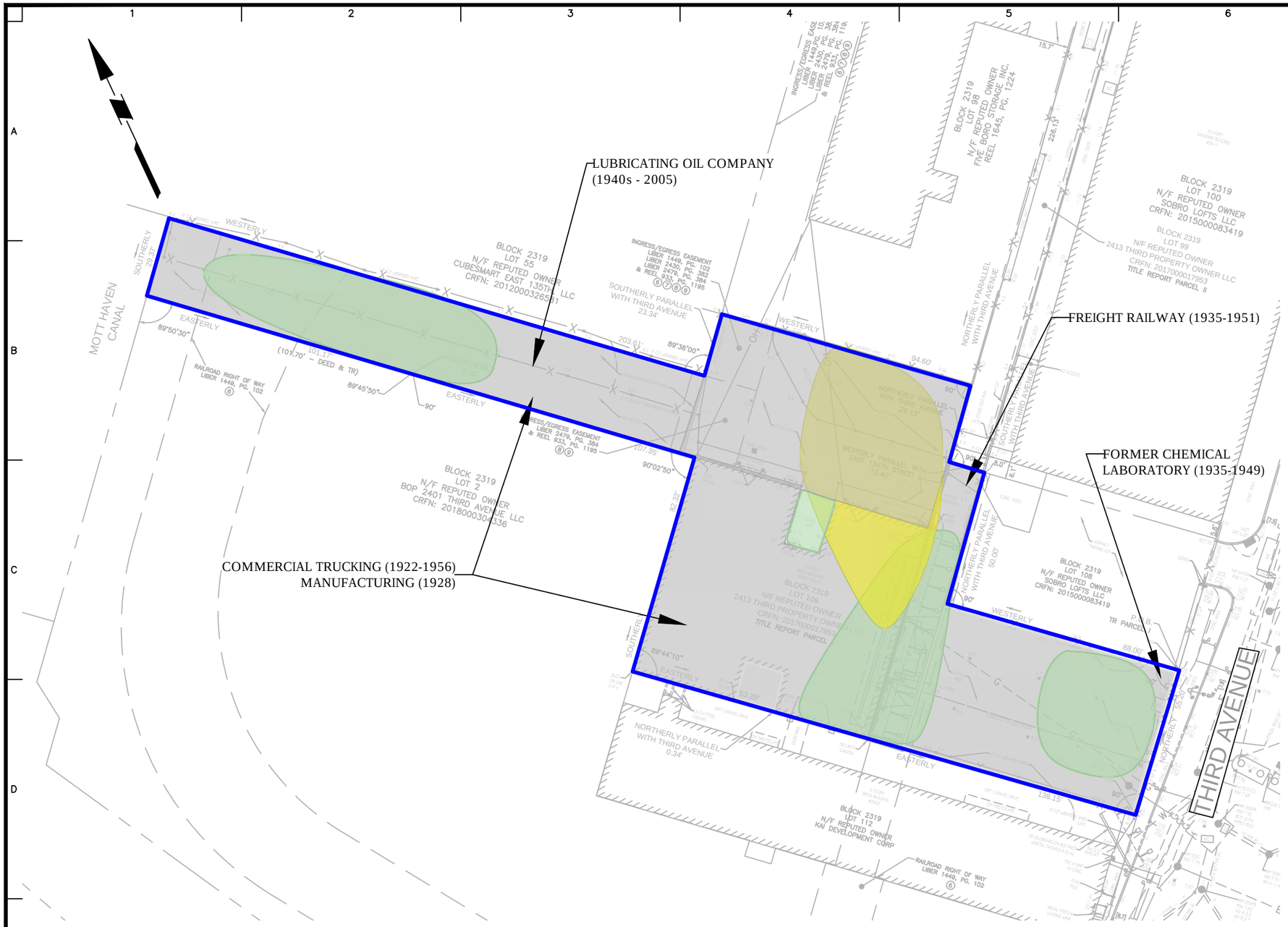
Figure Title
GROUNDWATER ELEVATION CONTOUR MAP

Project No. 170396002
Date 11/11/2019
Drawn By JFY
Checked By SK

Figure No. 3
Sheet 3 of 8

Filename: \\langan.com\data\NYC\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 3 - Groundwater Elevation Contour Map_TCS.dwg Date: 2/14/2020 Time: 15:58 User: tgoodnough Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- APPROXIMATE SITE BOUNDARY
- AOC 1 - HISTORICAL SITE USE
- AOC 2 - METALS-IMPACTED SOIL
- PAOC 4 - GASOLINE-IMPACTED GROUNDWATER

NOTES:

1. BASE MAP FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. AOC = AREA OF CONCERN
3. PAOC = POTENTIAL AREA OF CONCERN
4. AOC 1 REFERS TO HISTORICAL SITE USES AND EXTENDS THE ENTIRE SITE FOOTPRINT. LOCATIONS OF HISTORICAL SITE USES ARE DOCUMENTED. NOT ALL HISTORICAL USES INCLUDED IN AOC 1 ARE SHOWN.
5. AOC 3 REFERS TO THE PRESENCE OF HISTORIC FILL WHICH IS PRESENT THROUGHOUT THE SITE.
6. BASED ON THE REMEDIAL INVESTIGATION FINDINGS, PAOC 4 IS NOT CONSIDERED AN AOC.

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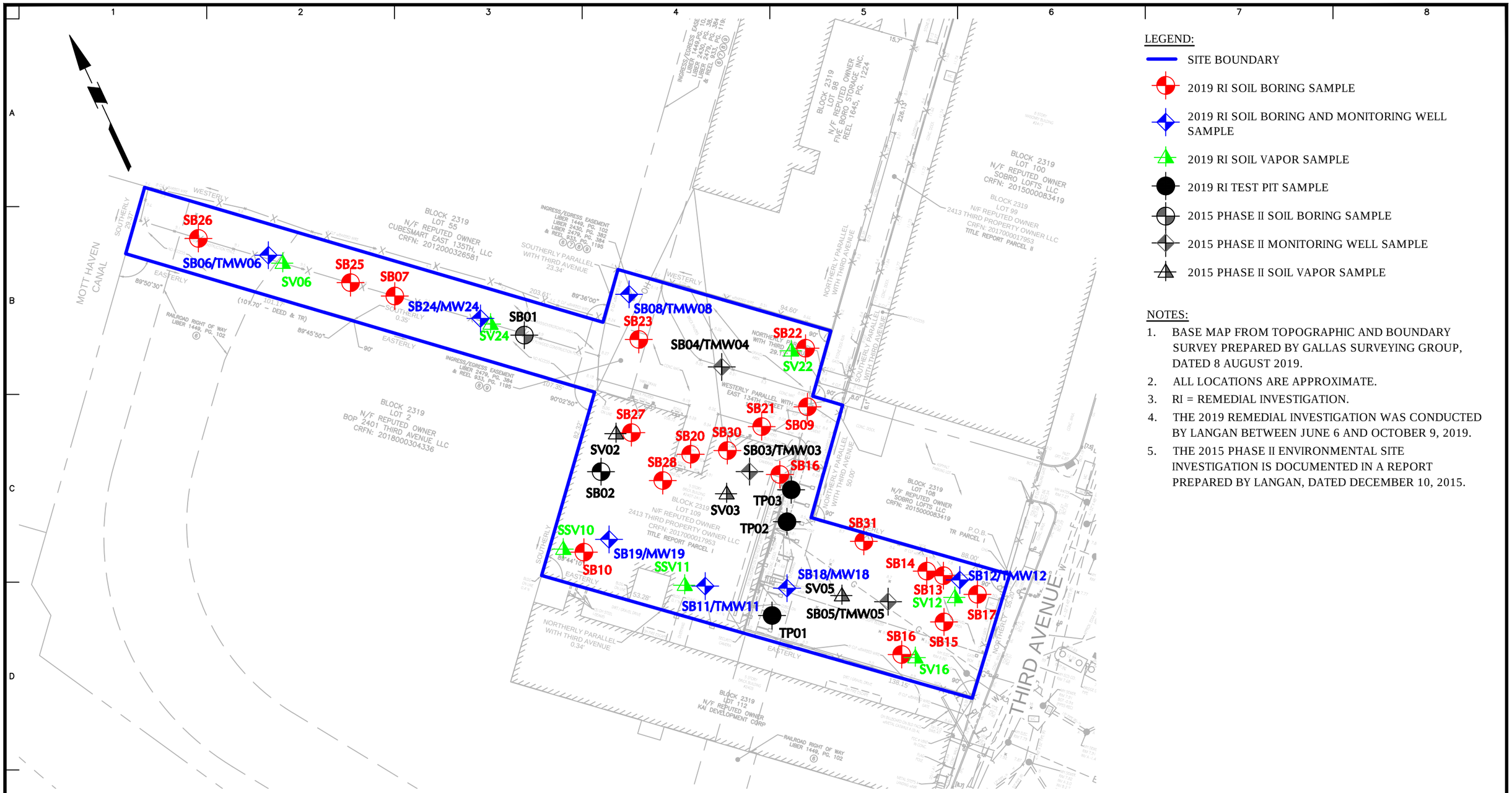
Figure Title
AREA OF CONCERN MAP

Project No. 170396002
Date 11/11/2019
Drawn By TCS
Checked By SK

Figure No. 4
Sheet 4 of 8

Filename: \\langan.com\data\NYC\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 4 - Area of Concern Map.dwg Date: 2/14/2020 Time: 15:47 User: tgoodnough Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- SITE BOUNDARY
- 2019 RI SOIL BORING SAMPLE
- 2019 RI SOIL BORING AND MONITORING WELL SAMPLE
- 2019 RI SOIL VAPOR SAMPLE
- 2019 RI TEST PIT SAMPLE
- 2015 PHASE II SOIL BORING SAMPLE
- 2015 PHASE II MONITORING WELL SAMPLE
- 2015 PHASE II SOIL VAPOR SAMPLE

NOTES:

1. BASE MAP FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. ALL LOCATIONS ARE APPROXIMATE.
3. RI = REMEDIAL INVESTIGATION.
4. THE 2019 REMEDIAL INVESTIGATION WAS CONDUCTED BY LANGAN BETWEEN JUNE 6 AND OCTOBER 9, 2019.
5. THE 2015 PHASE II ENVIRONMENTAL SITE INVESTIGATION IS DOCUMENTED IN A REPORT PREPARED BY LANGAN, DATED DECEMBER 10, 2015.

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Figure Title
SAMPLE LOCATION PLAN

Project No. 170396002
Date 11/11/2019
Drawn By EM
Checked By SK

Figure No. 5
Sheet 5 of 8

Filename: \\langan.com\data\NY\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 4 - Sample Location Plan.dwg Date: 2/11/2020 Time: 12:38 User: ssaleh Style Table: Langan.stb Layout: ANSIB-BL

Sample ID	SB26_0-2		SB26_6-8	
Sample Date	10/1/2019		10/1/2019	
Sample Depth (feet bgs)	0-2		6-8	
VOCs (mg/kg)	NE		NE	
SVOCs (mg/kg)				
Benzo(a)Anthracene	1.95	D	4.59	D
Benzo(a)Pyrene	2.11	D	3.98	D
Benzo(b)Fluoranthene	1.88	D	2.97	D
Benzo(k)Fluoranthene	1.74	D	2.69	D
Chrysene	2.1	D	4.12	D
Dibenz(a,h)Anthracene	0.602	D	0.795	D
Indeno(1,2,3-c,d)Pyrene	1.14	D	1.64	D
Pesticides (mg/kg)				
4,4'-DDT	0.0909	D	ND	
Herbicides (mg/kg)	ND		ND	
PCBs (mg/kg)				
Total PCBs	0.174		0.434	
Inorganics (mg/kg)				
Copper	97.7	B	NE	
Lead	1,400		93	
Mercury	0.287		0.194	
Zinc	350		134	
TCLP - Inorganics (mg/L)	ND		NA	
PFAS (mg/kg)	ND		NA	

Sample ID	SB06_1-2	SB06_7-8
Sample Date	6/6/2019	6/6/2019
Sample Depth (feet bgs)	1-2	7-8
VOCs (mg/kg)		
Acetone	0.054	0.26
SVOCs (mg/kg)		
Benzo(a)Anthracene	12	2
Benzo(a)Pyrene	10	1.7
Benzo(b)Fluoranthene	13	2.5
Benzo(k)Fluoranthene	5.4	NE
Chrysene	10	1.8
Dibenz(a,h)Anthracene	1.6	NE
Indeno(1,2,3-c,d)Pyrene	6.8	1.2 J
Pesticides (mg/kg)	NE	ND
PCBs (mg/kg)		
Total PCBs	2.12	2.59
Inorganics (mg/kg)		
Copper	63.1	NE
Lead	234	107
Mercury	0.183	ND
Zinc	347	177

Sample ID	SB24_0-2	SB24_10-12	SB24_15-16
Sample Date	10/1/2019	10/1/2019	10/1/2019
Sample Depth (feet bgs)	0-2	10-12	15-16
VOCs (mg/kg)	NE	NE	NE
SVOCs (mg/kg)	NE	NE	ND
Pesticides (mg/kg)	ND	ND	ND
Herbicides (mg/kg)	ND	ND	ND
PCBs (mg/kg)	ND	ND	ND
Inorganics (mg/kg)			
Chromium, Hexavalent	2.11	ND	ND
Lead	113	NE	NE
Mercury	0.185	ND	ND
Selenium	ND	ND	7.28
PFAS (mg/kg)	DNC	NA	NA

Sample ID	SB27_0-2	SB27_6-8
Sample Date	10/2/2019	10/2/2019
Sample Depth (feet bgs)	0-2	6-8
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)	NE	NE
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Lead	87.5	NE
Nickel	35.8	NE
PFAS (mg/kg)	NA	ND

Sample ID	SB28_0-2	SB28_5.5-7.5
Sample Date	10/2/2019	10/2/2019
Sample Depth (feet bgs)	0-2	5.5-7.5
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)	NE	ND
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Chromium, Trivalent	NE	39.3
Lead	227	NE
PFAS (mg/kg)	NA	ND

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste
VOCs (mg/kg)			
Acetone	0.05	100	~
Benzene	0.06	4.8	~
Cis-1,2-Dichloroethene	0.25	100	~
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~
Total Xylenes	0.26	100	~
SVOCs (mg/kg)			
2-Methylphenol (o-Cresol)	0.33	100	~
Benzo(a)Anthracene	1	1	~
Benzo(a)Pyrene	1	1	~
Benzo(b)Fluoranthene	1	1	~
Benzo(k)Fluoranthene	0.8	3.9	~
Chrysene	1	3.9	~
Dibenz(a,h)Anthracene	0.33	0.33	~
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~
Phenol	0.33	100	~
Pesticides (mg/kg)			
4,4'-DDD	0.0033	13	~
4,4'-DDE	0.0033	8.9	~
4,4'-DDT	0.0033	7.9	~
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~
Dieldrin	0.005	0.2	~
Gamma Bhc (Lindane)	0.1	1.3	~
PCBs (mg/kg)			
Total PCBs	0.1	1	~
Inorganics (mg/kg)			
Arsenic	13	16	~
Barium	350	400	~
Cadmium	2.5	4.3	~
Chromium, Hexavalent	1	110	~
Chromium, Trivalent	30	180	~
Copper	50	270	~
Lead	63	400	~
Mercury	0.18	0.81	~
Nickel	30	310	~
Selenium	3.9	180	~
Silver	2	180	~
Zinc	109	10,000	~
TCLP - Inorganics (mg/L)			
Lead	~	~	5
PFCs (mg/kg)	~	~	-

Sample ID	SB25_0-2		SB25_6-8		SB25_11-12	
Sample Date	10/1/2019		10/1/2019		10/1/2019	
Sample Depth (feet bgs)	0-2		6-8		11-12	
VOCs (mg/kg)						
Cis-1,2-Dichloroethene	ND		0.72	D	ND	
Methyl Ethyl Ketone (2-Butanone)	NE		0.48	JD	NE	
Total Xylenes	ND		1.1	JD	ND	
SVOCs (mg/kg)						
Benzo(a)Anthracene	1.56	D	3.8	D	ND	
Benzo(a)Pyrene	1.43	D	1.35	D	ND	
Benzo(b)Fluoranthene	1.25	D	2.08	D	ND	
Benzo(k)Fluoranthene	1.15	D	1.68	D	ND	
Chrysene	1.42	D	3.25	D	ND	
Indeno(1,2,3-c,d)Pyrene	1.04	D	0.514	D	ND	
Pesticides (mg/kg)						
4,4'-DDE	0.00708	DP	ND		ND	
4,4'-DDT	0.0371	DP	ND		ND	
Herbicides (mg/kg)	ND		ND		ND	
PCBs (mg/kg)						
Total PCBs	NE		0.138		ND	
Inorganics (mg/kg)						
Copper	83.2	B	NE		NE	
Lead	216		NE		NE	
Mercury	1.09		NE		NE	
Zinc	155		NE		NE	
PFAS (mg/kg)	DNC		NA		NA	

Sample ID	SB07_2-3	SB07_5-6
Sample Date	6/6/2019	6/6/2019
Sample Depth (feet bgs)	2-3	5-6
VOCs (mg/kg)		
Acetone	NE	0.053
SVOCs (mg/kg)		
Benzo(a)Anthracene	1.2	NE
Benzo(b)Fluoranthene	1.2	ND
Indeno(1,2,3-c,d)Pyrene	0.56	ND
Pesticides (mg/kg)		
4,4'-DDD	0.0739	ND
4,4'-DDE	0.0409	ND
4,4'-DDT	0.0233	ND
PCBs (mg/kg)		
Total PCBs	0.254	NE
Inorganics (mg/kg)		
Copper	54.2	NE
Lead	234	NE
Mercury	0.306	ND
Zinc	170	NE

Sample ID	SB20_0-2		RISODUP02_100319		SB20_13-15	
Sample Date	10/3/2019		10/3/2019		10/3/2019	
Sample Depth (feet bgs)	0-2		0-2		13-15	
VOCs (mg/kg)	NE		NE		NE	
SVOCs (mg/kg)						
Benzo(a)Anthracene	7.75	D	9.61	D	NE	
Benzo(a)Pyrene	6.68	D	8.18	D	NE	
Benzo(b)Fluoranthene	5.06	D	6.04	D	NE	
Benzo(k)Fluoranthene	4.72	D	5.65	D	NE	
Chrysene	7.63	D	8.78	D	NE	
Dibenz(a,h)Anthracene	1.28	D	1.59	D	ND	
Indeno(1,2,3-c,d)Pyrene	3.41	D	3.73	D	NE	
Pesticides (mg/kg)	ND		ND		ND	
Herbicides (mg/kg)	ND		ND		ND	
PCBs (mg/kg)	ND		ND		ND	
Inorganics (mg/kg)						
Arsenic	14.5		19.9		NE	
Chromium, Trivalent	31.5		NE		NE	
Copper	112	B	140	B	79.5	B
Lead	362		7,360		106	
Mercury	0.367		1.82		NE	
Zinc	388	B	2,060	B	239	B
TCLP - Inorganics (mg/L)						
Lead	NA		74.1		NA	
PFAS (mg/kg)	ND		ND		NA	

Sample ID	SB30_0-2	SB30_10-12
Sample Date	10/3/2019	10/3/2019
Sample Depth (feet bgs)	0-2	10-12
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)		
Benzo(a)Anthracene	1.37 D	NE
Benzo(k)Fluoranthene	0.83 D	NE
Chrysene	1.16 D	NE
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Copper	60.8 B	NE
Lead	265	NE
PFAS (mg/kg)	NA	ND

Sample ID	SB08_1-2	SB08_5-6
Sample Date	6/6/2019	6/6/2019
Sample Depth (feet bgs)	1-2	5-6
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)		
Benzo(a)Anthracene	1.8	ND
Benzo(a)Pyrene	1.4	ND
Benzo(b)Fluoranthene	1.8	ND
Chrysene	1.6	ND
Indeno(1,2,3-c,d)Pyrene	0.89	ND
Pesticides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)	NE	NE

Sample ID	SB21_0-2	SB21_5-7
Sample Date	9/30/2019	9/30/2019
Sample Depth (feet bgs)	0-2	5-7
VOCs (mg/kg)	NE	ND
SVOCs (mg/kg)	NE	ND
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Mercury	0.198	ND
PFAS (mg/kg)	DNC	NA

Sample ID	SB22_0-2	RISODUP01_093019	SB22_5-7
Sample Date	9/30/2019	9/30/2019	9/30/2019
Sample Depth (feet bgs)	0-2	0-2	5-7
VOCs (mg/kg)	NE	ND	ND
SVOCs (mg/kg)	NE	NE	ND
Pesticides (mg/kg)	ND	ND	ND
Herbicides (mg/kg)	ND	ND	ND
PCBs (mg/kg)	ND	ND	ND
Inorganics (mg/kg)			
Mercury	0.233	0.19	ND
PFAS (mg/kg)	DNC	ND	NA

Sample ID	SB16_0-2
Sample Date	6/21/2019
Sample Depth (feet bgs)	0-2
VOCs (mg/kg)	NE
SVOCs (mg/kg)	NE
Pesticides (mg/kg)	
4,4'-DDE	0.0167
4,4'-DDT	0.0448
PCBs (mg/kg)	
Total PCBs	0.406
Inorganics (mg/kg)	
Copper	58.4
Lead	386
Mercury	0.436
Zinc	650
TCLP - Inorganics (mg/kg)	NE

Sample ID	TP03_1-1.5
Sample Date	6/21/2019
Sample Depth (feet bgs)	1-1.5
VOCs (mg/kg)	ND
SVOCs (mg/kg)	
Benzo(a)Anthracene	4.1
Benzo(a)Pyrene	3
Benzo(b)Fluoranthene	3.5
Benzo(k)Fluoranthene	1.2
Chrysene	3.4
Dibenz(a,h)Anthracene	0.41
Indeno(1,2,3-c,d)Pyrene	1.9
Pesticides (mg/kg)	
4,4'-DDE	0.0539
4,4'-DDT	0.0764 IP
Dieldrin	0.00505 IP
PCBs (mg/kg)	
Total PCBs	0.729
Inorganics (mg/kg)	
Cadmium	3.53
Copper	244
Lead	968
Mercury	3.62
Nickel	65.3
Zinc	687

Sample ID	TP02_1-5.2
Sample Date	6/21/2019
Sample Depth (feet bgs)	1-5.2
VOCs (mg/kg)	ND
SVOCs (mg/kg)	
Benzo(a)Anthracene	1.3
Benzo(a)Pyrene	1.3
Benzo(b)Fluoranthene	1.5
Chrysene	1.3
Indeno(1,2,3-c,d)Pyrene	0.82
Pesticides (mg/kg)	
4,4'-DDE	0.0292
4,4'-DDT	0.0904
PCBs (mg/kg)	
Total PCBs	0.154 J
Inorganics (mg/kg)	
Barium	414
Copper	190
Lead	686
Mercury	4.13
Nickel	46.1
Zinc	823

Sample ID	SB31_0-2	SB31_6.5-8.5
Sample Date	9/27/2019	9/27/2019
Sample Depth (feet bgs)	0-2	6.5-8.5
VOCs (mg/kg)		
Acetone	0.19	0.051
Methyl Ethyl Ketone (2-Butanone)	0.17 B	NE
SVOCs (mg/kg)	NE	NE
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	NE	NE
Inorganics (mg/kg)		
Copper	185	128
Lead	235	179
Mercury	0.631	0.368
Zinc	317	180
08_GenChemistry		
PFAS (mg/kg)	ND	NA

Sample ID	SB14_3-4
Sample Date	6/7/2019
Sample Depth (feet bgs)	3-4
VOCs (mg/kg)	
Acetone	0.11
SVOCs (mg/kg)	NE
Pesticides (mg/kg)	NE
PCBs (mg/kg)	
Total PCBs	0.156
Inorganics (mg/kg)	
Lead	177
Mercury	0.791
TCLP - Inorganics (mg/kg)	NE

Sample ID	SB13_3-4	SB13_10-11
Sample Date	6/7/2019	6/7/2019
Sample Depth (feet bgs)	3-4	10-11
VOCs (mg/kg)		
Acetone	0.27	NE
SVOCs (mg/kg)		
Benzo(a)Anthracene	1.5	NE
Benzo(a)Pyrene	1.5	NE
Benzo(b)Fluoranthene	1.8	NE
Chrysene	1.5	NE
Indeno(1,2,3-c,d)Pyrene	0.87	NE
Pesticides (mg/kg)	ND	NE
PCBs (mg/kg)	ND	NE
Inorganics (mg/kg)		
Cadmium	3.6	ND
Copper	195	NE
Lead	482	NE
Mercury	4.47	ND
Zinc	384	NE
TCLP - Inorganics (mg/kg)	NE	NA

Sample ID	SB12_3-4	SB12_5-6
Sample Date	6/6/2019	6/6/2019
Sample Depth (feet bgs)	3-4	5-6
VOCs (mg/kg)		
Acetone	0.064	ND
Benzene	NE	0.12
SVOCs (mg/kg)	NE	NE
Pesticides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	NE
Inorganics (mg/kg)		
Cadmium	2.83	3.51
Nickel	36.1	47.8

Sample ID	SB17_0-2	SB17_5.5-7.5
Sample Date	9/27/2019	9/27/2019
Sample Depth (feet bgs)	0-2	5.5-7.5
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)		
Benzo(a)Anthracene	5.97 D	13.6 D
Benzo(a)Pyrene	5.72 D	13 D
Benzo(b)Fluoranthene	4.95 D	11.2 D
Benzo(k)Fluoranthene	4.62 D	11.2 D
Chrysene	5.81 D	12.9 D
Dibenz(a,h)Anthracene	1.31 D	2.84 D
Indeno(1,2,3-c,d)Pyrene	3.39 D	8.03 D
Pesticides (mg/kg)		
4,4'-DDE	0.0111 DP	ND
4,4'-DDT	0.0889 D	0.114 D
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	NE	NE
Inorganics (mg/kg)		
Barium	NE	624
Copper	151	103
Lead	488	969
Mercury	0.457	0.369
Zinc	457	706
PFAS (mg/kg)	DNC	NA

Sample ID	SB18_0-2	SB18_10-12
Sample Date	10/1/2019	10/1/2019
Sample Depth (feet bgs)	0-2	10-12
VOCs (mg/kg)	NE	NE
SVOCs (mg/kg)	NE	ND
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Chromium, Trivalent	NE	39
Copper	96.5 B	NE
Lead	480	NE
Mercury	0.674	ND
Nickel	42.2	NE
Zinc	156	NE
PFAS (mg/kg)	DNC	NA

Sample ID	TP01_2-2.5
Sample Date	6/21/2019
Sample Depth (feet bgs)	2-2.5
VOCs (mg/kg)	ND
SVOCs (mg/kg)	
Benzo(a)Anthracene	7.4
Benzo(a)Pyrene	6.9
Benzo(b)Fluoranthene	11
Benzo(k)Fluoranthene	2.3
Chrysene	6
Dibenz(a,h)Anthracene	1
Indeno(1,2,3-c,d)Pyrene	4.9
Pesticides (mg/kg)	
4,4'-DDE	0.00842 IP
Beta Bhc (Beta Hexachlorocyclohexane)	0.142
Dieldrin	0.00701 IP
PCBs (mg/kg)	
Total PCBs	0.374 J
Inorganics (mg/kg)	
Cadmium	7.14
Chromium, Trivalent	45
Copper	422
Lead	1,380
Mercury	2.81
Nickel	51
Silver	15.3
Zinc	1,120
TCLP - Inorganics (mg/kg)	NE

Sample ID	SB11_1-2	SB11_5-6
Sample Date	6/7/2019	6/7/2019
Sample Depth (feet bgs)	1-2	5-6
VOCs (mg/kg)		
Acetone	0.098	NE
SVOCs (mg/kg)	ND	ND
Pesticides (mg/kg)	DNC	ND
PCBs (mg/kg)	ND	ND
Inorganics (mg/kg)		
Lead	1,280	NE
Mercury	0.192	ND
TCLP - Inorganics (mg/kg)	NE	NA

Sample ID	SB10_0-2_092719	SB16_2-4
Sample Date	9/27/2019	9/27/2019
Sample Depth (feet bgs)	0-2	2-4
VOCs (mg/kg)		
Acetone	NE	0.061
SVOCs (mg/kg)		
Benzo(a)Anthracene	9.63 D	ND
Benzo(a)Pyrene	7.6 D	ND
Benzo(b)Fluoranthene	5.7 D	ND
Benzo(k)Fluoranthene	6.7 D	ND
Chrysene	8.41 D	ND
Dibenz(a,h)Anthracene	1.54 D	ND
Indeno(1,2,3-c,d)Pyrene	3.82 D	ND
Pesticides (mg/kg)	ND	ND
Herbicides (mg/kg)	ND	ND
PCBs (mg/kg)	NE	NE
Inorganics (mg/kg)		
Mercury	0.666	1.2
PFAS (mg/kg)	ND	NA

Sample ID	SB15_3-4
Sample Date	6/7/2019
Sample Depth (feet bgs)	3-4
VOCs (mg/kg)	
Benzene	0.12
SVOCs (mg/kg)	
2-Methylphenol (o-Cresol)	35
Phenol	9.5
Pesticides (mg/kg)	
4,4'-DDD	0.0637
Alpha BHC (Alpha Hexachlorocyclohexane)	0.0884
Beta Bhc (Beta Hexachlorocyclohexane)	0.113
Gamma Bhc (Lindane)	0.113
PCBs (mg/kg)	
Total PCBs	1.5
Inorganics (mg/kg)	
Copper	159
Lead	473
Mercury	3.7
Nickel	66
Zinc	354
TCLP - Inorganics (mg/kg)	NE

NOTES:
1. EXISTING INFORMATION TAKEN FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
3. VOCs = VOLATILE ORGANIC COMPOUNDS
4. SVOCs = SEMIVOLATILE ORGANIC COMPOUNDS
5. PCBs = POLYCHLORINATED BIPHENYLS
6. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
7. MG/HG = MILLIGRAMS PER KILOGRAM
8. FT = FEET
9. BGS = BELOW GRADE SURFACE
10. ND = NOT DETECTED
11. NE = DETECTED AT CONCENTRATION(S) NOT EXCEEDING SCOs.
12. NA = NOT APPLICABLE/NOT ANALYZED
13. DNC = DETECTED COMPOUND BUT NO CRITERIA
14. P = THIS FLAG IS USED FOR PESTICIDE AND PCB (AROCLOR) TARGET COMPOUNDS WHEN THERE IS A % DIFFERENCE FOR DETECTED CONCENTRATIONS THAT EXCEED METHOD DETECTION LIMITS BETWEEN THE TWO GC COLUMNS USED FOR ANALYSIS.
15. B = THE ANALYTE WAS FOUND IN THE ASSOCIATED ANALYSIS BATCH BLANK.
16. D = THE CONCENTRATION OF THE ANALYTE WAS QUANTIFIED FROM DILUTED ANALYSIS.
17. I = THE LOWER VALUE OF THE TWO COLUMNS HAS BEEN REPORTED DUE TO OBVIOUS INTERFERENCE.
18. J = THE ANALYTE WAS DETECTED ABOVE THE METHOD DETECTION LIMIT (MDL), BUT BELOW THE REPORTING LIMIT (RL); THEREFORE, THE RESULT IS AN ESTIMATED CONCENTRATION.
19. THE SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (6 NYCRR) PART 375 UNRESTRICTED USE AND RESTRICTED USE RESTRICTED-RESIDENTIAL SOIL CLEANUP OBJECTIVES (SCOS).
20. NYSDEC PART 375 UNRESTRICTED USE SCOS EXCEEDANCES ARE IN BOLD.
21. NYSDEC PART 375 RESTRICTED USE RESTRICTED-RESIDENTIAL SCOS EXCEEDANCES ARE SHADED.
22. RCRA CHARACTERISTICS OF HAZARDOUS WASTE EXCEEDANCES ARE SHADED AND IN BOLD.
23. ONLY DETECTIONS EXCEEDING APPLICABLE SCOS ARE SHOWN.
24. APPLICABLE SCOS WERE NOT EXCEEDED AT BORING LOCATIONS SB09, SB10, SB19, AND SB23, AND ARE THEREFORE NOT SHOWN ON THIS FIGURE.

LEGEND:
- SITE BOUNDARY
- SB30 — 2019 RI SOIL BORING SAMPLE
- SB19/MW19 — 2019 RI SOIL BORING AND MONITORING WELL SAMPLE
- TP01 — 2019 RI TEST PIT SAMPLE

SCALE: 1 INCH = 20 FEET

WARNING:
IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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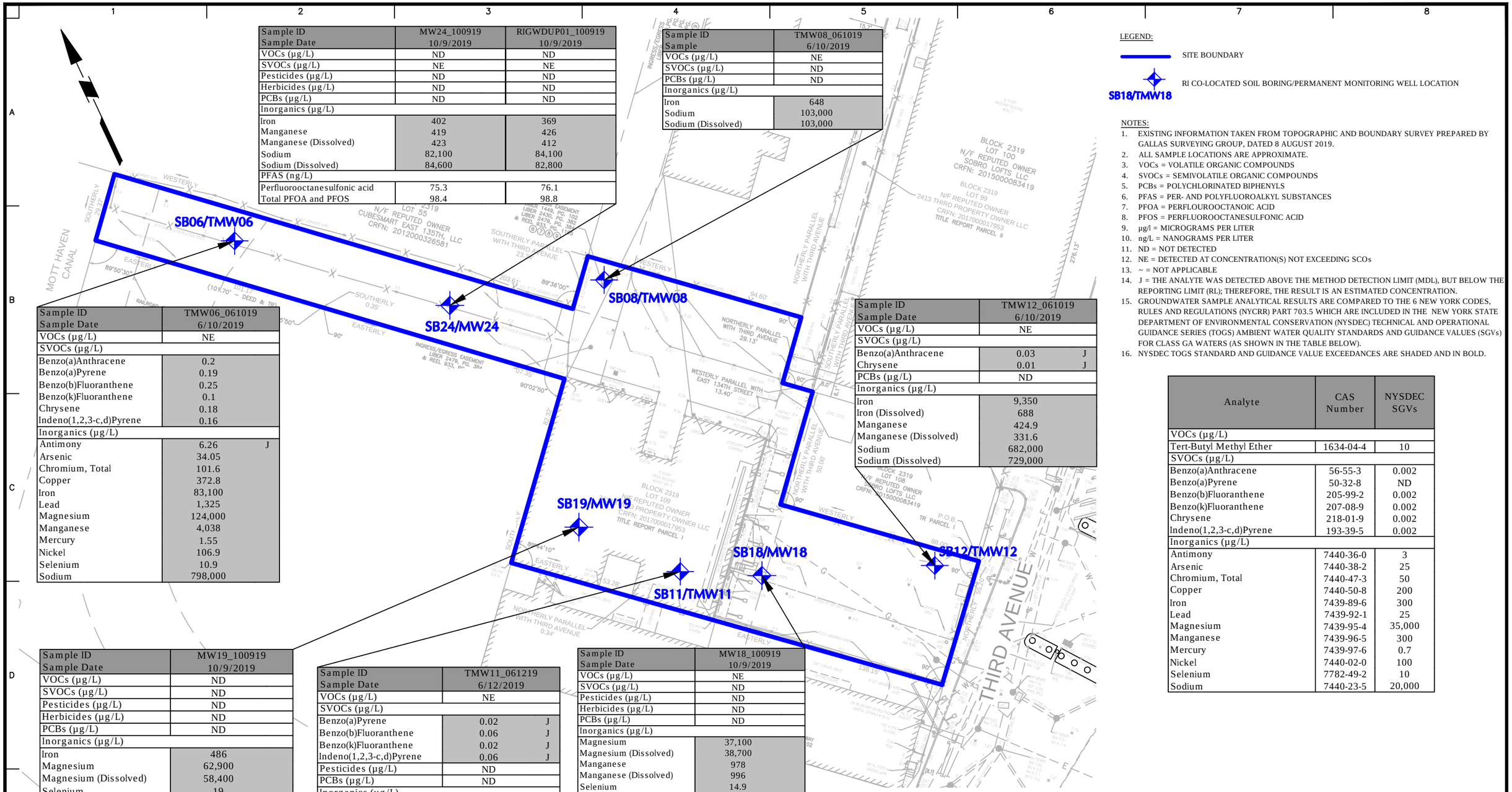
Project: 2413 THIRD AVENUE
BLOCK No. 2319, LOT No. 109
BRONX NEW YORK

Figure Title: SOIL SAMPLE ANALYTICAL RESULTS MAP

Project No. 170396001
Date 11/11/2019
Drawn By EM
Checked By SK
Figure No. 6
Sheet 6 of 8

Filename: \\langan.com\data\NYC\data\170396002\Project Data\CAD\02SheetFiles\RI\RIFigure 5 - Figure 7 (BCP base)\Figure 5 - Soil Sample Analysis_SS.dwg Date: 2/14/2020 Time: 15:52 User: tgoodnough Style Table: Langan.stb Layout: ANSID-BL



Sample ID Sample Date	MW24_100919 10/9/2019	RIGWDUP01_100919 10/9/2019
VOCs (µg/L)	ND	ND
SVOCs (µg/L)	NE	NE
Pesticides (µg/L)	ND	ND
Herbicides (µg/L)	ND	ND
PCBs (µg/L)	ND	ND
Inorganics (µg/L)		
Iron	402	369
Manganese	419	426
Manganese (Dissolved)	423	412
Sodium	82,100	84,100
Sodium (Dissolved)	84,600	82,800
PFAS (ng/L)		
Perfluorooctanesulfonic acid	75.3	76.1
Total PFOA and PFOS	98.4	98.8

Sample ID Sample	TMW08_061019 6/10/2019
VOCs (µg/L)	NE
SVOCs (µg/L)	ND
PCBs (µg/L)	ND
Inorganics (µg/L)	
Iron	648
Sodium	103,000
Sodium (Dissolved)	103,000

Sample ID Sample Date	TMW06_061019 6/10/2019	
VOCs (µg/L)	NE	
SVOCs (µg/L)		
Benzo(a)Anthracene	0.2	
Benzo(a)Pyrene	0.19	
Benzo(b)Fluoranthene	0.25	
Benzo(k)Fluoranthene	0.1	
Chrysene	0.18	
Indeno(1,2,3-c,d)Pyrene	0.16	
Inorganics (µg/L)		
Antimony	6.26	J
Arsenic	34.05	
Chromium, Total	101.6	
Copper	372.8	
Iron	83,100	
Lead	1,325	
Magnesium	124,000	
Manganese	4,038	
Mercury	1.55	
Nickel	106.9	
Selenium	10.9	
Sodium	798,000	

Sample ID Sample Date	TMW12_061019 6/10/2019	
VOCs (µg/L)	NE	
SVOCs (µg/L)		
Benzo(a)Anthracene	0.03	J
Chrysene	0.01	J
PCBs (µg/L)	ND	
Inorganics (µg/L)		
Iron	9,350	
Iron (Dissolved)	688	
Manganese	424.9	
Manganese (Dissolved)	331.6	
Sodium	682,000	
Sodium (Dissolved)	729,000	

Sample ID Sample Date	MW19_100919 10/9/2019
VOCs (µg/L)	ND
SVOCs (µg/L)	ND
Pesticides (µg/L)	ND
Herbicides (µg/L)	ND
PCBs (µg/L)	ND
Inorganics (µg/L)	
Iron	486
Magnesium	62,900
Magnesium (Dissolved)	58,400
Selenium	19
Selenium (Dissolved)	19.7
Sodium	297,000
Sodium (Dissolved)	267,000
PFAS (ng/L)	NE

Sample ID Sample Date	TMW11_061219 6/12/2019	
VOCs (µg/L)	NE	
SVOCs (µg/L)		
Benzo(a)Pyrene	0.02	J
Benzo(b)Fluoranthene	0.06	J
Benzo(k)Fluoranthene	0.02	J
Indeno(1,2,3-c,d)Pyrene	0.06	J
Pesticides (µg/L)	ND	
PCBs (µg/L)	ND	
Inorganics (µg/L)		
Iron	4,260	
Manganese	384.6	
Sodium	42,400	
Sodium (Dissolved)	41,700	

Sample ID Sample Date	MW18_100919 10/9/2019
VOCs (µg/L)	NE
SVOCs (µg/L)	ND
Pesticides (µg/L)	ND
Herbicides (µg/L)	ND
PCBs (µg/L)	ND
Inorganics (µg/L)	
Magnesium	37,100
Magnesium (Dissolved)	38,700
Manganese	978
Manganese (Dissolved)	996
Selenium	14.9
Selenium (Dissolved)	20.2
Sodium	260,000
Sodium (Dissolved)	268,000
PFAS (ng/L)	
Total PFOA and PFOS	121

LEGEND:

SITE BOUNDARY

SB18/TMW18 — RI CO-LOCATED SOIL BORING/PERMANENT MONITORING WELL LOCATION

NOTES:

1. EXISTING INFORMATION TAKEN FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
3. VOCs = VOLATILE ORGANIC COMPOUNDS
4. SVOCs = SEMIVOLATILE ORGANIC COMPOUNDS
5. PCBs = POLYCHLORINATED BIPHENYLS
6. PFAS = PER- AND POLYFLUOROALKYL SUBSTANCES
7. PFOA = PERFLUOROOCTANOIC ACID
8. PFOS = PERFLUOROOCTANESULFONIC ACID
9. µg/l = MICROGRAMS PER LITER
10. ng/L = NANOGRAMS PER LITER
11. ND = NOT DETECTED
12. NE = DETECTED AT CONCENTRATION(S) NOT EXCEEDING SCOs
13. ~ = NOT APPLICABLE
14. J = THE ANALYTE WAS DETECTED ABOVE THE METHOD DETECTION LIMIT (MDL), BUT BELOW THE REPORTING LIMIT (RL); THEREFORE, THE RESULT IS AN ESTIMATED CONCENTRATION.
15. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE 6 NEW YORK CODES, RULES AND REGULATIONS (NYCRR) PART 703.5 WHICH ARE INCLUDED IN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS) AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES (SGVs) FOR CLASS GA WATERS (AS SHOWN IN THE TABLE BELOW).
16. NYSDEC TOGS STANDARD AND GUIDANCE VALUE EXCEEDANCES ARE SHADED AND IN BOLD.

Analyte	CAS Number	NYSDEC SGVs
VOCs (µg/L)		
Tert-Butyl Methyl Ether	1634-04-4	10
SVOCs (µg/L)		
Benzo(a)Anthracene	56-55-3	0.002
Benzo(a)Pyrene	50-32-8	ND
Benzo(b)Fluoranthene	205-99-2	0.002
Benzo(k)Fluoranthene	207-08-9	0.002
Chrysene	218-01-9	0.002
Indeno(1,2,3-c,d)Pyrene	193-39-5	0.002
Inorganics (µg/L)		
Antimony	7440-36-0	3
Arsenic	7440-38-2	25
Chromium, Total	7440-47-3	50
Copper	7440-50-8	200
Iron	7439-89-6	300
Lead	7439-92-1	25
Magnesium	7439-95-4	35,000
Manganese	7439-96-5	300
Mercury	7439-97-6	0.7
Nickel	7440-02-0	100
Selenium	7782-49-2	10
Sodium	7440-23-5	20,000

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BLOCK No. 2319, LOT No. 109
CITY
BRONX NEW YORK

Figure Title
GROUNDWATER SAMPLE ANALYTICAL RESULTS MAP

Project No. 170396002
Date 10/21/2019
Drawn By EMM
Checked By SK

Figure No. 7
Sheet 7 of 8

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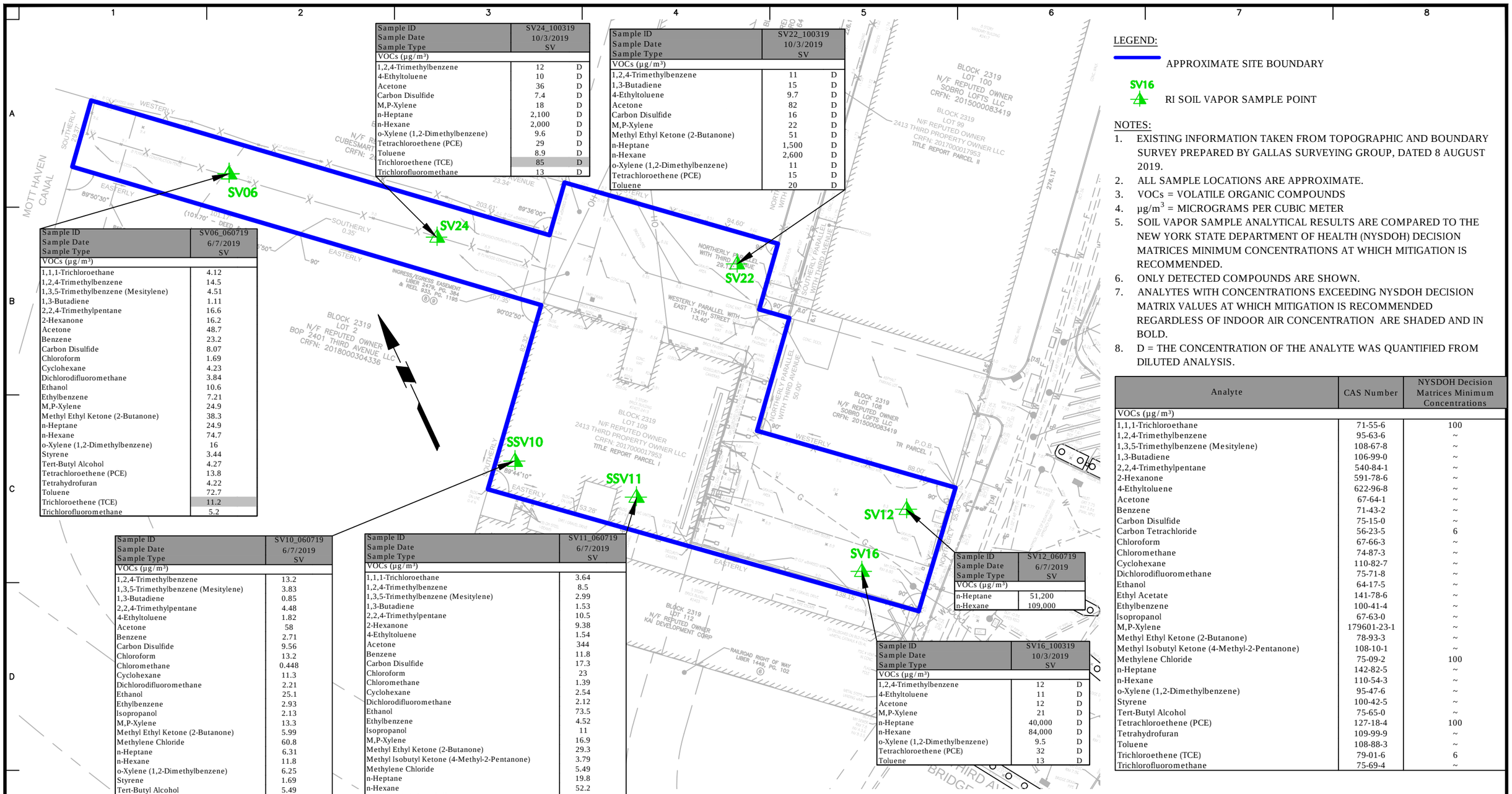

Sample ID	SV06_060719
Sample Date	6/7/2019
Sample Type	SV
VOCs (µg/m³)	
1,1,1-Trichloroethane	4.12
1,2,4-Trimethylbenzene	14.5
1,3,5-Trimethylbenzene (Mesitylene)	4.51
1,3-Butadiene	1.11
2,2,4-Trimethylpentane	16.6
2-Hexanone	16.2
Acetone	48.7
Benzene	23.2
Carbon Disulfide	8.07
Chloroform	1.69
Cyclohexane	4.23
Dichlorodifluoromethane	3.84
Ethanol	10.6
Ethylbenzene	7.21
M,P-Xylene	24.9
Methyl Ethyl Ketone (2-Butanone)	38.3
n-Heptane	24.9
n-Hexane	74.7
o-Xylene (1,2-Dimethylbenzene)	16
Styrene	3.44
Tert-Butyl Alcohol	4.27
Tetrachloroethene (PCE)	13.8
Tetrahydrofuran	4.22
Toluene	72.7
Trichloroethene (TCE)	11.2
Trichlorofluoromethane	5.2

Sample ID	SV24_100319	
Sample Date	10/3/2019	
Sample Type	SV	
VOCs (µg/m³)		
1,2,4-Trimethylbenzene	12	D
4-Ethyltoluene	10	D
Acetone	36	D
Carbon Disulfide	7.4	D
M,P-Xylene	18	D
n-Heptane	2,100	D
n-Hexane	2,000	D
o-Xylene (1,2-Dimethylbenzene)	9.6	D
Tetrachloroethene (PCE)	29	D
Toluene	8.9	D
Trichloroethene (TCE)	85	D
Trichlorofluoromethane	13	D

Sample ID	SV22_100319	
Sample Date	10/3/2019	
Sample Type	SV	
VOCs (µg/m³)		
1,2,4-Trimethylbenzene	11	D
1,3-Butadiene	15	D
4-Ethyltoluene	9.7	D
Acetone	82	D
Carbon Disulfide	16	D
M,P-Xylene	22	D
Methyl Ethyl Ketone (2-Butanone)	51	D
n-Heptane	1,500	D
n-Hexane	2,600	D
o-Xylene (1,2-Dimethylbenzene)	11	D
Tetrachloroethene (PCE)	15	D
Toluene	20	D

Sample ID	SV10_060719
Sample Date	6/7/2019
Sample Type	SV
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	13.2
1,3,5-Trimethylbenzene (Mesitylene)	3.83
1,3-Butadiene	0.85
2,2,4-Trimethylpentane	4.48
4-Ethyltoluene	1.82
Acetone	58
Benzene	2.71
Carbon Disulfide	9.56
Chloroform	13.2
Chloromethane	0.448
Cyclohexane	11.3
Dichlorodifluoromethane	2.21
Ethanol	25.1
Ethylbenzene	2.93
Isopropanol	2.13
M,P-Xylene	13.3
Methyl Ethyl Ketone (2-Butanone)	5.99
Methylene Chloride	60.8
n-Heptane	6.31
n-Hexane	11.8
o-Xylene (1,2-Dimethylbenzene)	6.25
Styrene	1.69
Tert-Butyl Alcohol	5.49
Tetrachloroethene (PCE)	3.17
Tetrahydrofuran	2.55
Toluene	7.57
Trichlorofluoromethane	1.17

Sample ID	SV11_060719
Sample Date	6/7/2019
Sample Type	SV
VOCs (µg/m³)	
1,1,1-Trichloroethane	3.64
1,2,4-Trimethylbenzene	8.5
1,3,5-Trimethylbenzene (Mesitylene)	2.99
1,3-Butadiene	1.53
2,2,4-Trimethylpentane	10.5
2-Hexanone	9.38
4-Ethyltoluene	1.54
Acetone	344
Benzene	11.8
Carbon Disulfide	17.3
Chloroform	23
Chloromethane	1.39
Cyclohexane	2.54
Dichlorodifluoromethane	2.12
Ethanol	73.5
Ethylbenzene	4.52
Isopropanol	11
M,P-Xylene	16.9
Methyl Ethyl Ketone (2-Butanone)	29.3
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	3.79
Methylene Chloride	5.49
n-Heptane	19.8
n-Hexane	52.2
o-Xylene (1,2-Dimethylbenzene)	7.99
Styrene	1.83
Tert-Butyl Alcohol	7.34
Tetrachloroethene (PCE)	14
Toluene	17.8

Sample ID	SV12_060719
Sample Date	6/7/2019
Sample Type	SV
VOCs (µg/m³)	
n-Heptane	51,200
n-Hexane	109,000

Sample ID	SV16_100319	
Sample Date	10/3/2019	
Sample Type	SV	
VOCs (µg/m³)		
1,2,4-Trimethylbenzene	12	D
4-Ethyltoluene	11	D
Acetone	12	D
M,P-Xylene	21	D
n-Heptane	40,000	D
n-Hexane	84,000	D
o-Xylene (1,2-Dimethylbenzene)	9.5	D
Tetrachloroethene (PCE)	32	D
Toluene	13	D

LEGEND:

APPROXIMATE SITE BOUNDARY

SV16 — RI SOIL VAPOR SAMPLE POINT

NOTES:

1. EXISTING INFORMATION TAKEN FROM TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY GALLAS SURVEYING GROUP, DATED 8 AUGUST 2019.
2. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
3. VOCs = VOLATILE ORGANIC COMPOUNDS
4. µg/m^3 = MICROGRAMS PER CUBIC METER
5. SOIL VAPOR SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH) DECISION MATRICES MINIMUM CONCENTRATIONS AT WHICH MITIGATION IS RECOMMENDED.
6. ONLY DETECTED COMPOUNDS ARE SHOWN.
7. ANALYTES WITH CONCENTRATIONS EXCEEDING NYSDOH DECISION MATRIX VALUES AT WHICH MITIGATION IS RECOMMENDED REGARDLESS OF INDOOR AIR CONCENTRATION ARE SHADED AND IN BOLD.
8. D = THE CONCENTRATION OF THE ANALYTE WAS QUANTIFIED FROM DILUTED ANALYSIS.

Analyte	CAS Number	NYSDOH Decision Matrices Minimum Concentrations
VOCs (µg/m³)		
1,1,1-Trichloroethane	71-55-6	100
1,2,4-Trimethylbenzene	95-63-6	~
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	~
1,3-Butadiene	106-99-0	~
2,2,4-Trimethylpentane	540-84-1	~
2-Hexanone	591-78-6	~
4-Ethyltoluene	622-96-8	~
Acetone	67-64-1	~
Benzene	71-43-2	~
Carbon Disulfide	75-15-0	~
Carbon Tetrachloride	56-23-5	6
Chloroform	67-66-3	~
Chloromethane	74-87-3	~
Cyclohexane	110-82-7	~
Dichlorodifluoromethane	75-71-8	~
Ethanol	64-17-5	~
Ethyl Acetate	141-78-6	~
Ethylbenzene	100-41-4	~
Isopropanol	67-63-0	~
M,P-Xylene	179601-23-1	~
Methyl Ethyl Ketone (2-Butanone)	78-93-3	~
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	~
Methylene Chloride	75-09-2	100
n-Heptane	142-82-5	~
n-Hexane	110-54-3	~
o-Xylene (1,2-Dimethylbenzene)	95-47-6	~
Styrene	100-42-5	~
Tert-Butyl Alcohol	75-65-0	~
Tetrachloroethene (PCE)	127-18-4	100
Tetrahydrofuran	109-99-9	~
Toluene	108-88-3	~
Trichloroethene (TCE)	79-01-6	6
Trichlorofluoromethane	75-69-4	~

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Figure Title
SOIL VAPOR SAMPLE ANALYTICAL RESULTS MAP

Project No. 170396002
Date 10/18/2019
Drawn By EMM
Checked By SK

Figure No. 8
Sheet 8 of 8

Filename: \\langan.com\data\NY\data0\170396002\Project Data\CAD\02\SheetFiles\RIR\Figure 5 - Figure 7 (BCP base)\Figure 7 - Soil Vapor Sample Analysis.dwg Date: 2/14/2020 Time: 10:32 User: ssaleh Style Table: Langan.stb Layout: ANSIB-BL

TABLES

Table 1
Remedial Investigation Sample Summary
Remedial Investigation

2413 Third Avenue
The Bronx, New York
Langan Project No. 170396002

Sample No.	Location/ Parent Sample ID	Sample ID	Sample Depth (feet bgs)	Sample Material	Sample Date	Rationale	Analyses
Soil							
1	SB06	SB06_1-2	1 to 2	Historic Fill	6/6/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
2		SB06_7-8	7 to 8	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
3	SB07	SB07_2-3	2 to 3	Historic Fill	6/6/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
4		SB07_5-6	5 to 6	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
5	SB08	SB08_1-2	1 to 2	Historic Fill	6/6/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
6		SB08_5-6	5 to 6	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
7	SB09	SB09_2-3	2 to 3	Historic Fill	6/6/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
8		SB09_5-6	5 to 6	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
9	SB10	SB10_1-2	1 to 2	Historic Fill	6/7/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
10		SB10_7-8	7 to 8	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
11	SB11	SB11_1-2	1 to 2	Historic Fill	6/7/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
12		SB11_5-6	5 to 6	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
13	SB12	SB12_3-4	3 to 4	Historic Fill	6/6/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
14		SB12_5-6	5 to 6	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
15	SB13	SB13_3-4	3 to 4	Historic Fill	6/7/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
16		SB13_10-11	10 to 11	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
17	SB14	SB14_3-4	3 to 4	Historic Fill	6/7/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
18	SB15	SB15_3-4	3 to 4	Historic Fill	6/7/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
19	SB16	SB16_0-2	0 to 2	Historic Fill	9/27/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
20		SB16_2-4	2 to 4	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
21	SB17	SB17_0-2	0 to 2	Historic Fill	9/27/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
22		SB17_5.5-7.5	5.5 to 7.5	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
23	SB18	SB18_0-2	0 to 2	Historic Fill	10/1/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
24		SB18_10-12	10 to 12	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
25	SB19	SB19_0-2	0 to 2	Historic Fill	10/2/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
26		SB19_8-9	8 to 9	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
27	SB20	SB20_0-2	0 to 2	Historic Fill	10/3/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
28		SB20_13-15	13 to 15	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
29	SB21	SB21_0-2	0 to 2	Historic Fill	9/30/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
30		SB21_5-7	5 to 7	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
31	SB22	SB22_0-2	0 to 2	Historic Fill	9/30/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
32		SB22_5-7	5 to 7	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
33	SB23	SB23_0-2	0 to 2	Historic Fill	9/30/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
34		SB23_5.5-7.5	5.5 to 7.5	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
35	SB24	SB24_0-2	0 to 2	Historic Fill	10/1/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
36		SB24_10-12	10 to 12	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
37		SB24_15-16	15 to 16	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
38	SB25	SB25_0-2	0 to 2	Historic Fill	10/1/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
39		SB25_6-8	6 to 8	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
40		SB25_11-12	11 to 12	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
41	SB26	SB26_0-2	0 to 2	Historic Fill	10/1/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
42		SB26_6-8	6 to 8	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
43	SB27	SB27_0-2	0 to 2	Historic Fill	10/2/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
44		SB27_6-8	6 to 8	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
45	SB28	SB28_0-2	0 to 2	Historic Fill	10/2/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
46		SB28_5.5-7.5	5.5 to 7.5	Historic Fill			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
47	SB30	SB30_0-2	0 to 2	Historic Fill	10/3/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromiium)
48		SB30_10-12	10 to 12	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
49	SB31	SB31_0-2	0 to 2	Historic Fill	9/27/2019	Investigate AOCs 1 and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
50		SB31_6.5-8.5	6.5 to 8.5	Native Soil			Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Metals (including hexavalent and trivalent chromium)
51	TP01	TP01_2-2.5	2 to 2.5	Historic Fill	6/21/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
52	TP02	TP02_1.5-2	1.5 to 2	Historic Fill	6/21/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals
53	TP03	TP03_1-1.5	1 to 1.5	Historic Fill	6/21/2019	Investigate AOCs 1, 2, and 3	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Metals

Table 1
Remedial Investigation Sample Summary
Remedial Investigation

2413 Third Avenue
The Bronx, New York
Langan Project No. 170396002

Sample No.	Location/ Parent Sample ID	Sample ID	Sample Depth (feet bgs)	Sample Material	Sample Date	Rationale	Analyses
Groundwater							
1	TMW06	TMW06_061019	2 to 12	Groundwater	6/10/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, and TAL Metals (total and dissolved)
2	TMW08	TMW08_061019	2 to 12	Groundwater	6/10/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, and TAL Metals (total and dissolved)
3	TMW11	TMW11_061219	2 to 12	Groundwater	6/12/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, and TAL Metals (total and dissolved)
4	TMW12	TMW12_061019	2 to 12	Groundwater	6/10/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, and TAL Metals (total and dissolved)
5	MW18	MW18_100919	6 to 16	Groundwater	10/9/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (total and dissolved), NY 21-List PFAS, 1,4-Dioxane, and NYCDEP Discharge Parameters
6	MW19	MW19_100919	5 to 15	Groundwater	10/9/2019	Investigate AOCs 1, 3, and 4	TCL VOCs and SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (total and dissolved), NY 21-List PFAS and 1,4-Dioxane
7	MW24	MW24_100919	6 to 16	Groundwater	10/9/2019	Investigate AOCs 1, 3, and 4	
Soil Vapor							
1	AA01	AA01_100319	N/A	Outdoor Ambient Air	10/3/2019	N/A	VOCs by USEPA TO-15
2	SV06	SV06_060719	5	Soil Vapor	6/7/2019	Investigate AOCs 1 and 3	
3	SSV10	SSV10_060719	0.2	Sub-Slab	6/7/2019	Investigate AOCs 1 and 3	
4	SSV11	SSV11_060719	0.2	Sub-Slab	6/7/2019	Investigate AOCs 1 and 3	
5	SV12	SV12_060719	5	Soil Vapor	6/7/2019	Investigate AOCs 1 and 3	
6	SV16	SV16_100319	5	Soil Vapor	10/3/2019	Investigate AOCs 1 and 3	
7	SV22	SV22_100319	5	Soil Vapor	10/3/2019	Investigate AOCs 1 and 3	
8	SV24	SV24_100319	5	Soil Vapor	10/3/2019	Investigate AOCs 1 and 3	
Qualtiy Assurance/Quality Control							
1	SB22_0-2	RISODUP01_093019	0 to 2	Soil	9/30/2019	N/A	Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
2	SB20_0-2	RISODUP02_100319	0 to 2	Soil	10/3/2019		Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
3	MW24_100919	GWDUP01_100919	6 to 16	Groundwater	10/9/2019		TCL VOCs and SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (total and dissolved), NY 21-List PFAS and 1,4-Dioxane
4	Field Blank	RISOFB01_093019	N/A	Deionized Water	9/30/2019		Part 375-list VOCs, SVOCs, PCBs, Pesticides, Herbicides, Metals (including hexavalent and trivalent chromium), NY 21-List PFAS, and 1,4-Dioxane
5		RISOFB02_100319	N/A	Deionized Water	10/3/2019		
6		GWFB01_100919	N/A	Deionized Water	10/9/2019		TCL VOCs and SVOCs, PCBs, Pesticides, Herbicides, TAL Metals (total and dissolved), NY 21-List PFAS and 1,4-Dioxane
7	Trip Blank	RITB01_092719	N/A	Deionized Water	9/27/2019		TCL VOCs
8		RITB02_093019	N/A	Deionized Water	9/30/2019		
9		RITB03_100119	N/A	Deionized Water	10/1/2019		
10		RITB04_100219	N/A	Deionized Water	10/2/2019		
11		RITB05_100319	N/A	Deionized Water	10/3/2019		
12		RITB06_100919	N/A	Deionized Water	10/9/2019		

Notes:
1. Soil samples for VOC analysis were collected using Terra Core sampler kits.
2. TCL = Target Compound List
3. TAL = Target Analyte List
4. VOCs = Volatile Organic Compounds
5. SVOCs = Semivolatile Organic Compounds
6. PCBs = Polychlorinated Biphenyls
7. N/A = Not Applicable
8. QA/QC = Quality Assurance/Quality Control
9. NY 21-List PFAS = Per- and polyfluoroalkyl substances (21-compound list)
10. USEPA = United States Environmental Protection Agency
11. TO-15 = Compounds shown in EPA/625/R-96/010b table 1
12. Part 375 = Compounds shown in Title 6 of the New York Codes, Rules and Regulations Part 375-6.8(b)
13. bgs = Below Grade Surface
14. Matrix spike and matrix spike duplicate samples were also collected from SB20_0-2 and SB22_0-2 and run for identical analyses as duplicate samples.
14. AOC = Area of Concern

Table 2
Remedial Investigation Report
Groundwater Elevation Data Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Date Gauged	Well Location	Well Diameter (inches)	Screened Interval (feet bTOC)	Approximate Elevation of TOC (NAVD88)	Depth to Groundwater (feet bTOC)	Groundwater Elevation (NAVD88)	Total Well Depth (ft bTOC)	Bottom of Well Elevation (NAVD88)
6/10/2019	TMW06	1	2 to 12	NA	8.50	NA	12.00	NA
6/10/2019	TMW08	1	2 to 12	NA	7.40	NA	12.00	NA
6/12/2019	TMW11	1	2 to 12	NA	8.08	NA	12.00	NA
6/10/2019	TMW12	1	2 to 12	NA	7.00	NA	12.00	NA
10/9/2019	MW18	2	6 to 16	8.52	7.78	0.74	16.00	-7.48
10/9/2019	MW19	1	5 to 15	7.32	6.62	0.70	15.00	-7.68
10/9/2019	MW24	2	6 to 16	8.95	8.15	0.80	16.00	-7.05

Notes:
1. NAVD88 - North American Vertical Datum of 1988
2. bTOC = below top of casing
3. Depth to groundwater was measured in feet bTOC.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB06 SB06_1-2 L1924067-01 6/6/2019 1-2	SB06 SB06_7-8 L1924067-02 6/6/2019 7-8	SB07 SB07_2-3 L1924067-03 6/6/2019 2-3	SB07 SB07_5-6 L1924067-04 6/6/2019 5-6	SB08 SB08_1-2 L1924067-05 6/6/2019 1-2	SB08 SB08_5-6 L1924067-06 6/6/2019 5-6
Volatile Organic Compounds (mg/kg)									
1,2,4,5-Tetramethylbenzene	~	~	~	0.0021 U	0.00076 J	0.0028 U	0.0019 U	0.00044 J	0.002 U
1,2,4-Trichlorobenzene	~	~	~	0.0021 U	0.0032 U	0.0028 U	0.0019 U	0.0021 U	0.002 U
1,2,4-Trimethylbenzene	3.6	52	~	0.0021 U	0.0024 J	0.0028 U	0.0019 U	0.0015 J	0.002 U
1,2-Dichlorobenzene	1.1	100	~	0.0021 U	0.0015 J	0.0028 U	0.0019 U	0.0021 U	0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0021 U	0.00045 J	0.0028 U	0.0019 U	0.00086 J	0.002 U
1,4-Dichlorobenzene	1.8	13	~	0.0021 U	0.0032 U	0.0028 U	0.0019 U	0.0021 U	0.002 U
1,4-Diethyl Benzene	~	~	~	0.0021 U	0.0044	0.0028 U	0.0019 U	0.0014 J	0.002 U
4-Ethyltoluene	~	~	~	0.0021 U	0.00062 J	0.0028 U	0.0019 U	0.0012 J	0.002 U
Acetone	0.05	100	~	**0.054**	**0.26**	0.014	**0.053**	0.023	0.028
Benzene	0.06	4.8	~	0.00053 U	0.0008 U	0.0007 U	0.00047 U	0.00017 J	0.00049 U
Carbon Disulfide	~	~	~	0.011 U	0.016 U	0.014 U	0.0094 U	0.01 U	0.0098 U
Chlorobenzene	1.1	100	~	0.00053 U	0.0008 U	0.0007 U	0.00047 U	0.00052 U	0.00049 U
Cis-1,2-Dichloroethene	0.25	100	~	0.0011 U	0.00032 J	0.0014 U	0.00094 U	0.001 U	0.00098 U
Cymene	~	~	~	0.0011 U	0.00045 J	0.0014 U	0.00094 U	0.001 U	0.00098 U
Diethyl Ether (Ethyl Ether)	~	~	~	0.0021 U	0.0032 U	0.0028 U	0.0019 U	0.0021 U	0.002 U
Ethylbenzene	1	41	~	0.0011 U	0.00044 J	0.0014 U	0.00094 U	0.00029 J	0.00098 U
Isopropylbenzene (Cumene)	~	~	~	0.0011 U	0.0017	0.0014 U	0.00094 U	0.00015 J	0.00098 U
M,P-Xylene	~	~	~	0.0021 U	0.0032 U	0.0028 U	0.0019 U	0.0021 U	0.002 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.011 U	0.044	0.014 U	0.0094 U	0.01 U	0.0098 U
Methylene Chloride	0.05	100	~	0.0053 U	0.008 U	0.007 U	0.0047 U	0.0052 U	0.0049 U
Naphthalene	12	100	~	0.0043 U	0.0017 J	0.0056 U	0.0038 U	0.0042 U	0.0039 U
n-Butylbenzene	12	100	~	0.0011 U	0.0031	0.0014 U	0.00094 U	0.00024 J	0.00098 U
n-Propylbenzene	3.9	100	~	0.0011 U	0.0026	0.0014 U	0.00094 U	0.00034 J	0.00098 U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0011 U	0.0016 U	0.0014 U	0.00094 U	0.00044 J	0.00098 U
Sec-Butylbenzene	11	100	~	0.0011 U	0.0041	0.0014 U	0.00094 U	0.00016 J	0.00098 U
T-Butylbenzene	5.9	100	~	0.0021 U	0.00038 J	0.0028 U	0.0019 U	0.0021 U	0.002 U
Tert-Butyl Methyl Ether	0.93	100	~	0.0005 J	0.0032 U	0.00079 J	0.0019 U	0.0021 U	0.00027 J
Tetrachloroethene (PCE)	1.3	19	~	0.00053 U	0.0008 U	0.0007 U	0.00047 U	0.00052 U	0.00049 U
Toluene	0.7	100	~	0.0011 U	0.0016 U	0.0014 U	0.00094 U	0.001 U	0.00098 U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	0.0011 U	0.00032 J	0.0014 U	0.00094 U	0.001 U	0.00098 U
Total Xylenes	0.26	100	~	0.0011 U	0.0016 U	0.0014 U	0.00094 U	0.00044 J	0.00098 U
Trichloroethene (TCE)	0.47	21	~	0.00053 U	0.00094	0.0007 U	0.0011	0.00052 U	0.00049 U
Semivolatile Organic Compounds (mg/kg)									
1,2,4-Trichlorobenzene	~	~	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
1,2-Dichlorobenzene	1.1	100	~	0.99 U	*1.9* U	0.18 U	0.18 U	0.17 U	0.21 U
1,3-Dichlorobenzene	2.4	49	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
1,4-Dichlorobenzene	1.8	13	~	0.99 U	*1.9* U	0.18 U	0.18 U	0.17 U	0.21 U
2,4-Dichlorophenol	~	~	~	0.89 U	1.7 U	0.16 U	0.16 U	0.16 U	0.18 U
2-Methylnaphthalene	~	~	~	0.16 J	0.38 J	0.045 J	0.024 J	0.18 J	0.25 U
2-Methylphenol (o-Cresol)	0.33	100	~	*0.99* U	*1.9* U	0.18 U	0.18 U	0.17 U	0.21 U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	*1.4* U	*2.7* U	0.26 U	0.26 U	0.042 J	0.3 U
Acenaphthene	20	100	~	1.3	0.41 J	0.11 J	0.15 U	0.47	0.16 U
Acenaphthylene	100	100	~	0.27 J	0.4 J	0.12 J	0.15 U	0.027 J	0.16 U
Acetophenone	~	~	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
Anthracene	100	100	~	3	0.75 J	0.32	0.11 U	0.58	0.12 U
Benzaldehyde	~	~	~	NA	NA	NA	NA	NA	NA
Benzo(a)Anthracene	1	1	~	**12**	**2**	**1.2**	0.026 J	**1.8**	0.12 U
Benzo(a)Pyrene	1	1	~	**10**	**1.7**	0.86	0.15 U	**1.4**	0.16 U
Benzo(b)Fluoranthene	1	1	~	**13**	**2.5**	**1.2**	0.11 U	**1.8**	0.12 U
Benzo(g,h,i)Perylene	100	100	~	6.2	1.2 J	0.54	0.15 U	0.85	0.16 U
Benzo(k)Fluoranthene	0.8	3.9	~	**5.4**	0.75 J	0.36	0.11 U	0.6	0.12 U
Benzyl Butyl Phthalate	~	~	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
Biphenyl (Diphenyl)	~	~	~	2.3 U	4.3 U	0.42 U	0.42 U	0.057 J	0.47 U
Bis(2-Ethylhexyl) Phthalate	~	~	~	0.69 J	1.9 U	0.28	0.18 U	0.17 U	0.21 U
Carbazole	~	~	~	0.72 J	0.4 J	0.16 J	0.18 U	0.3	0.21 U
Chrysene	1	3.9	~	**10**	**1.8**	1	0.11 U	**1.6**	0.12 U
Dibenz(a,h)Anthracene	0.33	0.33	~	**1.6**	0.29 J	0.13	0.11 U	0.19	0.12 U
Dibenzofuran	7	59	~	0.43 J	0.31 J	0.085 J	0.18 U	0.24	0.21 U
Diethyl Phthalate	~	~	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
Di-N-Butyl Phthalate	~	~	~	0.99 U	1.9 U	0.18 U	0.18 U	0.17 U	0.21 U
Fluoranthene	100	100	~	20	3.2	2.1	0.03 J	3.6	0.12 U
Fluorene	30	100	~	1	0.55 J	0.11 J	0.18 U	0.26	0.21 U
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	**6.8**	**1.2** J	**0.56**	0.15 U	**0.89**	0.16 U
Naphthalene	12	100	~	0.22 J	0.55 J	0.1 J	0.18 U	0.22	0.21 U
Phenanthrene	100	100	~	10	2	1.5	0.11 U	3.5	0.12 U
Phenol	0.33	100	~	*0.99* U	*1.9* U	0.18 U	0.18 U	0.17 U	0.21 U
Pyrene	100	100	~	18	2.9	1.8	0.031 J	3.3	0.12 U
Pesticides (mg/kg)									
4,4'-DDD	0.0033	13	~	0.00188 U	0.00177 U	**0.0739**	0.00167 U	0.00161 U	0.00192 U
4,4'-DDE	0.0033	8.9	~	0.00188 U	0.00177 U	**0.0409**	0.00167 U	0.00161 U	0.00192 U
4,4'-DDT	0.0033	7.9	~	*0.00353* U	*0.00332* U	**0.0233**	0.00313 U	0.00301 U	*0.0036* U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.000784 U	0.000737 U	0.000723 U	0.000696 U	0.000669 U	0.000799 U
Alpha Chlordane	0.094	4.2	~	0.00442	0.00221 U	0.00217 U	0.00209 U	0.00201 U	0.0024 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00188 U	0.00177 U	0.00509	0.00167 U	0.00161 U	0.00192 U
Chlordane (alpha and gamma)	~	~	~	0.0153 U	0.0144 U	0.0141 U	0.0136 U	0.013 U	0.0156 U
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00188 U	0.00177 U	0.00174 U	0.00167 U	0.00161 U	0.00192 U
Dieldrin	0.005	0.2	~	0.00118 U	0.0011 U	0.00108 U	0.00104 U	0.001 U	0.0012 U
Gamma Bhc (Lindane)	0.1	1.3	~	0.000784 U	0.000737 U	0.000723 U	0.000696 U	0.000669 U	0.000799 U
Gamma Chlordane	~	~	~	0.00455 IP	0.00221 U	0.000601 JIP	0.00209 U	0.00201 U	0.0024 U
Herbicides (mg/kg)	~	~	~	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls (mg/kg)									
PCB-1242 (Aroclor 1242)	~	~	~	0.393 U	0.369 U	0.037 U	0.0345 U	0.034 U	0.04 U
PCB-1248 (Aroclor 1248)	~	~	~	0.393 U	0.446	0.0404	0.0345 U	0.034 U	0.04 U
PCB-1254 (Aroclor 1254)	~	~	~	1.68	0.854	0.0884	0.0345 U	0.034 U	0.04 U
PCB-1260 (Aroclor 1260)	~	~	~	0.435	1.29	0.125	0.0545	0.034 U	0.04 U
PCB-1268 (Aroclor 1268)	~	~	~	0.393 U	0.369 U	0.037 U	0.0345 U	0.034 U	0.04 U
Total PCBs	0.1	1	~	**2.12**	**2.59**	**0.254**	0.0545	0.034 U	0.04 U
Inorganics (mg/kg)									
Aluminum	~	~	~	10,500	9,890	5,480	7,490	6,490	8,490
Antimony	~	~	~	3.18 J	1.94 J	2.14 J	1.14 J	2 J	0.756 J
Arsenic	13	16	~	9.38	5.45	4.56	1.3	3.01	1.96
Barium	350	400	~	214	87.9	65.9	20.6	42.2	14.9
Beryllium	7.2	72	~	0.366 J	0.412 J	0.248 J	0.271 J	0.29 J	0.262 J
Cadmium	2.5	4.3	~	1.76	0.879 J	0.885	0.332 J	0.804 J	0.3 J
Calcium	~	~	~	35,000	16,100	43,100	60,100	17,600	1,310
Chromium, Hexavalent	1	110	~	0.967 U	0.932 U	0.897 U	0.879 U	0.843 U	*1.01* U
Chromium, Total	~	~	~	22.1	19.7	13.3	15.8	13.4	14
Chromium, Trivalent	30	180	~	22	20	13	16	13	14
Cobalt	~	~	~	11.9	8.01	5.18	5.79	7.39	5.45
Copper	50	270	~	**63.1**	29.4	**54.2**	16.2	31	11.5
Iron	~	~	~	30,200	22,800	12,800	11,500	21,900	12,800
Lead	63	400	~	**234**	**107**	**234**	4.13 J	49.8	4.39 J
Magnesium	~	~	~	4,280	6,310	7,690	37,000	5,470	5,320
Manganese	1,600	2,000	~	335	240	247	194	386	228
Mercury	0.18	0.81	~	**0.183**	0.075 U	**0.306**	0.074 U	0.18	0.1 U
Nickel	30	310	~	29	18.5	12	13.6	15.4	10.1
Potassium	~	~	~	868	1,710	984	1,560	1,010	645
Selenium	3.9	180	~	1.46 J	1.03 J	0.672 J	0.69 J	0.878 J	1.94 U
Silver	2	180	~	0.937 U	0.896 U	0.885 U	0.874 U	0.828 U	0.969 U
Sodium	~	~	~	181 J	191	198	92.4 J	126 J	120 J
Vanadium	~	~	~	50.5	32.3	23.8	22.2	23.8	27.4
Zinc	109	10,000	~	**347**	**177**	**170**	28.8	68.8	35
TCLP - Inorganics (mg/L)									
Arsenic	~	~	5	NA	NA	NA	NA	NA	NA
Barium	~	~	100	NA	NA	NA	NA	NA	NA
Lead	~	~	5	0.035 J	0.096 J	0.057 J	NA	NA	NA
Mercury	~	~	0.2	NA	NA	NA	NA	NA	NA
General Chemistry (%)									
Solids, Percent	~	~	~	82.7	85.8	89.2	91	94.9	79.3
Per and Polyfluoroalkyl Substances (mg/kg)									
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	~	~	~	NA	NA	NA	NA	NA	NA
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA	NA	NA	NA	NA	NA

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB09 SB09_2-3 L1924067-07 6/6/2019 2-3		SB09 SB09_5-6 L1924067-08 6/6/2019 5-6		SB10 SB10_1-2 L1924383-01 6/7/2019 1-2		SB10 SB10_7-8 L1924383-02 6/7/2019 7-8		SB11 SB11_1-2 L1924383-03 6/7/2019 1-2		SB11 SB11_5-6 L1924383-04 6/7/2019 5-6	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,2,4-Trichlorobenzene	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,2,4-Trimethylbenzene	3.6	52	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,2-Dichlorobenzene	1.1	100	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,4-Dichlorobenzene	1.8	13	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
1,4-Diethyl Benzene	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
4-Ethyltoluene	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
Acetone	0.05	100	~	0.01		0.034		0.042		0.036		**0.098**		0.031	
Benzene	0.06	4.8	~	0.0005	U	0.00052	U	0.00082	U	0.0005	U	0.00052	J	0.00053	U
Carbon Disulfide	~	~	~	0.01	U	0.01	U	0.016	U	0.01	U	0.018	U	0.011	U
Chlorobenzene	1.1	100	~	0.0005	U	0.00052	U	0.00082	U	0.0005	U	0.0009	U	0.00053	U
Cis-1,2-Dichloroethene	0.25	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Cymene	~	~	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Diethyl Ether (Ethyl Ether)	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
Ethylbenzene	1	41	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Isopropylbenzene (Cumene)	~	~	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
M,P-Xylene	~	~	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.01	U	0.01	U	0.016	U	0.01	U	0.018	U	0.011	U
Methylene Chloride	0.05	100	~	0.005	U	0.0052	U	0.0082	U	0.005	U	0.009	U	0.0053	U
Naphthalene	12	100	~	0.004	U	0.0041	U	0.0065	U	0.004	U	0.0072	U	0.0043	U
n-Butylbenzene	12	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
n-Propylbenzene	3.9	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Sec-Butylbenzene	11	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
T-Butylbenzene	5.9	100	~	0.002	U	0.0021	U	0.0033	U	0.002	U	0.0036	U	0.0021	U
Tert-Butyl Methyl Ether	0.93	100	~	0.00024	J	0.0021	U	0.00068	J	0.0004	J	0.00062	J	0.00041	J
Tetrachloroethene (PCE)	1.3	19	~	0.0005	U	0.00052	U	0.00082	U	0.0005	U	0.00073	J	0.0015	
Toluene	0.7	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Total Xylenes	0.26	100	~	0.001	U	0.001	U	0.0016	U	0.001	U	0.0018	U	0.0011	U
Trichloroethene (TCE)	0.47	21	~	0.00016	J	0.00052	U	0.00082	U	0.0005	U	0.0009	U	0.00053	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
1,2-Dichlorobenzene	1.1	100	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
1,3-Dichlorobenzene	2.4	49	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
1,4-Dichlorobenzene	1.8	13	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
2,4-Dichlorophenol	~	~	~	0.16	U	0.18	U	0.16	U	0.18	U	0.19	U	0.18	U
2-Methylnaphthalene	~	~	~	0.21	U	0.24	U	0.21	U	0.24	U	0.26	U	0.24	U
2-Methylphenol (o-Cresol)	0.33	100	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.25	U	0.28	U	0.25	U	0.29	U	0.31	U	0.28	U
Acenaphthene	20	100	~	0.14	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U
Acenaphthylene	100	100	~	0.14	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U
Acetophenone	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Anthracene	100	100	~	0.1	U	0.12	U	0.1	U	0.12	U	0.13	U	0.12	U
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.1	U	0.12	U	0.1	U	0.038	J	0.13	U	0.12	U
Benzo(a)Pyrene	1	1	~	0.14	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U
Benzo(b)Fluoranthene	1	1	~	0.1	U	0.12	U	0.1	U	0.12	U	0.13	U	0.12	U
Benzo(g,h,i)Perylene	100	100	~	0.14	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U
Benzo(k)Fluoranthene	0.8	3.9	~	0.1	U	0.12	U	0.1	U	0.12	U	0.13	U	0.12	U
Benzyl Butyl Phthalate	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Biphenyl (Diphenyl)	~	~	~	0.39	U	0.45	U	0.4	U	0.46	U	0.48	U	0.45	U
Bis(2-Ethylhexyl) Phthalate	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Carbazole	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Chrysene	1	3.9	~	0.1	U	0.12	U	0.1	U	0.036	J	0.13	U	0.12	U
Dibenz(a,h)Anthracene	0.33	0.33	~	0.1	U	0.12	U	0.1	U	0.12	U	0.13	U	0.12	U
Dibenzofuran	7	59	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Diethyl Phthalate	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Di-N-Butyl Phthalate	~	~	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Fluoranthene	100	100	~	0.1	U	0.026	J	0.1	U	0.068	J	0.13	U	0.12	U
Fluorene	30	100	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.14	U	0.16	U	0.14	U	0.16	U	0.17	U	0.16	U
Naphthalene	12	100	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Phenanthrene	100	100	~	0.1	U	0.12	U	0.1	U	0.081	J	0.13	U	0.12	U
Phenol	0.33	100	~	0.17	U	0.2	U	0.17	U	0.2	U	0.21	U	0.2	U
Pyrene	100	100	~	0.1	U	0.024	J	0.1	U	0.057	J	0.13	U	0.12	U
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00163	U	0.0019	U	0.00169	U	0.00186	U	0.002	U	0.00188	U
4,4'-DDE	0.0033	8.9	~	0.00163	U	0.0019	U	0.00169	U	0.00186	U	0.002	U	0.00188	U
4,4'-DDT	0.0033	7.9	~	0.00306	U	*0.00357*	U	0.00318	U	*0.00348*	U	*0.00375*	U	*0.00354*	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.00068	U	0.000794	U	0.000706	U	0.000773	U	0.000834	U	0.000786	U
Alpha Chlordane	0.094	4.2	~	0.00204	U	0.00238	U	0.00212	U	0.00232	U	0.0025	U	0.00236	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00163	U	0.0019	U	0.00169	U	0.00186	U	0.002	U	0.00188	U
Chlordane (alpha and gamma)	~	~	~	0.0133	U	0.0155	U	0.0138	U	0.0151	U	0.0163	U	0.0153	U
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00163	U	0.0019	U	0.00169	U	0.00186	U	0.002	U	0.00188	U
Dieldrin	0.005	0.2	~	0.00102	U	0.00119	U	0.00106	U	0.00116	U	0.00125	U	0.00118	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.00068	U	0.000794	U	0.000706	U	0.000773	U	0.000834	U	0.000786	U
Gamma Chlordane	~	~	~	0.00204	U	0.00238	U	0.00212	U	0.00608	IP	0.00348	IP	0.00236	U
Herbicides (mg/kg)	~	~	~	NA		NA		NA		NA		NA		NA	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0332	U	0.0279	J	0.0346	U	0.0394	U	0.0433	U	0.0392	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0332	U	0.0398	U	0.0346	U	0.0394	U	0.0433	U	0.0392	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0332	U	0.00959	J	0.0346	U	0.0394	U	0.0433	U	0.0392	U
PCB-1260 (Aroclor 1260)	~	~	~	0.0332	U	0.0398	U	0.0346	U	0.0394	U	0.0433	U	0.0392	U
PCB-1268 (Aroclor 1268)	~	~	~	0.0332	U	0.0398	U	0.0346	U	0.0394	U	0.0433	U	0.0392	U
Total PCBs	0.1	1	~	0.0332	U	0.0375	J	0.0346	U	0.0394	U	0.0433	U	0.0392	U
Inorganics (mg/kg)															
Aluminum	~	~	~	11,400		6,380		9,720		12,100		8,900		5,850	
Antimony	~	~	~	2.4	J	0.458	J	0.684	J	4.62	U	2.38	J	4.69	U
Arsenic	13	16	~	0.79	U	1.28		2.98		1.68		4.06		2.61	
Barium	350	400	~	141		39.7		29.4		17.5		53.2		25.2	
Beryllium	7.2	72	~	0.616		0.351	J	0.326	J	0.388	J	0.374	J	0.234	J
Cadmium	2.5	4.3	~	0.529	J	0.263	J	0.815	U	0.925	U	0.985	U	0.938	U
Calcium	~	~	~	3,430		967		3,560		1,250		18,000		853	
Chromium, Hexavalent	1	110	~	0.838	U	0.978	U	0.849	U	0.98	U	0.417	J	0.254	J
Chromium, Total	~	~	~	21.9		8.99		16		26.4		16.2		9.52	
Chromium, Trivalent	30	180	~	22		9		16		26		16	J	9.3	J
Cobalt	~	~	~	13.3		4.57		7.03		10.9		8.44		5.1	
Copper	50	270	~	24.8		7.4		13.4		24.7		22.2		11.1	
Iron	~	~	~	21,200		10,400		17,400		18,200		23,000		12,500	
Lead	63	400	~	7.09		3.89	J	25.6		7.08		**1,280**		8.76	
Magnesium	~	~	~	4,970		2,190		6,450		8,660		4,410		2,430	
Manganese	1,600	2,000	~	118		202		271		217		618		311	
Mercury	0.18	0.81	~	0.074	U	0.09	U	0.075	U	0.081	U	**0.192**		0.078	U
Nickel	30	310	~	23.4		10.2		12.8		18		15.2		10.2	
Potassium	~	~	~	7,670		659		860		1,140		1,070		639	
Selenium	3.9	180	~	0.616	J	0.263	J	1.63	U	1.85	U	1.97	U	1.88	U
Silver	2	180	~	0.79	U	0.974	U	0.815	U	0.925	U	0.985	U	0.938	U
Sodium	~	~	~	163		275		94.4	J	147	J	682		44.3	J
Vanadium	~	~	~	29.2		12.2		20.7		34		19.6		10.6	
Zinc	109	10,000	~	66.5		25.2		53.1		46.6		49.3		28.2	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		NA		NA		2.93		NA	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	95.4		81.8		94.2		81.6		76.8		82.7	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		NA		NA		NA		NA		NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB12 SB12_3-4 L1924067-09 6/6/2019 3-4		SB12 SB12_5-6 L1924067-10 6/6/2019 5-6		SB13 SB13_3-4 L1924383-05 6/7/2019 3-4		SB13 SB13_10-11 L1924383-06 6/7/2019 10-11		SB14 SB14_3-4 L1924383-07 6/7/2019 3-4		SB15 SB15_3-4 L1924383-08 6/7/2019 3-4	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.16	U
1,2,4-Trichlorobenzene	~	~	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.071	J
1,2,4-Trimethylbenzene	3.6	52	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.047	J
1,2-Dichlorobenzene	1.1	100	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.023	J
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.16	U
1,4-Dichlorobenzene	1.8	13	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.059	J
1,4-Diethyl Benzene	~	~	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.00029	J	0.019	J
4-Ethyltoluene	~	~	~	0.0023	U	0.065	J	0.0022	U	0.0018	U	0.0022	J	0.051	J
Acetone	0.05	100	~	**0.064**		*0.52*	U	**0.27**		0.05		**0.11**		*0.79*	U
Benzene	0.06	4.8	~	0.00047	J	**0.12**		0.00055	U	0.00016	J	0.0073		**0.12**	
Carbon Disulfide	~	~	~	0.0098	J	0.52	U	0.011	U	0.0089	U	0.012	U	0.79	U
Chlorobenzene	1.1	100	~	0.00057	U	0.026	U	0.00055	U	0.00045	U	0.00063	U	0.47	
Cis-1,2-Dichloroethene	0.25	100	~	0.0011	U	0.052	U	0.0011	U	0.00089	U	0.0012	U	0.079	U
Cymene	~	~	~	0.0011	U	0.0062	J	0.0011	U	0.00089	U	0.0012	U	0.079	U
Diethyl Ether (Ethyl Ether)	~	~	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.16	U
Ethylbenzene	1	41	~	0.00032	J	0.09		0.0011	U	0.00089	U	0.0043		0.075	J
Isopropylbenzene (Cumene)	~	~	~	0.0011	U	0.02	J	0.0011	U	0.00089	U	0.00099	J	0.079	U
M,P-Xylene	~	~	~	0.0023	U	0.05	J	0.0022	U	0.0018	U	0.0019	J	0.12	J
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.011	U	*0.52*	U	0.011	U	0.0038	J	0.012	U	*0.79*	U
Methylene Chloride	0.05	100	~	0.0057	U	*0.26*	U	0.0055	U	0.0045	U	0.0063	U	*0.4*	U
Naphthalene	12	100	~	0.0045	U	0.21	U	0.0044	U	0.0036	U	0.005	U	0.32	U
n-Butylbenzene	12	100	~	0.0011	U	0.023	J	0.0011	U	0.00089	U	0.00057	J	0.079	U
n-Propylbenzene	3.9	100	~	0.0011	U	0.049	J	0.0011	U	0.00089	U	0.0016		0.021	J
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0011	U	0.024	J	0.0011	U	0.00089	U	0.001	J	0.045	J
Sec-Butylbenzene	11	100	~	0.0011	U	0.019	J	0.0011	U	0.00089	U	0.00046	J	0.079	U
T-Butylbenzene	5.9	100	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.16	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0023	U	0.1	U	0.0022	U	0.0018	U	0.0025	U	0.16	U
Tetrachloroethene (PCE)	1.3	19	~	0.00057	U	0.026	U	0.00055	U	0.00045	U	0.00063	U	0.04	U
Toluene	0.7	100	~	0.0011	U	0.14		0.0011	U	0.00089	U	0.0083		0.066	J
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	0.0011	U	0.052	U	0.0011	U	0.00089	U	0.0012	U	0.079	U
Total Xylenes	0.26	100	~	0.0011	U	0.074	J	0.0011	U	0.00089	U	0.0029	J	0.17	J
Trichloroethene (TCE)	0.47	21	~	0.00057	U	0.026	U	0.00055	U	0.00045	U	0.00063	U	0.04	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	0.18	U	0.18	U	0.18	U	0.19	U	0.032	J	0.13	J
1,2-Dichlorobenzene	1.1	100	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.18	U
1,3-Dichlorobenzene	2.4	49	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.18	U
1,4-Dichlorobenzene	1.8	13	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.11	J
2,4-Dichlorophenol	~	~	~	0.16	U	0.16	U	0.16	U	0.17	U	0.16	U	0.16	U
2-Methylnaphthalene	~	~	~	0.21	U	0.21	U	0.057	J	0.03	J	0.21	U	0.53	
2-Methylphenol (o-Cresol)	0.33	100	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	**35**	
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.25	U	0.26	U	0.26	U	0.27	U	0.25	U	0.26	U
Acenaphthene	20	100	~	0.14	U	0.14	U	0.2		0.091	J	0.14	U	0.02	J
Acenaphthylene	100	100	~	0.14	U	0.14	U	0.094	J	0.06	J	0.14	U	0.032	J
Acetophenone	~	~	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.18	U
Anthracene	100	100	~	0.1	U	0.11	U	0.44		0.21		0.1	U	0.064	J
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.1	U	0.14		**1.5**		0.7		0.12		0.17	
Benzo(a)Pyrene	1	1	~	0.14	U	0.12	J	**1.5**		0.72		0.13	J	0.18	
Benzo(b)Fluoranthene	1	1	~	0.1	U	0.21		**1.8**		0.89		0.17		0.23	
Benzo(g,h,i)Perylene	100	100	~	0.14	U	0.11	J	0.83		0.42		0.075	J	0.15	
Benzo(k)Fluoranthene	0.8	3.9	~	0.1	U	0.059	J	0.56		0.28		0.057	J	0.084	J
Benzyl Butyl Phthalate	~	~	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.18	U
Biphenyl (Diphenyl)	~	~	~	0.4	U	0.4	U	0.42	U	0.43	U	0.4	U	0.12	J
Bis(2-Ethylhexyl) Phthalate	~	~	~	0.18	U	0.46		0.18	U	0.19	U	0.17	U	0.098	J
Carbazole	~	~	~	0.18	U	0.18	U	0.17	J	0.098	J	0.17	U	0.022	J
Chrysene	1	3.9	~	0.1	U	0.15		**1.5**		0.7		0.12		0.18	
Dibenz(a,h)Anthracene	0.33	0.33	~	0.1	U	0.022	J	0.18		0.1	J	0.1	U	0.028	J
Dibenzofuran	7	59	~	0.18	U	0.18	U	0.1	J	0.051	J	0.17	U	0.024	J
Diethyl Phthalate	~	~	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	0.078	J
Di-N-Butyl Phthalate	~	~	~	0.18	U	0.18	U	0.18	U	0.063	J	0.17	U	0.14	J
Fluoranthene	100	100	~	0.1	U	0.22		3.2		1.5		0.2		0.34	
Fluorene	30	100	~	0.18	U	0.18	U	0.17	J	0.076	J	0.17	U	0.022	J
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.14	U	0.099	J	**0.87**		0.44		0.082	J	0.14	J
Naphthalene	12	100	~	0.028	J	0.027	J	0.1	J	0.061	J	0.17	U	1.7	
Phenanthrene	100	100	~	0.039	J	0.1	J	2.4		1		0.084	J	0.23	
Phenol	0.33	100	~	0.18	U	0.18	U	0.18	U	0.19	U	0.17	U	**9.5**	
Pyrene	100	100	~	0.1	U	0.2		3.1		1.4		0.18		0.33	
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00172	U	0.00169	U	0.0017	U	0.00176	U	0.0017	U	**0.0637**	
4,4'-DDE	0.0033	8.9	~	0.00172	U	0.00169	U	0.0017	U	0.00107	P	0.0017	U	0.00178	U
4,4'-DDT	0.0033	7.9	~	0.00322	U	0.00316	U	0.00319	U	0.00329	U	0.00318	U	*0.00333*	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.000715	U	0.000703	U	0.00071	U	0.000731	U	0.00206		**0.0884**	
Alpha Chlordane	0.094	4.2	~	0.00214	U	0.00211	U	0.00213	U	0.00126	J	0.0028		0.03	
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00172	U	0.00169	U	0.0017	U	0.00176	U	0.02		**0.113**	
Chlordane (alpha and gamma)	~	~	~	0.0139	U	0.0137	U	0.0138	U	0.0143	U	0.0138	U	0.221	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00172	U	0.00169	U	0.0017	U	0.00176	U	0.0017	U	0.0339	
Dieldrin	0.005	0.2	~	0.00107	U	0.00105	U	0.00106	U	0.0011	U	0.00106	U	0.00111	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.000715	U	0.000703	U	0.00071	U	0.000731	U	0.0013		**0.113**	
Gamma Chlordane	~	~	~	0.00214	U	0.00211	U	0.00213	U	0.00219	U	0.00436	IP	0.0211	IP
Herbicides (mg/kg)	~	~	~	NA		NA		NA		NA		NA		NA	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0355	U	0.0352	U	0.0358	U	0.0381	U	0.0342	U	0.18	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0355	U	0.0352	U	0.0358	U	0.0381	U	0.0342	U	0.18	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0355	U	0.0352	U	0.0358	U	0.0119	J	0.0342	U	0.84	
PCB-1260 (Aroclor 1260)	~	~	~	0.0355	U	0.0456		0.0358	U	0.00768	P	0.156		0.657	
PCB-1268 (Aroclor 1268)	~	~	~	0.0355	U	0.0352	U	0.0358	U	0.0381	U	0.0342	U	0.18	U
Total PCBs	0.1	1	~	0.0355	U	0.0456		0.0358	U	0.0196	J	**0.156**		**1.5**	
Inorganics (mg/kg)															
Aluminum	~	~	~	5,540		4,020		2,420		8,300		3,440		6,820	
Antimony	~	~	~	3.68	J	4.48		4.55		4.57	U	2.39	J	8.31	
Arsenic	13	16	~	5.46		9.98		5.23		1.24		7.64		7.48	
Barium	350	400	~	26.1		28.3		208		8.29		31.2		122	
Beryllium	7.2	72	~	0.243	J	0.152	J	0.196	J	0.219	J	0.106	J	0.322	J
Cadmium	2.5	4.3	~	**2.83**		**3.51**		**3.6**		0.914	U	*8.15*	U	0.87	U
Calcium	~	~	~	703		4,180		2,810		625		37,800		19,700	
Chromium, Hexavalent	1	110	~	0.866	U	0.861	U	0.893	U	0.928	U	0.85	U	0.893	U
Chromium, Total	~	~	~	17.9		19.6		13.2		23.8		12.6		22.4	
Chromium, Trivalent	30	180	~	18		20		13		24		13		22	
Cobalt	~	~	~	33.6		43.8		5.65		6.73		12.9		18.3	
Copper	50	270	~	19.6		14.5		**195**		13.7		28.9		**159**	
Iron	~	~	~	114,000		135,000		10,800		9,400		56,800		44,400	
Lead	63	400	~	24.8		19.4		**482**		4.59		**177**		**473**	
Magnesium	~	~	~	532		1,250		604		5,430		7,180		4,150	
Manganese	1,600	2,000	~	769		907		141		50.9		408		549	
Mercury	0.18	0.81	~	0.073	U	0.089	U	**4.47**		0.079	U	**0.791**		**3.7**	
Nickel	30	310	~	**36.1**		**47.8**		12.6		14.7		16.4		**66**	
Potassium	~	~	~	303		564		309		866		342		1,080	
Selenium	3.9	180	~	2.35		2.7		0.417	J	1.83	U	1.63	U	1.74	U
Silver	2	180	~	0.838	U	0.845	U	0.851	U	0.914	U	0.815	U	1.31	
Sodium	~	~	~	432		1,260		998		314		1,230		466	
Vanadium	~	~	~	45.5		62		15.9		24		29.9		28.7	
Zinc	109	10,000	~	18.8		15.4		**384**		23.5		22.2		**354**	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		0.066	J	NA		0.027	J	0.35	J
Mercury	~	~	0.2	NA		NA		0.001	U	NA		NA		0.001	U
General Chemistry (%)															
Solids, Percent	~	~	~	92.4		92.9		89.6		86.2		94.1		89.6	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		NA		NA		NA		NA		NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		NA		NA		NA		NA		NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB16 SB16_0-2 L1927241-04 6/21/2019 0-2		SB16 SB16_0-2_092719 19I1299-01 9/27/2019 0-2		SB16 SB16_2-4 19I1299-02 9/27/2019 2-4		SB17 SB17_0-2 19I1299-03 9/27/2019 0-2		SB17 SB17_5.5-7.5 19I1299-04 9/27/2019 5.5-7.5		SB18 SB18_0-2 19J0068-01 10/1/2019 0-2	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	0.0064	U	NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	~	~	~	0.0064	U	NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	3.6	52	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
1,2-Dichlorobenzene	1.1	100	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
1,4-Dichlorobenzene	1.8	13	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
1,4-Diethyl Benzene	~	~	~	0.0064	U	NA		NA		NA		NA		NA	
4-Ethyltoluene	~	~	~	0.0064	U	NA		NA		NA		NA		NA	
Acetone	0.05	100	~	0.03	J	0.038		**0.061**		0.0053	U	0.0048	U	0.0096	J
Benzene	0.06	4.8	~	0.0016	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Carbon Disulfide	~	~	~	0.032	U	NA		NA		NA		NA		NA	
Chlorobenzene	1.1	100	~	0.0016	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Cymene	~	~	~	0.0032	U	NA		NA		NA		NA		NA	
Diethyl Ether (Ethyl Ether)	~	~	~	0.0064	U	NA		NA		NA		NA		NA	
Ethylbenzene	1	41	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Isopropylbenzene (Cumene)	~	~	~	0.0032	U	NA		NA		NA		NA		NA	
M,P-Xylene	~	~	~	0.0064	U	0.0055	U	0.0054	U	0.0053	U	0.0048	U	0.0055	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.032	U	0.019	B	0.032	B	0.0068	JB	0.0055	JB	0.012	B
Methylene Chloride	0.05	100	~	0.016	U	0.0083	J	0.0083	J	0.0053	U	0.0076	J	0.0055	U
Naphthalene	12	100	~	0.013	U	0.0027	U	0.0027	U	0.0027	U	0.0065	J	0.0028	U
n-Butylbenzene	12	100	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
n-Propylbenzene	3.9	100	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Sec-Butylbenzene	11	100	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
T-Butylbenzene	5.9	100	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0064	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Tetrachloroethene (PCE)	1.3	19	~	0.0016	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0069	
Toluene	0.7	100	~	0.0032	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	0.0032	U	NA		NA		NA		NA		NA	
Total Xylenes	0.26	100	~	0.0032	U	0.0082	U	0.0081	U	0.008	U	0.0072	U	0.0083	U
Trichloroethene (TCE)	0.47	21	~	0.0016	U	0.0027	U	0.0027	U	0.0027	U	0.0024	U	0.0028	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	0.19	U	NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	1.1	100	~	0.19	U	NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	2.4	49	~	0.19	U	NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	1.8	13	~	0.19	U	NA		NA		NA		NA		NA	
2,4-Dichlorophenol	~	~	~	0.18	U	NA		NA		NA		NA		NA	
2-Methylnaphthalene	~	~	~	0.23	U	NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	0.33	100	~	0.19	U	0.0445	U	0.0433	U	0.0471	U	0.0602	U	0.0453	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.28	U	0.0445	U	0.0433	U	0.0585	JD	0.0602	U	0.0453	U
Acenaphthene	20	100	~	0.025	J	0.369	D	0.0433	U	1.1	D	2.29	D	0.0453	U
Acenaphthylene	100	100	~	0.042	J	2.7	D	0.0433	U	0.333	D	1.18	D	0.0453	U
Acetophenone	~	~	~	0.19	U	NA		NA		NA		NA		NA	
Anthracene	100	100	~	0.074	J	5.96	D	0.0433	U	2.86	D	6.08	D	0.0729	JD
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.27		**9.63**	D	0.0433	U	**5.97**	D	**13.6**	D	0.285	D
Benzo(a)Pyrene	1	1	~	0.23		**7.6**	D	0.0433	U	**5.72**	D	**13**	D	0.27	D
Benzo(b)Fluoranthene	1	1	~	0.3		**5.7**	D	0.0433	U	**4.95**	D	**11.2**	D	0.251	D
Benzo(g,h,i)Perylene	100	100	~	0.16		3.57	D	0.0433	U	3.9	D	8.62	D	0.172	D
Benzo(k)Fluoranthene	0.8	3.9	~	0.087	J	**6.7**	D	0.0433	U	**4.62**	D	**11.2**	D	0.235	D
Benzyl Butyl Phthalate	~	~	~	0.19	U	NA		NA		NA		NA		NA	
Biphenyl (Diphenyl)	~	~	~	0.44	U	NA		NA		NA		NA		NA	
Bis(2-Ethylhexyl) Phthalate	~	~	~	0.072	J	NA		NA		NA		NA		NA	
Carbazole	~	~	~	0.042	J	NA		NA		NA		NA		NA	
Chrysene	1	3.9	~	0.24		**8.41**	D	0.0433	U	**5.81**	D	**12.9**	D	0.264	D
Dibenz(a,h)Anthracene	0.33	0.33	~	0.035	J	**1.54**	D	0.0433	U	**1.31**	D	**2.84**	D	0.0453	U
Dibenzofuran	7	59	~	0.19	U	0.945	D	0.0433	U	0.897	D	1.71	D	0.0453	U
Diethyl Phthalate	~	~	~	0.19	U	NA		NA		NA		NA		NA	
Di-N-Butyl Phthalate	~	~	~	0.051	J	NA		NA		NA		NA		NA	
Fluoranthene	100	100	~	0.48		25.6	D	0.0433	U	17.1	D	35.4	D	0.578	D
Fluorene	30	100	~	0.03	J	2.37	D	0.0433	U	1.19	D	1.95	D	0.0453	U
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.16		**3.82**	D	0.0433	U	**3.39**	D	**8.03**	D	0.206	D
Naphthalene	12	100	~	0.03	J	0.105	D	0.0433	U	0.871	D	1.31	D	0.0453	U
Phenanthrene	100	100	~	0.32		19.6	D	0.0433	U	12.6	D	23.9	D	0.287	D
Phenol	0.33	100	~	0.19	U	0.0445	U	0.0433	U	0.0471	U	0.0602	U	0.0453	U
Pyrene	100	100	~	0.51		18	D	0.0433	U	12.2	D	28.4	D	0.523	D
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00179	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
4,4'-DDE	0.0033	8.9	~	**0.0167**		0.00175	U	0.00173	U	**0.0111**	DP	0.00242	U	0.00179	U
4,4'-DDT	0.0033	7.9	~	**0.0448**		0.00175	U	0.00173	U	**0.0889**	D	**0.114**	D	0.00179	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.000746	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Alpha Chlordane	0.094	4.2	~	0.0028		0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00179	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Chlordane (alpha and gamma)	~	~	~	0.0315	IP	NA		NA		NA		NA		NA	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00179	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Dieldrin	0.005	0.2	~	0.00112	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.000746	U	0.00175	U	0.00173	U	0.00184	U	0.00242	U	0.00179	U
Gamma Chlordane	~	~	~	0.00276	IP	NA		NA		NA		NA		NA	
Herbicides (mg/kg)	~	~	~	NA		ND		ND		ND		ND		ND	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0391	U	0.0176	U	0.0174	U	0.0186	U	0.0245	U	0.0181	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0391	U	0.0176	U	0.0174	U	0.0186	U	0.0245	U	0.0181	U
PCB-1254 (Aroclor 1254)	~	~	~	0.216		0.0176	U	0.0174	U	0.0186	U	0.0245	U	0.0181	U
PCB-1260 (Aroclor 1260)	~	~	~	0.19		0.0402		0.0465		0.0916		0.0873		0.0181	U
PCB-1268 (Aroclor 1268)	~	~	~	0.0391	U	0.0176	U	0.0174	U	0.0186	U	0.0245	U	0.0181	U
Total PCBs	0.1	1	~	**0.406**		0.0402		0.0465		0.0916		0.0873		0.0181	U
Inorganics (mg/kg)															
Aluminum	~	~	~	5,700		NA		NA		NA		NA		NA	
Antimony	~	~	~	10.4		NA		NA		NA		NA		NA	
Arsenic	13	16	~	6.95		1.63	U	1.6	U	10.4		12		10.6	
Barium	350	400	~	93.8		24.6		40.9		239		**624**		219	
Beryllium	7.2	72	~	0.466	U	0.054	U	0.053	U	0.057	U	0.074	U	0.055	U
Cadmium	2.5	4.3	~	1.67		0.325	U	0.319	U	1.51		1.15		0.821	
Calcium	~	~	~	23,000		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	~	0.506	J	0.542	U	0.532	U	0.567	U	0.739	U	0.547	U
Chromium, Total	~	~	~	14.6		5.73		11.9		24.3		28.6		27	
Chromium, Trivalent	30	180	~	14	J	5.73		11.9		24.3		28.6		27	
Cobalt	~	~	~	10.4		NA		NA		NA		NA		NA	
Copper	50	270	~	**58.4**		13.8		14.3		**151**		**103**		**96.5**	B
Iron	~	~	~	20,300		NA		NA		NA		NA		NA	
Lead	63	400	~	**386**		9.15		21.8		**488**		**969**		**480**	
Magnesium	~	~	~	3,070		NA		NA		NA		NA		NA	
Manganese	1,600	2,000	~	422		195		502		334		391		742	
Mercury	0.18	0.81	~	**0.436**		**0.666**		1.2		**0.457**		**0.369**		**0.674**	
Nickel	30	310	~	18.5		9.37		13.4		22.8		19.3		**42.2**	
Potassium	~	~	~	608		NA		NA		NA		NA		NA	
Selenium	3.9	180	~	1.86	U	2.71	U	2.66	U	2.83	U	3.7	U	2.73	U
Silver	2	180	~	0.932	U	0.542	U	0.532	U	0.903		0.785		0.547	U
Sodium	~	~	~	149	J	NA		NA		NA		NA		NA	
Vanadium	~	~	~	24.8		NA		NA		NA		NA		NA	
Zinc	109	10,000	~	**650**		53.4		45.9		**457**		**706**		**156**	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	0.046	J	NA		NA		NA		NA		NA	
Barium	~	~	100	0.666		NA		NA		NA		NA		NA	
Lead	~	~	5	0.459	J	NA		NA		NA		NA		NA	
Mercury	~	~	0.2	0.0006	J	NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	84.9		92.3		94		88.2		67.6		91.4	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		0.000741	U	NA		0.000814	U	NA		0.000759	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		0.000741	U	NA		0.00292		NA		0.000753	U
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		0.000741	U	NA		0.000814	U	NA		0.000936	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		0.000741	U	NA		0.000814	U	NA		0.000753	U

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB18 SB18_10-12 19J0068-02 10/1/2019 10-12		SB19 SB19_0-2 19J0144-01 10/2/2019 0-2		SB19 SB19_8-9 19J0144-02 10/2/2019 8-9		SB20 SB20_0-2 19J0216-01 10/3/2019 0-2		SB20 RISODUP02_100319 19J0216-05 10/3/2019 0-2		SB20 SB20_13-15 19J0216-02 10/3/2019 13-15	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	3.6	52	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
1,2-Dichlorobenzene	1.1	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
1,4-Dichlorobenzene	1.8	13	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
1,4-Diethyl Benzene	~	~	~	NA		NA		NA		NA		NA		NA	
4-Ethyltoluene	~	~	~	NA		NA		NA		NA		NA		NA	
Acetone	0.05	100	~	0.0044	U	0.0056	J	0.0047	U	0.0061	U	0.019		0.0085	J
Benzene	0.06	4.8	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Carbon Disulfide	~	~	~	NA		NA		NA		NA		NA		NA	
Chlorobenzene	1.1	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Cymene	~	~	~	NA		NA		NA		NA		NA		NA	
Diethyl Ether (Ethyl Ether)	~	~	~	NA		NA		NA		NA		NA		NA	
Ethylbenzene	1	41	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Isopropylbenzene (Cumene)	~	~	~	NA		NA		NA		NA		NA		NA	
M,P-Xylene	~	~	~	0.0044	U	0.0049	J	0.0047	U	0.0061	U	0.008	U	0.0051	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.0042	JB	0.0028	J	0.0052	JB	0.0031	U	0.004	U	0.0025	U
Methylene Chloride	0.05	100	~	0.0073	J	0.0087	J	0.0054	J	0.0073	J	0.012	J	0.0087	J
Naphthalene	12	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0072	J
n-Butylbenzene	12	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
n-Propylbenzene	3.9	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Sec-Butylbenzene	11	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
T-Butylbenzene	5.9	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Tetrachloroethene (PCE)	1.3	19	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Toluene	0.7	100	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	NA		NA		NA		NA		NA		NA	
Total Xylenes	0.26	100	~	0.0065	U	0.0069	U	0.007	U	0.0092	U	0.012	U	0.0076	U
Trichloroethene (TCE)	0.47	21	~	0.0022	U	0.0023	U	0.0023	U	0.0031	U	0.004	U	0.0025	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	1.1	100	~	NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	2.4	49	~	NA		NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	1.8	13	~	NA		NA		NA		NA		NA		NA	
2,4-Dichlorophenol	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylnaphthalene	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	0.33	100	~	0.0469	U	0.0437	U	0.0471	U	0.049	U	0.0482	U	0.0519	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.0469	U	0.0437	U	0.0471	U	0.0609	JD	0.0714	JD	0.0519	U
Acenaphthene	20	100	~	0.0469	U	0.0437	U	0.0471	U	2.17	D	2.31	D	0.0786	JD
Acenaphthylene	100	100	~	0.0469	U	0.0437	U	0.0471	U	0.467	D	0.398	D	0.0519	U
Acetophenone	~	~	~	NA		NA		NA		NA		NA		NA	
Anthracene	100	100	~	0.0469	U	0.0437	U	0.0471	U	4.76	D	5.71	D	0.191	D
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.0469	U	0.0437	U	0.0471	U	**7.75**	D	**9.61**	D	0.285	D
Benzo(a)Pyrene	1	1	~	0.0469	U	0.0437	U	0.0471	U	**6.68**	D	**8.18**	D	0.233	D
Benzo(b)Fluoranthene	1	1	~	0.0469	U	0.0437	U	0.0471	U	**5.06**	D	**6.04**	D	0.172	D
Benzo(g,h,i)Perylene	100	100	~	0.0469	U	0.0437	U	0.0471	U	3.96	D	4.55	D	0.123	D
Benzo(k)Fluoranthene	0.8	3.9	~	0.0469	U	0.0437	U	0.0471	U	**4.72**	D	**5.65**	D	0.166	D
Benzyl Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Biphenyl (Diphenyl)	~	~	~	NA		NA		NA		NA		NA		NA	
Bis(2-Ethylhexyl) Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Carbazole	~	~	~	NA		NA		NA		NA		NA		NA	
Chrysene	1	3.9	~	0.0469	U	0.0437	U	0.0471	U	**7.63**	D	**8.78**	D	0.261	D
Dibenz(a,h)Anthracene	0.33	0.33	~	0.0469	U	0.0437	U	0.0471	U	**1.28**	D	**1.59**	D	0.0519	U
Dibenzofuran	7	59	~	0.0469	U	0.0437	U	0.0471	U	1.11	D	0.915	D	0.0519	U
Diethyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Di-N-Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Fluoranthene	100	100	~	0.0469	U	0.0934	D	0.0471	U	17.6	D	20.3	D	0.569	D
Fluorene	30	100	~	0.0469	U	0.0437	U	0.0471	U	2.09	D	2.19	D	0.091	JD
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.0469	U	0.0437	U	0.0471	U	**3.41**	D	**3.73**	D	0.107	D
Naphthalene	12	100	~	0.0469	U	0.0437	U	0.0471	U	1.48	D	0.899	D	0.0844	JD
Phenanthrene	100	100	~	0.0469	U	0.114	D	0.0471	U	22.1	D	24.4	D	0.704	D
Phenol	0.33	100	~	0.0469	U	0.0437	U	0.0471	U	0.049	U	0.0482	U	0.0519	U
Pyrene	100	100	~	0.0469	U	0.0746	JD	0.0471	U	18	D	21.9	D	0.604	D
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
4,4'-DDE	0.0033	8.9	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
4,4'-DDT	0.0033	7.9	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Alpha Chlordane	0.094	4.2	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Chlordane (alpha and gamma)	~	~	~	NA		NA		NA		NA		NA		NA	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Dieldrin	0.005	0.2	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.00186	U	0.00172	U	0.00186	U	0.00193	U	0.00189	U	0.00204	U
Gamma Chlordane	~	~	~	NA		NA		NA		NA		NA		NA	
Herbicides (mg/kg)	~	~	~	ND		ND		ND		ND		ND		ND	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
PCB-1260 (Aroclor 1260)	~	~	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
PCB-1268 (Aroclor 1268)	~	~	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
Total PCBs	0.1	1	~	0.0188	U	0.0174	U	0.0188	U	0.0195	U	0.0191	U	0.0206	U
Inorganics (mg/kg)															
Aluminum	~	~	~	NA		NA		NA		NA		NA		NA	
Antimony	~	~	~	NA		NA		NA		NA		NA		NA	
Arsenic	13	16	~	1.72	U	1.57	U	1.93		**14.5**		**19.9**		6.88	
Barium	350	400	~	32.4		30.2		30.8		40.9		195		21.6	
Beryllium	7.2	72	~	0.057	U	0.052	U	0.058	U	0.059	U	0.058	U	0.062	U
Cadmium	2.5	4.3	~	0.343	U	0.315	U	0.587		0.618		1.99		0.674	
Calcium	~	~	~	NA		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	~	0.572	U	0.525	U	0.578	U	0.59	U	0.578	U	0.625	U
Chromium, Total	~	~	~	39		21.9		22.1		31.5		15.3		21.2	
Chromium, Trivalent	30	180	~	**39**		21.9		22.1		**31.5**		15.3		21.2	
Cobalt	~	~	~	NA		NA		NA		NA		NA		NA	
Copper	50	270	~	32	B	15.3		22.4		**112**	B	**140**	B	**79.5**	B
Iron	~	~	~	NA		NA		NA		NA		NA		NA	
Lead	63	400	~	2.05		37.2		30.5		**362**		**7,360**		**106**	
Magnesium	~	~	~	NA		NA		NA		NA		NA		NA	
Manganese	1,600	2,000	~	555		376		297		528		285		386	
Mercury	0.18	0.81	~	0.0343	U	0.0417		0.0347	U	**0.367**		**1.82**		0.0829	
Nickel	30	310	~	22.6		22.9		19.3		10.1		12.1		16.7	
Potassium	~	~	~	NA		NA		NA		NA		NA		NA	
Selenium	3.9	180	~	2.86	U	2.62	U	2.89	U	2.95	U	2.89	U	3.12	U
Silver	2	180	~	0.572	U	0.525	U	0.578	U	0.59	U	0.578	U	0.625	U
Sodium	~	~	~	NA		NA		NA		NA		NA		NA	
Vanadium	~	~	~	NA		NA		NA		NA		NA		NA	
Zinc	109	10,000	~	49.9		56.1		106		**388**	B	**2,060**	B	**239**	B
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		NA		NA		74.1		NA	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	87.4		95.3		86.5		84.8		86.5		80	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		NA		0.000782	U	0.00429	U	0.00399	U	NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		NA		0.000782	U	0.00429	U	0.00399	U	NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		NA		0.000782	U	0.00429	U	0.00399	U	NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		NA		0.000782	U	0.00429	U	0.00399	U	NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB21 SB21_0-2 19I1369-01 9/30/2019 0-2		SB21 SB21_5-7 19I1369-02 9/30/2019 5-7		SB22 SB22_0-2 19I1369-03 9/30/2019 0-2		SB22 RISODUP01_093019 19I1369-07 9/30/2019 0-2		SB22 SB22_5-7 19I1369-04 9/30/2019 5-7		SB23 SB23_0-2 19I1369-05 9/30/2019 0-2	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	3.6	52	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
1,2-Dichlorobenzene	1.1	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
1,4-Dichlorobenzene	1.8	13	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
1,4-Diethyl Benzene	~	~	~	NA		NA		NA		NA		NA		NA	
4-Ethyltoluene	~	~	~	NA		NA		NA		NA		NA		NA	
Acetone	0.05	100	~	0.034		0.0044	U	0.0064	J	0.0042	U	0.0048	U	0.0048	U
Benzene	0.06	4.8	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Carbon Disulfide	~	~	~	NA		NA		NA		NA		NA		NA	
Chlorobenzene	1.1	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Cymene	~	~	~	NA		NA		NA		NA		NA		NA	
Diethyl Ether (Ethyl Ether)	~	~	~	NA		NA		NA		NA		NA		NA	
Ethylbenzene	1	41	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Isopropylbenzene (Cumene)	~	~	~	NA		NA		NA		NA		NA		NA	
M,P-Xylene	~	~	~	0.0058	U	0.0044	U	0.0047	U	0.0042	U	0.0048	U	0.0048	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.0081		0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Methylene Chloride	0.05	100	~	0.0058	U	0.0044	U	0.0047	U	0.0042	U	0.0048	U	0.0048	U
Naphthalene	12	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
n-Butylbenzene	12	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
n-Propylbenzene	3.9	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Sec-Butylbenzene	11	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
T-Butylbenzene	5.9	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Tetrachloroethene (PCE)	1.3	19	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Toluene	0.7	100	~	0.0031	J	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	NA		NA		NA		NA		NA		NA	
Total Xylenes	0.26	100	~	0.0088	U	0.0066	U	0.007	U	0.0063	U	0.0073	U	0.0072	U
Trichloroethene (TCE)	0.47	21	~	0.0029	U	0.0022	U	0.0023	U	0.0021	U	0.0024	U	0.0024	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	1.1	100	~	NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	2.4	49	~	NA		NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	1.8	13	~	NA		NA		NA		NA		NA		NA	
2,4-Dichlorophenol	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylnaphthalene	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	0.33	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Acenaphthene	20	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Acenaphthylene	100	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Acetophenone	~	~	~	NA		NA		NA		NA		NA		NA	
Anthracene	100	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0499	JD
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.0565	JD	0.0472	U	0.0847	JD	0.0657	JD	0.0487	U	0.168	D
Benzo(a)Pyrene	1	1	~	0.0551	JD	0.0472	U	0.0733	JD	0.0628	JD	0.0487	U	0.156	D
Benzo(b)Fluoranthene	1	1	~	0.0443	U	0.0472	U	0.0648	JD	0.0453	U	0.0487	U	0.134	D
Benzo(g,h,i)Perylene	100	100	~	0.0443	U	0.0472	U	0.0446	U	0.057	JD	0.0487	U	0.0712	JD
Benzo(k)Fluoranthene	0.8	3.9	~	0.0443	U	0.0472	U	0.0577	JD	0.0453	U	0.0487	U	0.12	D
Benzyl Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Biphenyl (Diphenyl)	~	~	~	NA		NA		NA		NA		NA		NA	
Bis(2-Ethylhexyl) Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Carbazole	~	~	~	NA		NA		NA		NA		NA		NA	
Chrysene	1	3.9	~	0.0452	JD	0.0472	U	0.0683	JD	0.0679	JD	0.0487	U	0.149	D
Dibenz(a,h)Anthracene	0.33	0.33	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Dibenzofuran	7	59	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Diethyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Di-N-Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Fluoranthene	100	100	~	0.0933	D	0.0472	U	0.124	D	0.108	D	0.0487	U	0.311	D
Fluorene	30	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.0443	U	0.0472	U	0.0527	JD	0.0453	U	0.0487	U	0.0876	JD
Naphthalene	12	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Phenanthrene	100	100	~	0.0473	JD	0.0472	U	0.0833	JD	0.0715	JD	0.0487	U	0.175	D
Phenol	0.33	100	~	0.0443	U	0.0472	U	0.0446	U	0.0453	U	0.0487	U	0.0447	U
Pyrene	100	100	~	0.0784	JD	0.0472	U	0.112	D	0.105	D	0.0487	U	0.258	D
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
4,4'-DDE	0.0033	8.9	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
4,4'-DDT	0.0033	7.9	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Alpha Chlordane	0.094	4.2	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Chlordane (alpha and gamma)	~	~	~	NA		NA		NA		NA		NA		NA	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Dieldrin	0.005	0.2	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.00178	U	0.00188	U	0.00177	U	0.00179	U	0.00194	U	0.00177	U
Gamma Chlordane	~	~	~	NA		NA		NA		NA		NA		NA	
Herbicides (mg/kg)	~	~	~	ND		ND		ND		ND		ND		ND	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
PCB-1248 (Aroclor 1248)	~	~	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
PCB-1254 (Aroclor 1254)	~	~	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
PCB-1260 (Aroclor 1260)	~	~	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
PCB-1268 (Aroclor 1268)	~	~	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
Total PCBs	0.1	1	~	0.018	U	0.019	U	0.0179	U	0.0181	U	0.0195	U	0.0179	U
Inorganics (mg/kg)															
Aluminum	~	~	~	NA		NA		NA		NA		NA		NA	
Antimony	~	~	~	NA		NA		NA		NA		NA		NA	
Arsenic	13	16	~	3.38		2.33		3.26		4.45		2.9		2.64	
Barium	350	400	~	44.6		53.4		82.3		35.5		43		42.2	
Beryllium	7.2	72	~	0.054	U	0.057	U	0.054	U	0.055	U	0.059	U	0.054	U
Cadmium	2.5	4.3	~	0.324	U	0.345	U	0.324	U	0.327	U	0.353	U	0.326	U
Calcium	~	~	~	NA		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	~	0.541	U	0.574	U	0.539	U	0.545	U	0.589	U	0.543	U
Chromium, Total	~	~	~	12.7		9.53		11.1		10.2		15.4		9.25	
Chromium, Trivalent	30	180	~	12.7		9.53		11.1		10.2		15.4		9.25	
Cobalt	~	~	~	NA		NA		NA		NA		NA		NA	
Copper	50	270	~	27.4		8.27		13.3		19		14.3		16.9	
Iron	~	~	~	NA		NA		NA		NA		NA		NA	
Lead	63	400	~	48.4		2.88		53.3		43.1		3.29		29.8	
Magnesium	~	~	~	NA		NA		NA		NA		NA		NA	
Manganese	1,600	2,000	~	602		390		266		322		454		379	
Mercury	0.18	0.81	~	**0.198**		0.0345	U	**0.233**		**0.19**		0.0353	U	0.157	
Nickel	30	310	~	19.6		10.8		11		11.5		12.1		13.8	
Potassium	~	~	~	NA		NA		NA		NA		NA		NA	
Selenium	3.9	180	~	2.7	U	2.87	U	2.7	U	2.73	U	2.94	U	2.72	U
Silver	2	180	~	0.541	U	0.574	U	0.539	U	0.545	U	0.589	U	0.543	U
Sodium	~	~	~	NA		NA		NA		NA		NA		NA	
Vanadium	~	~	~	NA		NA		NA		NA		NA		NA	
Zinc	109	10,000	~	42.3		31.5		33.5		42.3		36.2		33.1	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		NA		NA		NA		NA	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	92.5		87		92.7		91.7		85		92	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	0.000803	U	NA		0.000779	U	0.000813	U	NA		0.00078	U
Perfluorooctanesulfonic acid (PFOS)	~	~	~	0.00263		NA		0.00125		0.000813	U	NA		0.00078	U
Perfluorooctanoic Acid (PFOA)	~	~	~	0.000803	U	NA		0.000779	U	0.000813	U	NA		0.00078	U
Perfluoropentanoic Acid (PFPeA)	~	~	~	0.000803	U	NA		0.000779	U	0.000813	U	NA		0.00078	U

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB23 SB23_5.5-7.5 19I1369-06 9/30/2019 5.5-7.5		SB24 SB24_0-2 19J0068-03 10/1/2019 0-2		SB24 SB24_10-12 19J0068-04 10/1/2019 10-12		SB24 SB24_15-16 19J0068-05 10/1/2019 15-16		SB25 SB25_0-2 19J0068-06 10/1/2019 0-2		SB25 SB25_6-8 19J0068-07 10/1/2019 6-8	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	3.6	52	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	2.7	D
1,2-Dichlorobenzene	1.1	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	1.7	D
1,4-Dichlorobenzene	1.8	13	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
1,4-Diethyl Benzene	~	~	~	NA		NA		NA		NA		NA		NA	
4-Ethyltoluene	~	~	~	NA		NA		NA		NA		NA		NA	
Acetone	0.05	100	~	0.0044	U	0.0042	U	0.014		0.0046	U	0.0063	J	*0.59*	U
Benzene	0.06	4.8	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	*0.29*	U
Carbon Disulfide	~	~	~	NA		NA		NA		NA		NA		NA	
Chlorobenzene	1.1	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	**0.72**	D
Cymene	~	~	~	NA		NA		NA		NA		NA		NA	
Diethyl Ether (Ethyl Ether)	~	~	~	NA		NA		NA		NA		NA		NA	
Ethylbenzene	1	41	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Isopropylbenzene (Cumene)	~	~	~	NA		NA		NA		NA		NA		NA	
M,P-Xylene	~	~	~	0.0044	U	0.0042	U	0.0055	U	0.0046	U	0.0057	U	0.82	JD
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.0022	U	0.0054	JB	0.0092	JB	0.0054	JB	0.0079	JB	**0.48**	JD
Methylene Chloride	0.05	100	~	0.0044	U	0.0042	U	0.0055	U	0.0074	J	0.011		*0.59*	U
Naphthalene	12	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	3.7	D
n-Butylbenzene	12	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	1.1	D
n-Propylbenzene	3.9	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.32	JD
Sec-Butylbenzene	11	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.38	JD
T-Butylbenzene	5.9	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Tetrachloroethene (PCE)	1.3	19	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.83	D
Toluene	0.7	100	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	NA		NA		NA		NA		NA		NA	
Total Xylenes	0.26	100	~	0.0067	U	0.0063	U	0.0082	U	0.0069	U	0.0086	U	**1.1**	JD
Trichloroethene (TCE)	0.47	21	~	0.0022	U	0.0021	U	0.0027	U	0.0023	U	0.0029	U	0.29	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	1.1	100	~	NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	2.4	49	~	NA		NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	1.8	13	~	NA		NA		NA		NA		NA		NA	
2,4-Dichlorophenol	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylnaphthalene	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	0.33	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.0434	U	0.0482	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.0434	U	0.0482	U
Acenaphthene	20	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.136	D	7.26	D
Acenaphthylene	100	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.0872	D	0.179	D
Acetophenone	~	~	~	NA		NA		NA		NA		NA		NA	
Anthracene	100	100	~	0.048	U	0.0556	JD	0.0503	U	0.0468	U	0.501	D	10	D
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.048	U	0.238	D	0.0503	U	0.0468	U	**1.56**	D	**3.8**	D
Benzo(a)Pyrene	1	1	~	0.048	U	0.206	D	0.0503	U	0.0468	U	**1.43**	D	**1.35**	D
Benzo(b)Fluoranthene	1	1	~	0.048	U	0.178	D	0.0503	U	0.0468	U	**1.25**	D	**2.08**	D
Benzo(g,h,i)Perylene	100	100	~	0.048	U	0.134	D	0.0503	U	0.0468	U	0.855	D	0.385	D
Benzo(k)Fluoranthene	0.8	3.9	~	0.048	U	0.185	D	0.0503	U	0.0468	U	**1.15**	D	**1.68**	D
Benzyl Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Biphenyl (Diphenyl)	~	~	~	NA		NA		NA		NA		NA		NA	
Bis(2-Ethylhexyl) Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Carbazole	~	~	~	NA		NA		NA		NA		NA		NA	
Chrysene	1	3.9	~	0.048	U	0.215	D	0.0503	U	0.0468	U	**1.42**	D	**3.25**	D
Dibenz(a,h)Anthracene	0.33	0.33	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.234	D	0.158	D
Dibenzofuran	7	59	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.112	D	2.56	D
Diethyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Di-N-Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Fluoranthene	100	100	~	0.048	U	0.443	D	0.0503	U	0.0468	U	2.94	D	18.1	D
Fluorene	30	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.169	D	7.3	D
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.048	U	0.149	D	0.0503	U	0.0468	U	**1.04**	D	**0.514**	D
Naphthalene	12	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.0776	JD	0.31	D
Phenanthrene	100	100	~	0.048	U	0.241	D	0.0503	U	0.0468	U	1.92	D	5.97	D
Phenol	0.33	100	~	0.048	U	0.0453	U	0.0503	U	0.0468	U	0.0434	U	0.0482	U
Pyrene	100	100	~	0.048	U	0.387	D	0.0978	JD	0.0468	U	2.71	D	18.4	D
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
4,4'-DDE	0.0033	8.9	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	**0.00708**	DP	0.0019	U
4,4'-DDT	0.0033	7.9	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	**0.0371**	DP	0.0019	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
Alpha Chlordane	0.094	4.2	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.00445	DP	0.0019	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
Chlordane (alpha and gamma)	~	~	~	NA		NA		NA		NA		NA		NA	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
Dieldrin	0.005	0.2	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.0019	U	0.0018	U	0.00198	U	0.00184	U	0.0017	U	0.0019	U
Gamma Chlordane	~	~	~	NA		NA		NA		NA		NA		NA	
Herbicides (mg/kg)	~	~	~	ND		ND		ND		ND		ND		ND	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.0172	U	0.0192	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.0172	U	0.0192	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.0172	U	0.0192	U
PCB-1260 (Aroclor 1260)	~	~	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.053		0.138	
PCB-1268 (Aroclor 1268)	~	~	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.0172	U	0.0192	U
Total PCBs	0.1	1	~	0.0191	U	0.0182	U	0.02	U	0.0186	U	0.053		**0.138**	
Inorganics (mg/kg)															
Aluminum	~	~	~	NA		NA		NA		NA		NA		NA	
Antimony	~	~	~	NA		NA		NA		NA		NA		NA	
Arsenic	13	16	~	2.01		2.5		4.14		2.93		3.58		3.65	
Barium	350	400	~	39.8		41.5		14.7		10.1		103		39.7	
Beryllium	7.2	72	~	0.058	U	0.055	U	0.061	U	0.056	U	0.053	U	0.059	U
Cadmium	2.5	4.3	~	0.348	U	0.329	U	0.363	U	0.338	U	0.705		0.351	U
Calcium	~	~	~	NA		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	~	0.58	U	**2.11**		0.605	U	0.563	U	0.53	U	0.586	U
Chromium, Total	~	~	~	9.49		16.4		22.4		9.96		19.8		16.2	
Chromium, Trivalent	30	180	~	9.49		14.3		22.4		9.96		19.8		16.2	
Cobalt	~	~	~	NA		NA		NA		NA		NA		NA	
Copper	50	270	~	6.42		30.8	B	12.3	B	12.4	B	**83.2**	B	14.3	B
Iron	~	~	~	NA		NA		NA		NA		NA		NA	
Lead	63	400	~	6.04		**113**		1.58		0.679		**216**		41.3	
Magnesium	~	~	~	NA		NA		NA		NA		NA		NA	
Manganese	1,600	2,000	~	244		375		208		145		286		401	
Mercury	0.18	0.81	~	0.0348	U	**0.185**		0.0363	U	0.0338	U	**1.09**		0.0565	
Nickel	30	310	~	9.73		16.7		15.8		5.81		16.7		15.8	
Potassium	~	~	~	NA		NA		NA		NA		NA		NA	
Selenium	3.9	180	~	2.9	U	2.74	U	3.03	U	**7.28**		2.65	U	2.93	U
Silver	2	180	~	0.58	U	0.549	U	0.605	U	0.563	U	0.53	U	0.586	U
Sodium	~	~	~	NA		NA		NA		NA		NA		NA	
Vanadium	~	~	~	NA		NA		NA		NA		NA		NA	
Zinc	109	10,000	~	30.6		86.1		50.3		38		**155**		63.8	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		NA		NA		NA		NA	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	86.2		91.1		82.6		88.8		94.4		85.4	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		0.00402	U	NA		NA		0.000784	U	NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		0.00402	U	NA		NA		0.00096		NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		0.00402	U	NA		NA		0.000784	U	NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		0.0205	D	NA		NA		0.000784	U	NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB25 SB25_11-12 19J0068-08 10/1/2019 11-12		SB26 SB26_0-2 19J0068-09 10/1/2019 0-2		SB26 SB26_6-8 19J0068-10 10/1/2019 6-8		SB27 SB27_0-2 19J0144-03 10/2/2019 0-2		SB27 SB27_6-8 19J0144-04 10/2/2019 6-8		SB28 SB28_0-2 19J0144-05 10/2/2019 0-2	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	3.6	52	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
1,2-Dichlorobenzene	1.1	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
1,4-Dichlorobenzene	1.8	13	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
1,4-Diethyl Benzene	~	~	~	NA		NA		NA		NA		NA		NA	
4-Ethyltoluene	~	~	~	NA		NA		NA		NA		NA		NA	
Acetone	0.05	100	~	0.0093	J	0.0051	U	0.0053	U	0.011		0.01	J	0.016	
Benzene	0.06	4.8	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Carbon Disulfide	~	~	~	NA		NA		NA		NA		NA		NA	
Chlorobenzene	1.1	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Cymene	~	~	~	NA		NA		NA		NA		NA		NA	
Diethyl Ether (Ethyl Ether)	~	~	~	NA		NA		NA		NA		NA		NA	
Ethylbenzene	1	41	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Isopropylbenzene (Cumene)	~	~	~	NA		NA		NA		NA		NA		NA	
M,P-Xylene	~	~	~	0.0049	U	0.0051	U	0.0053	U	0.0052	J	0.0056	J	0.0053	J
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.0071	JB	0.0066	JB	0.0041	JB	0.0045	J	0.0047	J	0.0048	J
Methylene Chloride	0.05	100	~	0.0066	J	0.0051	U	0.0053	J	0.0091	J	0.0084	J	0.0065	J
Naphthalene	12	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
n-Butylbenzene	12	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
n-Propylbenzene	3.9	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Sec-Butylbenzene	11	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
T-Butylbenzene	5.9	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Tetrachloroethene (PCE)	1.3	19	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Toluene	0.7	100	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	NA		NA		NA		NA		NA		NA	
Total Xylenes	0.26	100	~	0.0073	U	0.0077	U	0.0079	U	0.0074	U	0.0079	U	0.0076	U
Trichloroethene (TCE)	0.47	21	~	0.0024	U	0.0026	U	0.0026	U	0.0025	U	0.0026	U	0.0025	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		NA	
1,2-Dichlorobenzene	1.1	100	~	NA		NA		NA		NA		NA		NA	
1,3-Dichlorobenzene	2.4	49	~	NA		NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	1.8	13	~	NA		NA		NA		NA		NA		NA	
2,4-Dichlorophenol	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylnaphthalene	~	~	~	NA		NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	0.33	100	~	0.049	U	0.0433	U	0.0501	U	0.044	U	0.0495	U	0.0446	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.049	U	0.0433	U	0.0501	U	0.044	U	0.0495	U	0.0446	U
Acenaphthene	20	100	~	0.049	U	0.234	D	1.81	D	0.044	U	0.257	D	0.0577	JD
Acenaphthylene	100	100	~	0.049	U	0.182	D	0.234	D	0.044	U	0.0495	U	0.0446	U
Acetophenone	~	~	~	NA		NA		NA		NA		NA		NA	
Anthracene	100	100	~	0.049	U	0.655	D	3	D	0.0666	JD	0.513	D	0.134	D
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.049	U	**1.95**	D	**4.59**	D	0.116	D	0.592	D	0.219	D
Benzo(a)Pyrene	1	1	~	0.049	U	**2.11**	D	**3.98**	D	0.102	D	0.465	D	0.184	D
Benzo(b)Fluoranthene	1	1	~	0.049	U	**1.88**	D	**2.97**	D	0.0821	JD	0.352	D	0.14	D
Benzo(g,h,i)Perylene	100	100	~	0.049	U	1.25	D	1.47	D	0.0617	JD	0.171	D	0.0876	JD
Benzo(k)Fluoranthene	0.8	3.9	~	0.049	U	**1.74**	D	**2.69**	D	0.0856	JD	0.363	D	0.144	D
Benzyl Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Biphenyl (Diphenyl)	~	~	~	NA		NA		NA		NA		NA		NA	
Bis(2-Ethylhexyl) Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Carbazole	~	~	~	NA		NA		NA		NA		NA		NA	
Chrysene	1	3.9	~	0.049	U	**2.1**	D	**4.12**	D	0.112	D	0.491	D	0.197	D
Dibenz(a,h)Anthracene	0.33	0.33	~	0.049	U	**0.602**	D	**0.795**	D	0.044	U	0.0599	JD	0.0446	U
Dibenzofuran	7	59	~	0.049	U	0.104	D	1.46	D	0.044	U	0.224	D	0.0498	JD
Diethyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Di-N-Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		NA	
Fluoranthene	100	100	~	0.049	U	4.69	D	11.5	D	0.267	D	1.34	D	0.461	D
Fluorene	30	100	~	0.049	U	0.22	D	1.62	D	0.044	U	0.294	D	0.0541	JD
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.049	U	**1.14**	D	**1.64**	D	0.0554	JD	0.203	D	0.0826	JD
Naphthalene	12	100	~	0.049	U	0.067	JD	1.57	D	0.044	U	0.274	D	0.0446	U
Phenanthrene	100	100	~	0.049	U	2.43	D	14.3	D	0.296	D	1.8	D	0.522	D
Phenol	0.33	100	~	0.049	U	0.0433	U	0.0501	U	0.044	U	0.0495	U	0.0446	U
Pyrene	100	100	~	0.049	U	3.84	D	8.88	D	0.227	D	1.06	D	0.36	D
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
4,4'-DDE	0.0033	8.9	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
4,4'-DDT	0.0033	7.9	~	0.00191	U	**0.0909**	D	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Alpha Chlordane	0.094	4.2	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Chlordane (alpha and gamma)	~	~	~	NA		NA		NA		NA		NA		NA	
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Dieldrin	0.005	0.2	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Gamma Bhc (Lindane)	0.1	1.3	~	0.00191	U	0.00169	U	0.00197	U	0.00171	U	0.00194	U	0.00177	U
Gamma Chlordane	~	~	~	NA		NA		NA		NA		NA		NA	
Herbicides (mg/kg)	~	~	~	ND		ND		ND		ND		ND		ND	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0193	U	0.0171	U	0.0199	U	0.0173	U	0.0196	U	0.0179	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0193	U	0.0171	U	0.0199	U	0.0173	U	0.0196	U	0.0179	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0193	U	0.0171	U	0.0199	U	0.0173	U	0.0196	U	0.0179	U
PCB-1260 (Aroclor 1260)	~	~	~	0.0193	U	0.174		0.434		0.0173	U	0.0196	U	0.0179	U
PCB-1268 (Aroclor 1268)	~	~	~	0.0193	U	0.0171	U	0.0199	U	0.0173	U	0.0196	U	0.0179	U
Total PCBs	0.1	1	~	0.0193	U	**0.174**		**0.434**		0.0173	U	0.0196	U	0.0179	U
Inorganics (mg/kg)															
Aluminum	~	~	~	NA		NA		NA		NA		NA		NA	
Antimony	~	~	~	NA		NA		NA		NA		NA		NA	
Arsenic	13	16	~	2.1		7.24		6.45		1.59	U	1.79	U	1.62	U
Barium	350	400	~	41.6		223		52.8		36.4		24.8		43.1	
Beryllium	7.2	72	~	0.059	U	0.052	U	0.06	U	0.053	U	0.06	U	0.054	U
Cadmium	2.5	4.3	~	0.357	U	1.14		0.829		0.319	U	0.358	U	0.325	U
Calcium	~	~	~	NA		NA		NA		NA		NA		NA	
Chromium, Hexavalent	1	110	~	0.594	U	0.52	U	0.601	U	0.531	U	0.597	U	0.541	U
Chromium, Total	~	~	~	18.8		16.5		17.6		16.5		24.7		13.7	
Chromium, Trivalent	30	180	~	18.8		16.5		17.6		16.5		24.7		13.7	
Cobalt	~	~	~	NA		NA		NA		NA		NA		NA	
Copper	50	270	~	16.4	B	**97.7**	B	34.1	B	16.8		15.1		28.9	
Iron	~	~	~	NA		NA		NA		NA		NA		NA	
Lead	63	400	~	9.04		**1,400**		**93**		**87.5**		16.1		**227**	
Magnesium	~	~	~	NA		NA		NA		NA		NA		NA	
Manganese	1,600	2,000	~	223		310		500		1,020		285		561	
Mercury	0.18	0.81	~	0.0524		**0.287**		**0.194**		0.162		0.0358	U	0.0656	
Nickel	30	310	~	15.5		16.5		19.3		**35.8**		19.9		15.7	
Potassium	~	~	~	NA		NA		NA		NA		NA		NA	
Selenium	3.9	180	~	2.97	U	2.6	U	3	U	2.66	U	2.99	U	2.71	U
Silver	2	180	~	0.594	U	0.52	U	0.601	U	0.531	U	0.597	U	0.541	U
Sodium	~	~	~	NA		NA		NA		NA		NA		NA	
Vanadium	~	~	~	NA		NA		NA		NA		NA		NA	
Zinc	109	10,000	~	49		**350**		**134**		35.6		51.4		35	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		0.125	U	NA		NA		NA		NA	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	84.1		96.1		83.2		94.1		83.7		92.4	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		0.00382	U	NA		NA		0.000846	U	NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		0.00382	U	NA		NA		0.000846	U	NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		0.00382	U	NA		NA		0.000846	U	NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		0.00382	U	NA		NA		0.000846	U	NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	SB28 SB28_5.5-7.5 19J0144-06 10/2/2019 5.5-7.5		SB30 SB30_0-2 19J0216-03 10/3/2019 0-2		SB30 SB30_10-12 19J0216-04 10/3/2019 10-12		SB31 SB31_0-2 19I1299-05 9/27/2019 0-2		SB31 SB31_6.5-8.5 19I1299-06 9/27/2019 6.5-8.5		TP01 TP01_2-2.5 L1927241-01 6/21/2019 2-2.5	
Volatile Organic Compounds (mg/kg)															
1,2,4,5-Tetramethylbenzene	~	~	~	NA		NA		NA		NA		NA		0.0017	U
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		0.0017	U
1,2,4-Trimethylbenzene	3.6	52	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
1,2-Dichlorobenzene	1.1	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
1,4-Dichlorobenzene	1.8	13	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
1,4-Diethyl Benzene	~	~	~	NA		NA		NA		NA		NA		0.0017	U
4-Ethyltoluene	~	~	~	NA		NA		NA		NA		NA		0.0017	U
Acetone	0.05	100	~	0.0053	J	0.0048	U	0.014		**0.19**		**0.051**		0.0087	U
Benzene	0.06	4.8	~	0.0024	U	0.0024	U	0.0032	U	0.028		0.0025	U	0.00043	U
Carbon Disulfide	~	~	~	NA		NA		NA		NA		NA		0.0087	U
Chlorobenzene	1.1	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00043	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00087	U
Cymene	~	~	~	NA		NA		NA		NA		NA		0.00087	U
Diethyl Ether (Ethyl Ether)	~	~	~	NA		NA		NA		NA		NA		0.0017	U
Ethylbenzene	1	41	~	0.0024	U	0.0024	U	0.0032	U	0.02		0.0025	U	0.00087	U
Isopropylbenzene (Cumene)	~	~	~	NA		NA		NA		NA		NA		0.00087	U
M,P-Xylene	~	~	~	0.005	J	0.0048	U	0.0064	U	0.011	J	0.005	U	0.0017	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.0024	U	0.0024	U	0.0032	U	**0.17**	B	0.01	B	0.0087	U
Methylene Chloride	0.05	100	~	0.0076	J	0.0065	J	0.0093	J	0.0058	U	0.011		0.0043	U
Naphthalene	12	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0035	U
n-Butylbenzene	12	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00087	U
n-Propylbenzene	3.9	100	~	0.0024	U	0.0024	U	0.0032	U	0.0069		0.0025	U	0.00087	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0024	U	0.0024	U	0.0032	U	0.0076		0.0025	U	0.00087	U
Sec-Butylbenzene	11	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00087	U
T-Butylbenzene	5.9	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.0017	U
Tetrachloroethene (PCE)	1.3	19	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00043	U
Toluene	0.7	100	~	0.0024	U	0.0024	U	0.0032	U	0.037		0.0025	U	0.00087	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	NA		NA		NA		NA		NA		0.00087	U
Total Xylenes	0.26	100	~	0.0071	U	0.0071	U	0.0096	U	0.019		0.0075	U	0.00087	U
Trichloroethene (TCE)	0.47	21	~	0.0024	U	0.0024	U	0.0032	U	0.0029	U	0.0025	U	0.00043	U
Semivolatile Organic Compounds (mg/kg)															
1,2,4-Trichlorobenzene	~	~	~	NA		NA		NA		NA		NA		0.19	U
1,2-Dichlorobenzene	1.1	100	~	NA		NA		NA		NA		NA		0.58	
1,3-Dichlorobenzene	2.4	49	~	NA		NA		NA		NA		NA		0.05	J
1,4-Dichlorobenzene	1.8	13	~	NA		NA		NA		NA		NA		0.079	J
2,4-Dichlorophenol	~	~	~	NA		NA		NA		NA		NA		0.087	J
2-Methylnaphthalene	~	~	~	NA		NA		NA		NA		NA		0.13	J
2-Methylphenol (o-Cresol)	0.33	100	~	0.0448	U	0.0456	U	0.05	U	0.0427	U	0.0496	U	0.19	U
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.0448	U	0.0456	U	0.05	U	0.0427	U	0.0496	U	0.053	J
Acenaphthene	20	100	~	0.0448	U	0.404	D	0.05	U	0.0427	U	0.0496	U	0.26	
Acenaphthylene	100	100	~	0.0448	U	0.0829	JD	0.05	U	0.0551	JD	0.0496	U	0.38	
Acetophenone	~	~	~	NA		NA		NA		NA		NA		0.19	U
Anthracene	100	100	~	0.0448	U	0.959	D	0.0678	JD	0.0715	JD	0.0538	JD	1.4	
Benzaldehyde	~	~	~	NA		NA		NA		NA		NA		NA	
Benzo(a)Anthracene	1	1	~	0.0448	U	**1.37**	D	0.191	D	0.323	D	0.281	D	**7.4**	
Benzo(a)Pyrene	1	1	~	0.0448	U	0.997	D	0.163	D	0.359	D	0.305	D	**6.9**	
Benzo(b)Fluoranthene	1	1	~	0.0448	U	0.801	D	0.129	D	0.302	D	0.307	D	**11**	
Benzo(g,h,i)Perylene	100	100	~	0.0448	U	0.423	D	0.0853	JD	0.286	D	0.259	D	4.6	
Benzo(k)Fluoranthene	0.8	3.9	~	0.0448	U	**0.83**	D	0.131	D	0.318	D	0.261	D	**2.3**	
Benzyl Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		0.19	U
Biphenyl (Diphenyl)	~	~	~	NA		NA		NA		NA		NA		0.047	J
Bis(2-Ethylhexyl) Phthalate	~	~	~	NA		NA		NA		NA		NA		0.19	U
Carbazole	~	~	~	NA		NA		NA		NA		NA		0.34	
Chrysene	1	3.9	~	0.0448	U	**1.16**	D	0.163	D	0.336	D	0.271	D	**6**	
Dibenz(a,h)Anthracene	0.33	0.33	~	0.0448	U	0.223	D	0.05	U	0.11	D	0.0672	JD	**1**	
Dibenzofuran	7	59	~	0.0448	U	0.361	D	0.05	U	0.0427	U	0.0496	U	0.15	J
Diethyl Phthalate	~	~	~	NA		NA		NA		NA		NA		1.3	
Di-N-Butyl Phthalate	~	~	~	NA		NA		NA		NA		NA		0.19	U
Fluoranthene	100	100	~	0.0448	U	2.73	D	0.348	D	0.601	D	0.486	D	12	
Fluorene	30	100	~	0.0448	U	0.0456	U	0.05	U	0.0427	U	0.0496	U	0.28	
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	0.0448	U	0.454	D	0.0845	JD	0.227	D	0.228	D	**4.9**	
Naphthalene	12	100	~	0.0448	U	0.247	D	0.05	U	0.0427	U	0.0496	U	0.27	
Phenanthrene	100	100	~	0.0448	U	3.33	D	0.179	D	0.219	D	0.161	D	3.8	
Phenol	0.33	100	~	0.0448	U	0.0456	U	0.05	U	0.0427	U	0.0496	U	0.19	U
Pyrene	100	100	~	0.0448	U	2.13	D	0.304	D	0.645	D	0.508	D	13	
Pesticides (mg/kg)															
4,4'-DDD	0.0033	13	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	0.00182	U
4,4'-DDE	0.0033	8.9	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	**0.00842**	IP
4,4'-DDT	0.0033	7.9	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	*0.0034*	U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	0.0113	
Alpha Chlordane	0.094	4.2	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	0.021	I
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	**0.142**	
Chlordane (alpha and gamma)	~	~	~	NA		NA		NA		NA		NA		0.0148	U
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	0.00182	U
Dieldrin	0.005	0.2	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	**0.00701**	IP
Gamma Bhc (Lindane)	0.1	1.3	~	0.00179	U	0.00181	U	0.00198	U	0.00172	U	0.00195	U	0.000756	U
Gamma Chlordane	~	~	~	NA		NA		NA		NA		NA		0.0164	IP
Herbicides (mg/kg)	~	~	~	ND		ND		ND		ND		ND		NA	
Polychlorinated Biphenyls (mg/kg)															
PCB-1242 (Aroclor 1242)	~	~	~	0.0181	U	0.0182	U	0.02	U	0.0174	U	0.0197	U	0.0932	
PCB-1248 (Aroclor 1248)	~	~	~	0.0181	U	0.0182	U	0.02	U	0.0174	U	0.0197	U	0.0371	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0181	U	0.0182	U	0.02	U	0.0174	U	0.0197	U	0.174	
PCB-1260 (Aroclor 1260)	~	~	~	0.0181	U	0.0182	U	0.02	U	0.0272		0.0211		0.0917	
PCB-1268 (Aroclor 1268)	~	~	~	0.0181	U	0.0182	U	0.02	U	0.0174	U	0.0197	U	0.0149	J
Total PCBs	0.1	1	~	0.0181	U	0.0182	U	0.02	U	0.0272		0.0211		**0.374**	J
Inorganics (mg/kg)															
Aluminum	~	~	~	NA		NA		NA		NA		NA		5,040	
Antimony	~	~	~	NA		NA		NA		NA		NA		16.2	
Arsenic	13	16	~	1.65	U	8.14		5.51		5.99		5.57		11.6	
Barium	350	400	~	23.8		45.1		31		87.6		65.6		346	
Beryllium	7.2	72	~	0.055	U	0.055	U	0.06	U	0.052	U	0.06	U	0.082	J
Cadmium	2.5	4.3	~	0.383		0.329	U	0.362	U	0.94		0.952		**7.14**	
Calcium	~	~	~	NA		NA		NA		NA		NA		12,300	
Chromium, Hexavalent	1	110	~	0.548	U	0.549	U	0.604	U	0.524	U	0.595	U	0.936	U
Chromium, Total	~	~	~	39.3		15.2		23.8		14.9		21.7		45.2	
Chromium, Trivalent	30	180	~	**39.3**		15.2		23.8		14.9		21.7		**45**	
Cobalt	~	~	~	NA		NA		NA		NA		NA		16.8	
Copper	50	270	~	25.1		**60.8**	B	30.7	B	**185**		**128**		**422**	
Iron	~	~	~	NA		NA		NA		NA		NA		41,000	
Lead	63	400	~	32		**265**		54.8		**235**		**179**		**1,380**	
Magnesium	~	~	~	NA		NA		NA		NA		NA		5,060	
Manganese	1,600	2,000	~	341		360		283		430		575		390	
Mercury	0.18	0.81	~	0.0329	U	0.163		0.0664		**0.631**		**0.368**		**2.81**	
Nickel	30	310	~	28		14.1		16.6		20.1		24.9		**51**	
Potassium	~	~	~	NA		NA		NA		NA		NA		655	
Selenium	3.9	180	~	2.74	U	2.75	U	3.02	U	2.62	U	2.98	U	0.991	J
Silver	2	180	~	0.548	U	0.549	U	0.604	U	0.524	U	0.595	U	**15.3**	
Sodium	~	~	~	NA		NA		NA		NA		NA		170	J
Vanadium	~	~	~	NA		NA		NA		NA		NA		38.2	
Zinc	109	10,000	~	63.4		65.6	B	67.5	B	**317**		**180**		**1,120**	
TCLP - Inorganics (mg/L)															
Arsenic	~	~	5	NA		NA		NA		NA		NA		NA	
Barium	~	~	100	NA		NA		NA		NA		NA		NA	
Lead	~	~	5	NA		NA		NA		NA		NA		2.13	
Mercury	~	~	0.2	NA		NA		NA		NA		NA		NA	
General Chemistry (%)															
Solids, Percent	~	~	~	91.2		91.1		82.8		95.4		84		85.5	
Per and Polyfluoroalkyl Substances (mg/kg)															
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	0.000762	U	NA		0.0043	U	0.000779	U	NA		NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	0.000762	U	NA		0.0043	U	0.000779	U	NA		NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	0.000762	U	NA		0.0043	U	0.000779	U	NA		NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	0.000762	U	NA		0.0043	U	0.000779	U	NA		NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date Sample Depth (feet bgs)	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs	RCRA Characteristics of Hazardous Waste	TP02 TP02_1.5-2 L1927241-02 6/21/2019 1.5-2		TP03 TP03_1-1.5 L1927241-03 6/21/2019 1-1.5	
Volatile Organic Compounds (mg/kg)							
1,2,4,5-Tetramethylbenzene	~	~	~	0.0024	U	0.0017	U
1,2,4-Trichlorobenzene	~	~	~	0.0024	U	0.0017	U
1,2,4-Trimethylbenzene	3.6	52	~	0.0024	U	0.0017	U
1,2-Dichlorobenzene	1.1	100	~	0.0024	U	0.0017	U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	~	0.0024	U	0.0017	U
1,4-Dichlorobenzene	1.8	13	~	0.0024	U	0.0017	U
1,4-Diethyl Benzene	~	~	~	0.0024	U	0.0017	U
4-Ethyltoluene	~	~	~	0.0024	U	0.0017	U
Acetone	0.05	100	~	0.012	U	0.0084	U
Benzene	0.06	4.8	~	0.00059	U	0.00042	U
Carbon Disulfide	~	~	~	0.012	U	0.0084	U
Chlorobenzene	1.1	100	~	0.00059	U	0.00042	U
Cis-1,2-Dichloroethene	0.25	100	~	0.0012	U	0.00084	U
Cymene	~	~	~	0.0012	U	0.00084	U
Diethyl Ether (Ethyl Ether)	~	~	~	0.0024	U	0.0017	U
Ethylbenzene	1	41	~	0.0012	U	0.00084	U
Isopropylbenzene (Cumene)	~	~	~	0.0012	U	0.00084	U
M,P-Xylene	~	~	~	0.0024	U	0.0017	U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	~	0.012	U	0.0084	U
Methylene Chloride	0.05	100	~	0.0059	U	0.0042	U
Naphthalene	12	100	~	0.0047	U	0.0033	U
n-Butylbenzene	12	100	~	0.0012	U	0.00084	U
n-Propylbenzene	3.9	100	~	0.0012	U	0.00084	U
o-Xylene (1,2-Dimethylbenzene)	~	~	~	0.0012	U	0.00084	U
Sec-Butylbenzene	11	100	~	0.0012	U	0.00084	U
T-Butylbenzene	5.9	100	~	0.0024	U	0.0017	U
Tert-Butyl Methyl Ether	0.93	100	~	0.0024	U	0.0017	U
Tetrachloroethene (PCE)	1.3	19	~	0.00059	U	0.00042	U
Toluene	0.7	100	~	0.0012	U	0.00084	U
Total 1,2-Dichloroethene (Cis and Trans)	~	~	~	0.0012	U	0.00084	U
Total Xylenes	0.26	100	~	0.0012	U	0.00084	U
Trichloroethene (TCE)	0.47	21	~	0.00059	U	0.00042	U
Semivolatile Organic Compounds (mg/kg)							
1,2,4-Trichlorobenzene	~	~	~	0.18	U	0.18	U
1,2-Dichlorobenzene	1.1	100	~	0.18	U	0.18	U
1,3-Dichlorobenzene	2.4	49	~	0.18	U	0.18	U
1,4-Dichlorobenzene	1.8	13	~	0.18	U	0.18	U
2,4-Dichlorophenol	~	~	~	0.16	U	0.16	U
2-Methylnaphthalene	~	~	~	0.041	J	0.14	J
2-Methylphenol (o-Cresol)	0.33	100	~	0.18	U	0.029	J
3 & 4 Methylphenol (m&p Cresol)	0.33	100	~	0.26	U	0.26	U
Acenaphthene	20	100	~	0.11	J	0.46	
Acenaphthylene	100	100	~	0.14		0.5	
Acetophenone	~	~	~	0.18	U	0.18	U
Anthracene	100	100	~	0.36		1.5	
Benzaldehyde	~	~	~	NA		NA	
Benzo(a)Anthracene	1	1	~	**1.3**		**4.1**	
Benzo(a)Pyrene	1	1	~	**1.3**		**3**	
Benzo(b)Fluoranthene	1	1	~	**1.5**		**3.5**	
Benzo(g,h,i)Perylene	100	100	~	0.83		2.1	
Benzo(k)Fluoranthene	0.8	3.9	~	0.46		**1.2**	
Benzyl Butyl Phthalate	~	~	~	0.18	U	0.18	U
Biphenyl (Diphenyl)	~	~	~	0.41	U	0.42	U
Bis(2-Ethylhexyl) Phthalate	~	~	~	0.18	U	0.18	U
Carbazole	~	~	~	0.13	J	0.42	
Chrysene	1	3.9	~	**1.3**		**3.4**	
Dibenz(a,h)Anthracene	0.33	0.33	~	0.18		**0.41**	
Dibenzofuran	7	59	~	0.041	J	0.13	J
Diethyl Phthalate	~	~	~	0.18	U	0.1	J
Di-N-Butyl Phthalate	~	~	~	0.11	J	0.18	U
Fluoranthene	100	100	~	2.2		5.6	
Fluorene	30	100	~	0.09	J	0.41	
Indeno(1,2,3-c,d)Pyrene	0.5	0.5	~	**0.82**		**1.9**	
Naphthalene	12	100	~	0.07	J	0.18	
Phenanthrene	100	100	~	1.1		5.2	
Phenol	0.33	100	~	0.18	U	0.18	U
Pyrene	100	100	~	2.5		8.8	
Pesticides (mg/kg)							
4,4'-DDD	0.0033	13	~	0.00171	U	0.00171	U
4,4'-DDE	0.0033	8.9	~	**0.0292**		**0.0539**	
4,4'-DDT	0.0033	7.9	~	**0.0904**		**0.0764**	IP
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.48	~	0.000713	U	0.00438	IP
Alpha Chlordane	0.094	4.2	~	0.00256	IP	0.0197	I
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	~	0.00171	U	0.0092	
Chlordane (alpha and gamma)	~	~	~	0.0139	U	0.112	IP
Delta Bhc (Delta Hexachlorocyclohexane)	0.04	100	~	0.00171	U	0.00171	U
Dieldrin	0.005	0.2	~	0.000792	JIP	**0.00505**	IP
Gamma Bhc (Lindane)	0.1	1.3	~	0.000713	U	0.00174	
Gamma Chlordane	~	~	~	0.00275	IP	0.0184	IP
Herbicides (mg/kg)	~	~	~	NA		NA	
Polychlorinated Biphenyls (mg/kg)							
PCB-1242 (Aroclor 1242)	~	~	~	0.0364	U	0.183	U
PCB-1248 (Aroclor 1248)	~	~	~	0.0364	U	0.183	U
PCB-1254 (Aroclor 1254)	~	~	~	0.0957		0.521	
PCB-1260 (Aroclor 1260)	~	~	~	0.048		0.208	
PCB-1268 (Aroclor 1268)	~	~	~	0.0102	J	0.183	U
Total PCBs	0.1	1	~	**0.154**	J	**0.729**	
Inorganics (mg/kg)							
Aluminum	~	~	~	4,230		3,570	
Antimony	~	~	~	49		25.2	
Arsenic	13	16	~	9.48		8.89	
Barium	350	400	~	**414**		284	
Beryllium	7.2	72	~	0.438	U	0.441	U
Cadmium	2.5	4.3	~	2.05		**3.53**	
Calcium	~	~	~	8,370		14,800	
Chromium, Hexavalent	1	110	~	0.883	U	0.894	U
Chromium, Total	~	~	~	16.8		18.6	
Chromium, Trivalent	30	180	~	17		19	
Cobalt	~	~	~	69		25.9	
Copper	50	270	~	**190**		**244**	
Iron	~	~	~	16,200		32,800	
Lead	63	400	~	**686**		**968**	
Magnesium	~	~	~	3,400		3,720	
Manganese	1,600	2,000	~	213		326	
Mercury	0.18	0.81	~	**4.13**		**3.62**	
Nickel	30	310	~	**46.1**		**65.3**	
Potassium	~	~	~	439		554	
Selenium	3.9	180	~	0.894	J	0.679	J
Silver	2	180	~	0.631	J	0.538	J
Sodium	~	~	~	385		1,490	
Vanadium	~	~	~	21.9		32.8	
Zinc	109	10,000	~	**823**		**687**	
TCLP - Inorganics (mg/L)							
Arsenic	~	~	5	NA		NA	
Barium	~	~	100	NA		NA	
Lead	~	~	5	NA		NA	
Mercury	~	~	0.2	NA		NA	
General Chemistry (%)							
Solids, Percent	~	~	~	90.6		89.5	
Per and Polyfluoroalkyl Substances (mg/kg)							
Perfluorobutanesulfonic Acid (PFBS)	~	~	~	NA		NA	
Perfluorooctanesulfonic acid (PFOS)	~	~	~	NA		NA	
Perfluorooctanoic Acid (PFOA)	~	~	~	NA		NA	
Perfluoropentanoic Acid (PFPeA)	~	~	~	NA		NA	

Notes provided on Page 11.
Concentrations above Unrestricted Use SCOs are bolded.
Concentrations above Restricted Use Restricted-Residential SCOs are shaded.
Concentrations above RCRA Characteristics of Hazardous Waste are underlined.

Table 3
Remedial Investigation Report
Soil Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Notes:

1. Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use and Restricted Use Restricted-Residential Soil Cleanup Objectives (SCO) and to the 6 New York Codes, Rules and Regulations (NYCRR) Part 371.3 and 40 CFR 261 Subpart C and Table 1 of 40 CFR 261.24 - Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Characteristics of Hazardous Waste.
2. Criterion comparisons for 3- & 4-methylphenol (m&p cresol) are provided for reference. Promulgated SCOs are for 3-methylphenol (m-cresol) and 4-methylphenol (p-cresol).
3. Only detected analytes are shown in the table.
4. Detected analytical results above Unrestricted Use SCOs are bolded.
5. Detected analytical results above Restricted Use Restricted-Residential SCOs are shaded.
6. Detected analytical results above RCRA Maximum Concentration of Contaminants for the Toxicity Characteristic are underlined.
7. Analytical results with reporting limits (RL) above the lowest applicable criteria are italicized.
8. Sample RISODUP01_093019 is a duplicate sample of SB22_0-2 and sample RISODUP02_100319 is a duplicate sample of SB20_0-2.
9. ~ = Regulatory limit for this analyte does not exist
10. bgs = below grade surface
11. mg/kg = milligrams per kilogram
12. mg/L = milligrams per liter
13. % = percent
14. NA = Not analyzed
15. ND = Not detected

Qualifiers:

D = The concentration reported is a result of a diluted sample.
I = The lower value for the two columns has been reported due to obvious interference.
J = The analyte was detected above the Method Detection Limit (MDL), but below the RL; therefore, the result is an estimated concentration.
P = The relative percent difference (RPD) between the results for the two columns exceeds the method-specified criteria.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.
B = The analyte was found in the associated analysis batch blank.

Table 4A
Remedial Investigation Report
Groundwater Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location		MW18		MW19		MW24		MW24	
Sample ID	NYSDEC	MW18_100919		MW19_100919		MW24_100919		RIGWDUP01_100919	
Laboratory ID	SGVs	19J0468-01		19J0468-02		19J0468-03		19J0468-04	
Sample Date		10/9/2019		10/9/2019		10/9/2019		10/9/2019	
Volatile Organic Compounds (µg/L)									
1,2-Dichlorobenzene	3	0.2	U	0.2	U	0.2	U	0.2	U
Acetone	50	1	U	1	U	1	U	1	U
Chlorobenzene	5	0.2	U	0.2	U	0.2	U	0.2	U
Chloroform	7	0.23	J	0.2	U	0.2	U	0.2	U
M,P-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Ethyl Ketone (2-Butanone)	50	0.2	U	0.2	U	0.2	U	0.2	U
o-Xylene (1,2-Dimethylbenzene)	5	0.2	U	0.2	U	0.2	U	0.2	U
MethylTert-Butyl Ether	10	0.28	J	0.2	U	0.2	U	0.2	U
Tetrachloroethene (PCE)	5	0.54		0.2	U	0.2	U	0.2	U
Semivolatile Organic Compounds (µg/L)									
2-Methylnaphthalene	~	2.78	U	2.7	U	2.78	U	2.86	U
3 & 4 Methylphenol (m&p Cresol)	~	2.78	U	2.7	U	2.78	U	2.86	U
4-Chloroaniline	5	2.78	U	2.7	U	2.78	U	2.86	U
Acenaphthene	20	0.0556	U	0.0541	U	0.0556	U	0.0571	
Anthracene	50	0.0556	U	0.0541	U	0.0556		0.0571	U
Benzo(a)Anthracene	0.002	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Benzo(a)Pyrene	0	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Benzo(b)Fluoranthene	0.002	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Benzo(g,h,i)Perylene	~	0.0556	U	0.0541	U	0.0556	U	0.0571	U
Benzo(k)Fluoranthene	0.002	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Benzoic Acid	~	27.8	U	27	U	27.8	U	28.6	U
Bis(2-Ethylhexyl) Phthalate	5	0.556	U	0.541	U	0.556	U	0.571	U
Chrysene	0.002	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Dibenz(a,h)Anthracene	~	0.0556	U	0.0541	U	0.0556	U	0.0571	U
Diethyl Phthalate	50	2.78	U	2.7	U	2.78	U	2.86	U
Dimethyl Phthalate	50	2.78	U	2.7	U	2.78	U	2.86	U
Fluoranthene	50	0.0556	U	0.0541	U	0.0667		0.0686	
Indeno(1,2,3-c,d)Pyrene	0.002	*0.0556*	U	*0.0541*	U	*0.0556*	U	*0.0571*	U
Naphthalene	10	0.0556	U	0.0541	U	0.0556	U	0.0571	
Phenanthrene	50	0.0556	U	0.0541	U	0.189		0.194	
Pyrene	50	0.0556	U	0.0541	U	0.0667		0.0686	
Pesticides (µg/L)	~	ND		ND		ND		ND	
Herbicides (µg/L)	~	ND		ND		ND		ND	
Polychlorinated Biphenyls (µg/L)	~	ND		ND		ND		ND	
Inorganics (µg/L)									
Aluminum	~	200		299		149		207	
Aluminum (Dissolved)	~	55.6	U	58.1		87.2		55.6	U
Antimony	3	1.11	U	1.11	U	1.11	U	1.11	U
Antimony (Dissolved)	3	1.11	U	1.11	U	1.11	U	1.11	U
Arsenic	25	1.11	U	1.11	U	1.11	U	1.11	U
Arsenic (Dissolved)	25	1.11	U	1.11	U	1.11	U	1.11	U
Barium	1,000	62.6		52.9		27.8	U	27.8	U
Barium (Dissolved)	1,000	66.8		49.9		27.8	U	27.8	U
Beryllium	3	0.333	U	0.333	U	0.333	U	0.333	U
Cadmium	5	0.556	U	0.556	U	0.556	U	0.556	U
Calcium	~	104,000		155,000		73,500		79,200	
Calcium (Dissolved)	~	110,000		150,000		75,600		73,700	
Chromium, Hexavalent	50	NA		NA		NA		NA	
Chromium, Total	50	5.56	U	5.56	U	5.56	U	5.56	U
Chromium, Total (Dissolved)	50	5.56	U	5.56	U	5.56	U	5.56	U
Chromium, Trivalent	~	NA		NA		NA		NA	
Cobalt	~	4.44	U	4.44	U	4.44	U	4.44	U
Cobalt (Dissolved)	~	4.44	U	4.44	U	4.44	U	4.44	U
Copper	200	61.8		22.2	U	22.2	U	22.2	U
Copper (Dissolved)	200	22.2	U	22.2	U	22.2	U	22.2	U
Iron	300	278	U	**486**		**402**		**369**	
Iron (Dissolved)	300	278	U	278	U	278	U	278	U
Lead	25	5.56	U	5.56	U	5.56	U	5.56	U
Lead (Dissolved)	25	5.56	U	5.56	U	5.56	U	5.56	U
Magnesium	35,000	**37,100**		**62,900**		29,600		32,300	
Magnesium (Dissolved)	35,000	**38,700**		**58,400**		30,700		29,500	
Manganese	300	**978**		188		**419**		**426**	
Manganese (Dissolved)	300	**996**		134		**423**		**412**	
Mercury	0.7	0.2	U	0.2	U	0.2	U	0.2	U
Nickel	100	11.1	U	11.1	U	11.1	U	11.1	U
Nickel (Dissolved)	100	11.1	U	11.1	U	11.1	U	11.1	U
Potassium	~	18,700		30,700		12,000		12,500	
Potassium (Dissolved)	~	19,400		30,300		12,500		12,100	
Selenium	10	**14.9**		**19**		4.15		3.73	
Selenium (Dissolved)	10	**20.2**		**19.7**		4.92		2.36	
Silver	50	5.56	U	5.56	U	5.56	U	5.56	U
Sodium	20,000	**260,000**		**297,000**		**82,100**		**84,100**	
Sodium (Dissolved)	20,000	**268,000**		**267,000**		**84,600**		**82,800**	
Thallium	0.5	*1.11*	U	*1.11*	U	*1.11*	U	*1.11*	U
Thallium (Dissolved)	0.5	*1.11*	U	*1.11*	U	*1.11*	U	*1.11*	U
Vanadium	~	11.1	U	11.1	U	11.1	U	11.1	U
Vanadium (Dissolved)	~	11.1	U	11.1	U	11.1	U	11.1	U
Zinc	2,000	27.8	U	27.8	U	27.8	U	27.8	U
Zinc (Dissolved)	2,000	27.8	U	27.8	U	27.8	U	27.8	U

Notes provided on Page 3.

Table 4A
Remedial Investigation Report
Groundwater Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location	NYSDEC	TMW06		TMW08		TMW11		TMW12	
Sample ID	SGVs	TMW06_061019		TMW08_061019		TMW11_061219		TMW12_061019	
Laboratory ID		L1924686-01		L1924686-02		L1926329-01		L1924686-03	
Sample Date		6/10/2019		6/10/2019		6/12/2019		6/10/2019	
Volatile Organic Compounds (µg/L)									
1,2-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U
Acetone	50	36		4	J	2.2	J	14	
Chlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U
M,P-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U
Methyl Ethyl Ketone (2-Butanone)	50	4.8	J	5	U	5	U	5	U
o-Xylene (1,2-Dimethylbenzene)	5	2.5	U	2.5	U	2.5	U	2.5	U
MethylTert-Butyl Ether	10	2.5	U	2.5	U	2.5	U	2.5	U
Tetrachloroethene (PCE)	5	0.5	U	0.5	U	0.5		0.5	U
Semivolatile Organic Compounds (µg/L)									
2-Methylnaphthalene	~	0.1	U	0.1	U	0.1	U	0.1	U
3 & 4 Methylphenol (m&p Cresol)	~	0.72	J	5	U	5	U	5	U
4-Chloroaniline	5	5	U	5	U	5	U	5	U
Acenaphthene	20	0.1	U	0.1	U	0.1	U	0.1	U
Anthracene	50	0.1		0.1	U	0.1	U	0.02	J
Benzo(a)Anthracene	0.002	**0.2**		*0.1*	U	*0.1*	U	**0.03**	J
Benzo(a)Pyrene	0	**0.19**		*0.1*	U	**0.02**	J	*0.1*	U
Benzo(b)Fluoranthene	0.002	**0.25**		*0.1*	U	**0.06**	J	*0.1*	U
Benzo(g,h,i)Perylene	~	0.14		0.1	U	0.05	J	0.1	U
Benzo(k)Fluoranthene	0.002	**0.1**		*0.1*	U	**0.02**	J	*0.1*	U
Benzoic Acid	~	17	J	50	U	50	U	50	U
Bis(2-Ethylhexyl) Phthalate	5	3	U	3	U	3.8		2.6	J
Chrysene	0.002	**0.18**		*0.1*	U	*0.1*	U	**0.01**	J
Dibenz(a,h)Anthracene	~	0.1	U	0.1	U	0.01	J	0.1	U
Diethyl Phthalate	50	5	U	5	U	5	U	4.5	J
Dimethyl Phthalate	50	5	U	5	U	2.4	J	5	U
Fluoranthene	50	0.38		0.1	U	0.1	U	0.02	J
Indeno(1,2,3-c,d)Pyrene	0.002	**0.16**		*0.1*	U	**0.06**	J	*0.1*	U
Naphthalene	10	0.1	U	0.1	U	0.1	U	0.1	U
Phenanthrene	50	0.22		0.1	U	0.1	U	0.04	J
Pyrene	50	0.37		0.1	U	0.02	J	0.02	J
Pesticides (µg/L)	~	NA		NA		ND		NA	
Herbicides (µg/L)	~	NA		NA		NA		NA	
Polychlorinated Biphenyls (µg/L)	~	NA		ND		ND		ND	
Inorganics (µg/L)									
Aluminum	~	32,600		352		2,330		9,620	
Aluminum (Dissolved)	~	NA		27		13.7		18.5	
Antimony	3	**6.26**	J	1.11	J	1.82	J	1.08	J
Antimony (Dissolved)	3	NA		0.72	J	1.89	J	1.53	J
Arsenic	25	**34.05**		0.57		1.58		2.64	
Arsenic (Dissolved)	25	NA		0.34	J	0.46	J	1.2	
Barium	1,000	759.7		22.06		22.27		44.13	
Barium (Dissolved)	1,000	NA		20.04		6.8		28.55	
Beryllium	3	2.14		0.5	U	0.23	J	0.61	
Cadmium	5	3.41		0.2	U	0.1	J	0.2	U
Calcium	~	426,000		63,000		26,200		76,300	
Calcium (Dissolved)	~	NA		61,200		24,500		77,000	
Chromium, Hexavalent	50	NA		10	U	4	J	10	U
Chromium, Total	50	**101.6**		0.98	J	6.46		21.22	
Chromium, Total (Dissolved)	50	NA		0.29	J	1.23		1.91	
Chromium, Trivalent	~	NA		10	U	10	U	21	
Cobalt	~	66		0.37	J	5.08		4.65	
Cobalt (Dissolved)	~	NA		0.5	U	0.5	U	0.6	
Copper	200	**372.8**		2.27		13.98		11.54	
Copper (Dissolved)	200	NA		1.98		0.78	J	0.79	J
Iron	300	**83,100**		**648**		**4,260**		**9,350**	
Iron (Dissolved)	300	NA		29.1	J	25.7	J	**688**	
Lead	25	**1,325**		0.66	J	5.92		10.47	
Lead (Dissolved)	25	NA		1	U	1	U	1	U
Magnesium	35,000	**124,000**		11,600		11,100		32,800	
Magnesium (Dissolved)	35,000	NA		11,500		9,280		32,400	
Manganese	300	**4,038**		79		**384.6**		**424.9**	
Manganese (Dissolved)	300	NA		69.38		0.96	J	**331.6**	
Mercury	0.7	**1.55**		0.2	U	0.2	U	0.2	U
Nickel	100	**106.9**		0.68	J	5.6		11.78	
Nickel (Dissolved)	100	NA		2	U	2	U	3.86	
Potassium	~	65,700		11,700		8,150		26,600	
Potassium (Dissolved)	~	NA		11,400		7,610		28,000	
Selenium	10	**10.9**		5	U	4.11	J	2.63	J
Selenium (Dissolved)	10	NA		5	U	1.81	J	5	U
Silver	50	1.24		0.4	U	0.4	U	0.4	U
Sodium	20,000	**798,000**		**103,000**		**42,400**		**682,000**	
Sodium (Dissolved)	20,000	NA		**103,000**		**41,700**		**729,000**	
Thallium	0.5	0.5	J	0.5	U	0.5	U	0.5	U
Thallium (Dissolved)	0.5	NA		0.5	U	0.5	U	0.5	U
Vanadium	~	136.5		2.55	J	8.92		48.91	
Vanadium (Dissolved)	~	NA		1.77	J	5	U	10.54	
Zinc	2,000	1,060		10	U	15.56		24.93	
Zinc (Dissolved)	2,000	NA		10	U	10	U	10	U

Notes provided on Page 3.

Table 4A
Remedial Investigation Report
Groundwater Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Notes:
1. Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules and Regulations (NYCRR) Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (herein collectively referenced as "NYSDEC SGVs").
2. Only detected analytes are shown in the table.
3. Detected analytical results above NYSDEC SGVs are bolded and shaded.
4. Analytical results with reporting limits (RL) above NYSDEC SGVs are italicized.
5. Sample RIGWDUP01_100919 is a duplicate sample of MW24_100919.
6. ~ = Regulatory limit for this analyte does not exist
7. µg/L = micrograms per liter
8. NA = Not analyzed
9. ND = Not detected

Qualifiers:
J = The analyte was detected above the Method Detection Limit (MDL), but below the RL; therefore, the result is an estimated concentration.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Notes provided on Page 3.

Table 4B
Remedial Investigation Report
Groundwater Sample Analytical Results Summary - Emerging Contaminants

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location Sample ID Laboratory ID Sample Date	USEPA Health Advisory for Emerging Contaminants	MW18 MW18_100919 19J0468-01 10/9/2019	MW19 MW19_100919 19J0468-02 10/9/2019	MW24 MW24_100919 19J0468-03 10/9/2019	MW24 RIGWDUP01_100919 19J0468-04 10/9/2019
Semivolatile Organic Compounds (µg/L)		ND	ND	ND	ND
Per and Polyfluoroalkyl Substances (µg/L)					
Perfluorobutanesulfonic Acid (PFBS)	~	0.0151	0.00609	0.00742	0.0071
Perfluorobutanoic acid (PFBA)	~	0.049	0.0165	0.00688	0.00668
Perfluoroheptanoic acid (PFHpA)	~	0.0419	0.00839	0.00475	0.00501
Perfluorohexanesulfonic Acid (PFHxS)	~	0.0261	0.00261	0.0039	0.00367
Perfluorohexanoic Acid (PFHxA)	~	0.0828	0.012	0.00563	0.00576
Perfluorononanoic Acid (PFNA)	~	0.00276	0.002 U	0.0079	0.00819
Perfluorooctanesulfonic acid (PFOS)	0.07	0.0542	0.016	**0.0753**	**0.0761**
Perfluorooctanoic Acid (PFOA)	0.07	0.0669	0.0297	0.0231	0.0227
Perfluoropentanoic Acid (PFPeA)	~	0.0858	0.0141	0.00779	0.0075
Total PFOA and PFOS	0.07	**0.121**	0.0457	**0.0984**	**0.0988**

Notes:

1. Regulatory criteria do not exist for per- and polyfluoroalkyl substances (PFAS) and 1,4-Dioxane in New York State. Perflourooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) are compared to the United States Environmental Protection Agency (USEPA) health advisory limit of 70 parts per trillion (ppt). 1,4-Dioxane is compared to the USEPA health
2. Only detected analytes are shown in the table.
3. Detected analytical results above the USEPA Health Advisory Limit are bolded and shaded.
4. Analytical results with reporting limits (RL) above USEPA Health Advisory Limit are italicized.
5. Sample RIGWDUP01_100919 is a duplicate
sample of MW24_100919.
6. ~ = Regulatory limit for this analyte does not exist
7. µg/L = micrograms per liter
8. ND = Not detected

Qualifiers:

U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Table 4B
Remedial Investigation Report
Groundwater Sample Analytical Results Summary - Emerging Contaminants

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Notes:

1. Regulatory criteria do not exist for per- and polyfluoroalkyl substances (PFAS) and 1,4-Dioxane in New York State. Perflourooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) are compared to the United States Environmental Protection Agency (USEPA) health advisory limit of 70 parts per trillion (ppt). 1,4-Dioxane is compared to the USEPA health advisory limit of 35 ppt.
2. Only detected analytes are shown in the table.
3. Detected analytical results above the USEPA Health Advisory Limit are bolded and shaded.
4. Analytical results with reporting limits (RL) above USEPA Health Advisory Limit are italicized.
5. Sample RIGWDUP01_100919 is a duplicate sample of MW24_100919.
6. ~ = Regulatory limit for this analyte does not exist
7. µg/L = micrograms per liter
8. ND = Not detected

Qualifiers:

U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Table 5
Remedial Investigation Report
Soil Vapor Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Location	NYSDOH Decision Matrices Minimum Concentrations	AA01		SV06		SV10		SV11		SV12		SV16		SV22		SV24	
Sample ID		AA01_100319		SV06_060719		SV10_060719		SV11_060719		SV12_060719		SV16_100319		SV22_100319		SV24_100319	
Laboratory ID		19J0219-04		L1924604-01		L1924604-03		L1924604-04		L1924604-02		19J0219-01		19J0219-02		19J0219-03	
Sample Date		10/3/2019		6/7/2019		6/7/2019		6/7/2019		6/7/2019		10/3/2019		10/3/2019		10/3/2019	
Sample Type		AA		SV		SV		SV		SV		SV		SV		SV	
Volatile Organic Compounds (µg/m³)																	
1,1,1-Trichloroethane	100	0.47	U	4.12		1.09	U	3.64		49.6	U	8.6	U	9	U	8.6	U
1,2,4-Trimethylbenzene	~	0.55	D	14.5		13.2		8.5		447	U	12	D	11	D	12	D
1,3,5-Trimethylbenzene (Mesitylene)	~	0.42	U	4.51		3.83		2.99		447	U	7.7	U	8.1	U	7.7	U
1,3-Butadiene	~	0.57	U	1.11		0.85		1.53		201	U	10	U	15	D	10	U
2,2,4-Trimethylpentane	~	NA		16.6		4.48		10.5		425	U	NA		NA		NA	
2-Hexanone	~	0.7	U	16.2		0.82	U	9.38		373	U	13	U	14	U	13	U
4-Ethyltoluene	~	0.5	D	0.983	U	1.82		1.54		447	U	11	D	9.7	D	10	D
Acetone	~	5.1	D	48.7		58		344		1080	U	12	D	82	D	36	D
Benzene	~	1.1	D	23.2		2.71		11.8		290	U	5	U	5.3	U	5	U
Carbon Disulfide	~	0.27	U	8.07		9.56		17.3		283	U	4.9	U	16	D	7.4	D
Carbon Tetrachloride	6	0.48	D	1.26	U	1.26	U	1.26	U	*57.2*	U	2.5	U	2.6	U	2.5	U
Chloroform	~	0.42	U	1.69		13.2		23		444	U	7.7	U	8.1	U	7.7	U
Chloromethane	~	0.9	D	0.413	U	0.448		1.39		188	U	3.2	U	3.4	U	3.3	U
Cyclohexane	~	0.38	D	4.23		11.3		2.54		313	U	5.4	U	5.7	U	5.4	U
Dichlorodifluoromethane	~	1.6	D	3.84		2.21		2.12		449	U	7.8	U	8.2	U	7.8	U
Ethanol	~	NA		10.6		25.1		73.5		4280	U	NA		NA		NA	
Ethyl Acetate	~	2.7	D	1.8	U	1.8	U	1.8	U	818	U	11	U	12	U	11	U
Ethylbenzene	~	0.93	D	7.21		2.93		4.52		395	U	6.8	U	7.2	U	6.8	U
Isopropanol	~	1.5	D	1.23	U	2.13		11		558	U	7.7	U	8.1	U	7.7	U
M,P-Xylene	~	3.1	D	24.9		13.3		16.9		791	U	21	D	22	D	18	D
Methyl Ethyl Ketone (2-Butanone)	~	0.63	D	38.3		5.99		29.3		669	U	4.6	U	51	D	4.6	U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	~	0.35	U	2.05	U	2.05	U	3.79		930	U	6.4	U	6.8	U	6.4	U
Methylene Chloride	100	2.4	D	1.74	U	60.8		5.49		*789*	U	11	U	11	U	11	U
n-Heptane	~	0.67	D	24.9		6.31		19.8		51,200		40,000	D	1,500	D	2,100	D
n-Hexane	~	0.84	D	74.7		11.8		52.2		109,000		84,000	D	2,600	D	2,000	D
o-Xylene (1,2-Dimethylbenzene)	~	0.85	D	16		6.25		7.99		395	U	9.5	D	11	D	9.6	D
Styrene	~	0.36	U	3.44		1.69		1.83		387	U	6.7	U	7	U	6.7	U
Tert-Butyl Alcohol	~	NA		4.27		5.49		7.34		688	U	NA		NA		NA	
Tetrachloroethene (PCE)	100	0.64	D	13.8		3.17		14		61.6	U	32	D	15	D	29	D
Tetrahydrofuran	~	0.5	U	4.22		2.55		1.47	U	669	U	9.3	U	9.7	U	9.3	U
Toluene	~	5.7	D	72.7		7.57		17.8		343	U	13	D	20	D	8.9	D
Trichloroethene (TCE)	6	0.11	U	**11.2**		1.07	U	1.07	U	*48.9*	U	2.1	U	2.2	U	**85**	D
Trichlorofluoromethane	~	1.2	D	5.2		1.17		1.12	U	511	U	8.8	U	9.3	U	13	D

Notes:
1. Soil vapor sample analytical results are compared to the minimum soil vapor concentrations recommending mitigation as set forth in the New York State Department of Health (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York Decision Matrices for Sub-Slab Vapor and Indoor Air and subsequent updates (2017).
2. Ambient air sample analytical results are shown for reference only.
3. Only detected analytes are shown in the table.
4. Detected analytical results above the minimum soil vapor concentrations recommending mitigation are bolded and shaded.
5. Analytical results with reporting limits (RL) above the minimum soil vapor concentrations recommending mitigation are italicized.
6. ~ = Regulatory limit for this analyte does not exist
7. µg/m³ = micrograms per cubic meter
8. AA = Ambient Air
9. SV = Soil Vapor

Qualifiers:
D = The concentration reported is a result of a diluted sample.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Table 5
Remedial Investigation Report
Soil Vapor Sample Analytical Results Summary

2413 Third Avenue
Bronx, New York
Langan Project No.: 170396002

Notes:

1. Soil vapor sample analytical results are compared to the minimum soil vapor concentrations recommending mitigation as set forth in the New York State Department of Health (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York Decision Matrices for Sub-Slab Vapor and Indoor Air and subsequent updates (2017).
2. Ambient air sample analytical results are shown for reference only.
3. Only detected analytes are shown in the table.
4. Detected analytical results above the minimum soil vapor concentrations recommending mitigation are bolded and shaded.
5. Analytical results with reporting limits (RL) above the minimum soil vapor concentrations recommending mitigation are italicized.
6. ~ = Regulatory limit for this analyte does not exist
7. µg/m³ = micrograms per cubic meter
8. AA = Ambient Air
9. SV = Soil Vapor

Qualifiers:

D = The concentration reported is a result of a diluted sample.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.

Table 6
QAQC Summary Report
QAQC Sample Analytical Results

2413 Third Avenue
The Bronx, New York
Langan Project No.: 170396002

Sample ID	RIGWFB01_100919		RISOFB01_093019		RISOFB02_100319		RITB01_092719		RITB02_093019		RITB03_100119		RITB04_100219		RITB05_100319		RITB06_100919	
Laboratory ID	19J0468-05		19I1369-08		19J0216-07		19I1299-07		19I1369-09		19J0068-11		19J0144-07		19J0216-06		19J0468-06	
Sample Date	10/9/2019		9/30/2019		10/3/2019		9/27/2019		9/30/2019		10/1/2019		10/2/2019		10/3/2019		10/9/2019	
Volatile Organic Compounds (µg/L)																		
1,2,4-Trimethylbenzene	0.2	U	0.2	U	0.2	U	0.4	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Carbon Disulfide	0.49	J	NA		NA		NA		NA		NA		NA		NA		0.2	U
Chloromethane	0.2	U	NA		NA		NA		NA		NA		NA		NA		0.28	J
Naphthalene	NA		1	U	1	U	3.19		1	U	1	U	1	U	1	U	NA	
Semivolatile Organic Compounds (µg/L)																		
Bis(2-Ethylhexyl) Phthalate	0.831	B	NA		NA		NA		NA		NA		NA		NA		NA	
Pesticides (µg/L)	ND		ND		ND		NA		NA		NA		NA		NA		NA	
Herbicides (µg/L)	ND		ND		ND		NA		NA		NA		NA		NA		NA	
Polychlorinated Biphenyls (µg/L)	ND		ND		ND		NA		NA		NA		NA		NA		NA	
Inorganics (µg/L)																		
Aluminum	80.4		NA		NA		NA		NA		NA		NA		NA		NA	
Calcium	87		NA		NA		NA		NA		NA		NA		NA		NA	
Calcium (Dissolved)	135		NA		NA		NA		NA		NA		NA		NA		NA	
Magnesium (Dissolved)	96		NA		NA		NA		NA		NA		NA		NA		NA	
Zinc	86.9		77.1	B	28.7		NA		NA		NA		NA		NA		NA	
Zinc (Dissolved)	55.7		NA		NA		NA		NA		NA		NA		NA		NA	
Per and Polyfluoroalkyl Substances (µg/L)	ND		ND		ND		NA		NA		NA		NA		NA		NA	

Notes:
1. Only detected analytes are shown in the table.
2. µg/L = micrograms per liter
3. FB = Field Blank
4. TB = Trip Blank
5. NA = Not Analyzed
6. ND = Not Detected

Qualifiers:
J = The analyte was detected above the Method Detection Limit (MDL), but below the Reporting Limit (RL); therefore, the result is an estimated concentration.
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the RL; the value shown in the table is the RL.
B = The analyte was found in the associated analysis batch blank.

Notes provided on Page 1.

APPENDIX A
Architectural Development Plans

2413 3rd Ave

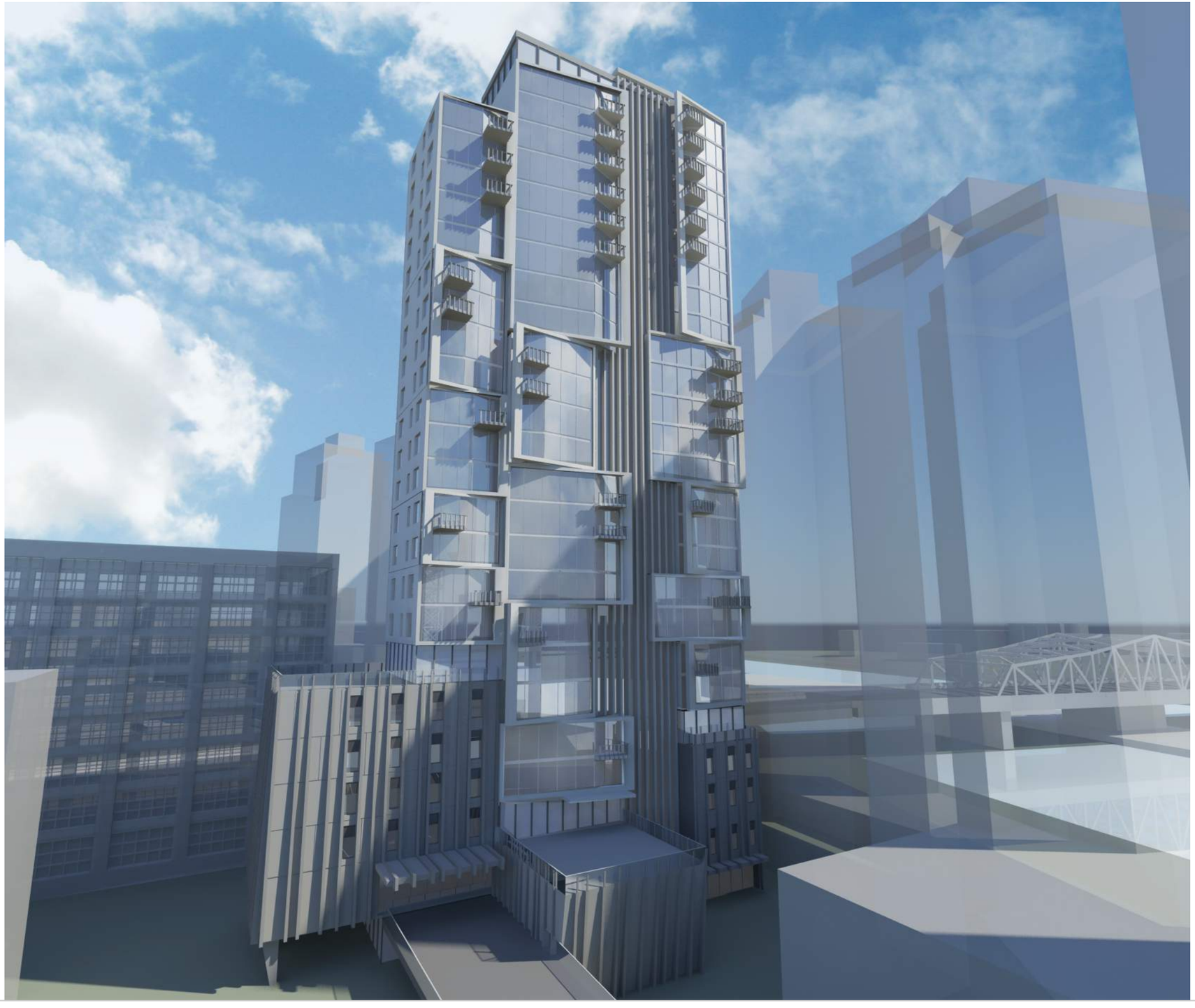
11/082019

CETRARUDDY

APPROVED DESIGN

2413 3rd Ave

CETRARUDDY



EAST ELEVATION

2413 3rd Ave

CETRARUDDY

SOUTH WEST ELEVATION

2413 3rd Ave

WEST ELEVATION

2413 3rd Ave

CETRARUDDY

EAST ELEVATION

SOUTH ELEVATION

OPTION 1
FULL DISTRIBUTION
TOTAL = 114 BALCONIES

EAST ELEVATION

SOUTH ELEVATION

OPTION 2
CLUSTERED DISTRIBUTION
TOTAL = 59 BALCONIES
51 %

PRELIMINARY

NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

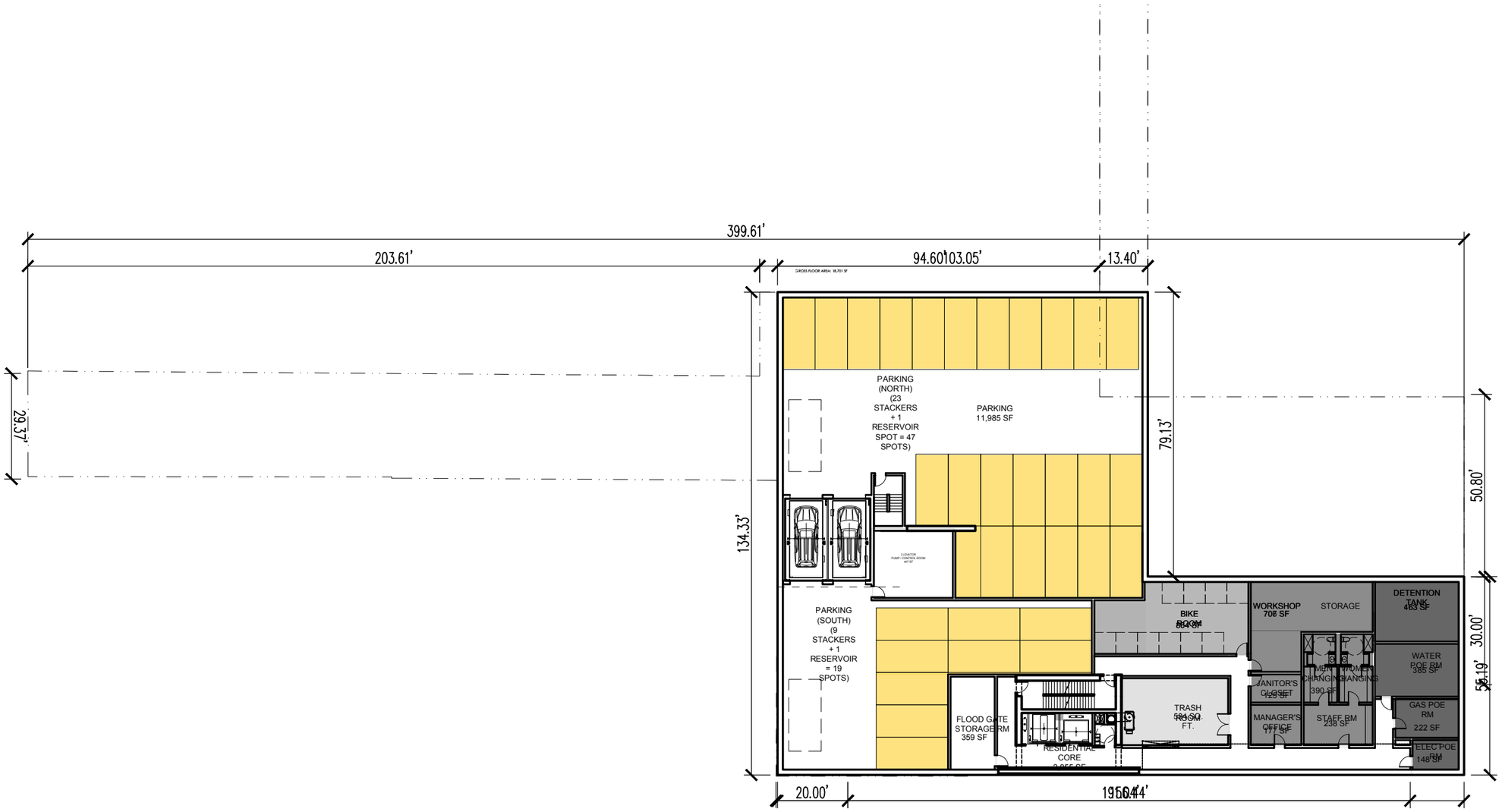
BALCONY DISTRIBUTION STRATEGY

2413 3rd Ave

CETRARUDDY

PRELIMINARY

PLANS



PRELIMINARY

NOTE:
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CELLAR

2413 3rd Ave

CETRARUDDY

PRELIMINARY

BLOCK 2319
LOT 99
N/F REPUTED OWNER
2413 THIRD PROPERTY OWNER LLC
CRFN: 2017000017953
TITLE REPORT PARCEL II

BLOCK 2319
LOT 55
N/F REPUTED OWNER
CUBESMART EAST 135TH, LLC
CRFN: 2012000326581

203.61'
94.60'
13.40'
SOUTHERLY PARALLEL WITH THIRD AVENUE
CONC. DOCK
CONC. WALK
50.55'
88.00'
35.17'
30.00'
141.68'
29.37'

GENERATOR (AT EL 12.0) (WITH ACOUSTICAL ENCLOSURE) 1,156 SF

GROSS FLOOR AREA: 17,337 SF
FLOOD GATE
SCREENED VRF UNITS
PARKING (UN-ENCLOSED) (10 SPOTS TOTAL OF 1.79 RESERVOIR SPOTS TO BE PROVIDED CONFIRMED BY PARKING CONSULTANT)
PARKING (ENCLOSED) (6 SPOTS) 1,715 SF
VALET 132 SF
DOG SPA 128 SF
LEASING OFFICE 1,269 SF
GARDEN
LOBBY 4,261 SF
OPEN TO LOBBY BELOW
MAIL AREA 614 SF
RESIDENTIAL CORE 1,617 SF
ELECTRICAL ROOM 357 SF
PACKAGE ROOM 357 SF
RETAIL/ CAFE 611 SF
GARDEN (FLOOD PROOF)
CONC. WALK
FLOOD GATE
BOUNDARY
OH BILLBOARD ON BLD FACE w/METAL CATWALK & (3) AL

BLOCK 2319
LOT 2
N/F REPUTED OWNER
BOP 2401 THIRD AVENUE LLC
CRFN: 2018000304336

BULKHEAD
25 STORY TISLAB EL +262' HT. +250'
3 STORY
BULKHEAD
20 STORY TISLAB EL +211.4' HT. +199.4'
STORY
BULKHEAD

MH SEWER RIM 7.22
MASONRY BRIDGE ABUTMENT
CONC. WALK
YELLOW STRIPING
BRIDGE DRAIN PIPE
BRIDGE COLUMNS ON CONC. BASE
APPROX. EDGE OF ELEVATED BRIDGE APPROACH RAMP
CONC. WALK
APPROX. EDGE OF ELEVATED BRIDGE APPROACH RAMP
BRIDGE COLUMNS ON CONC. BASE
BRIDGE DRAIN PIPE
CONC. WALK
THIRD AVENUE BRIDGE APPROACH

NOTE:
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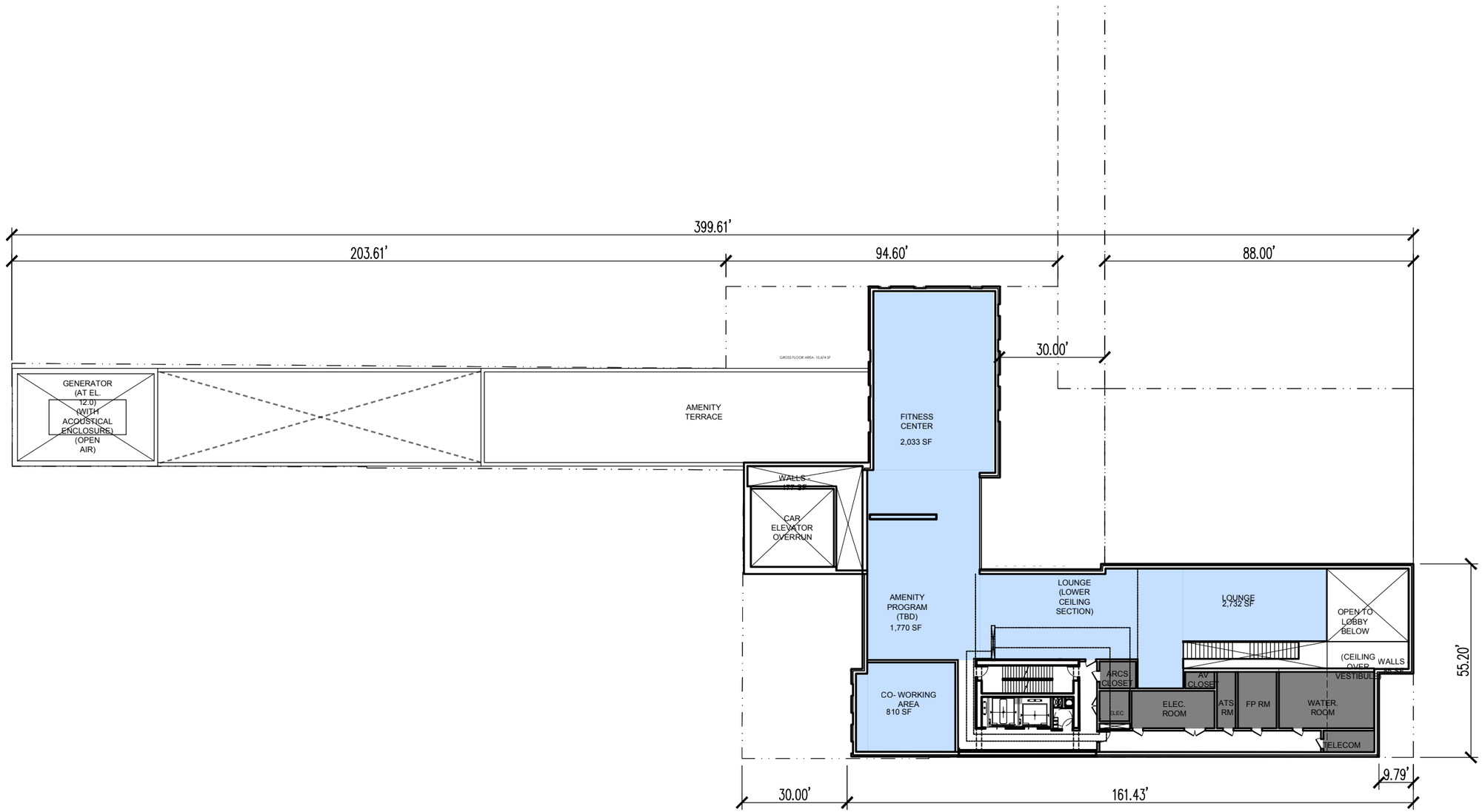
GROUND FLOOR

2413 3rd Ave

CETRARUDDY



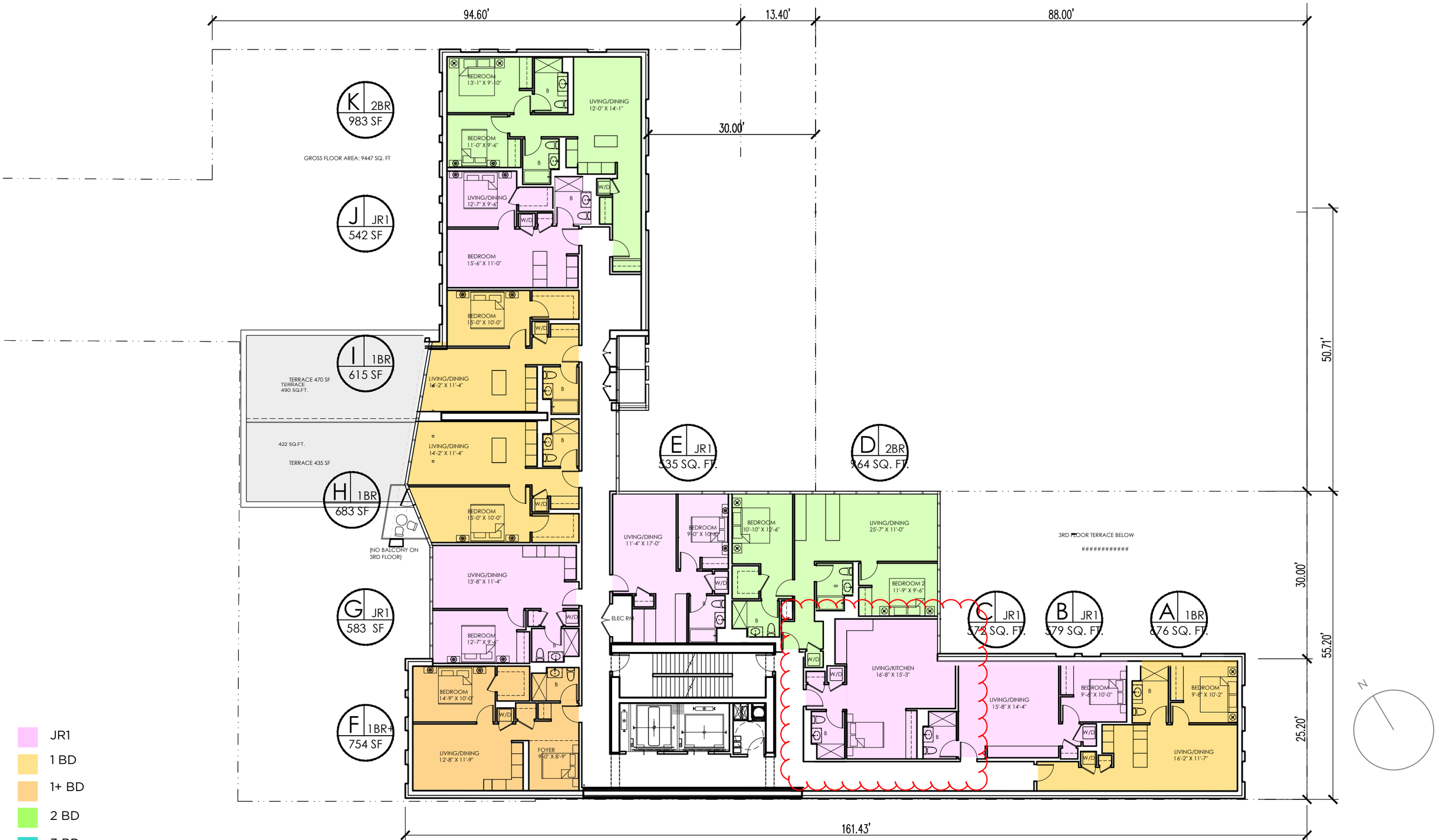
PRELIMINARY

NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

2ND FLOOR PLAN

2413 3rd Ave

CETRARUDDY



JR1
1 BD
1+ BD
2 BD
3 BD

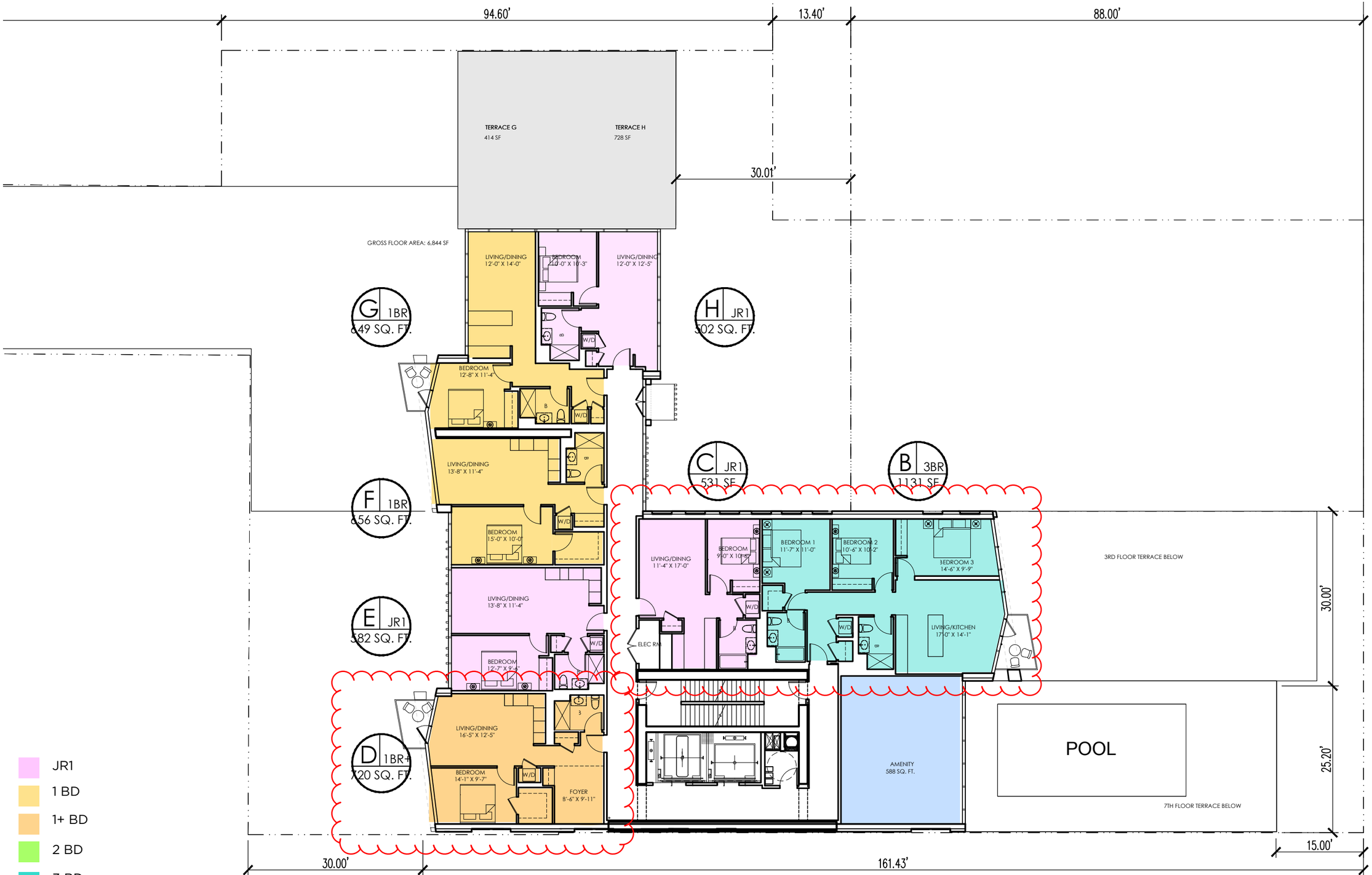
NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

3-6 TH FLOOR PLAN

2413 3rd Ave

CETRARUDDY

PRELIMINARY



JR1
1 BD
1+ BD
2 BD
3 BD

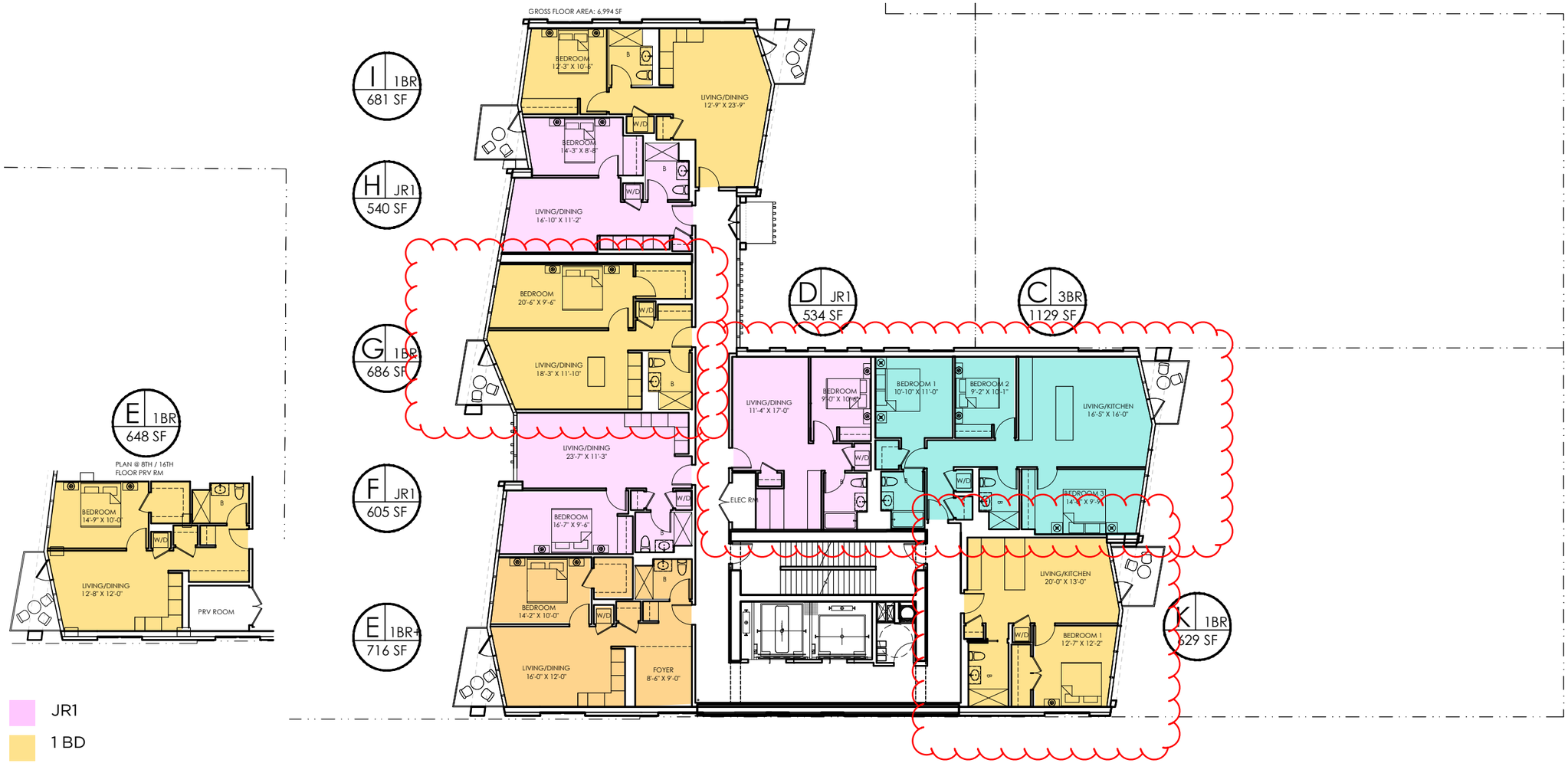
NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

7TH FLOOR PLAN

2413 3rd Ave

CETRARUDDY

PRELIMINARY



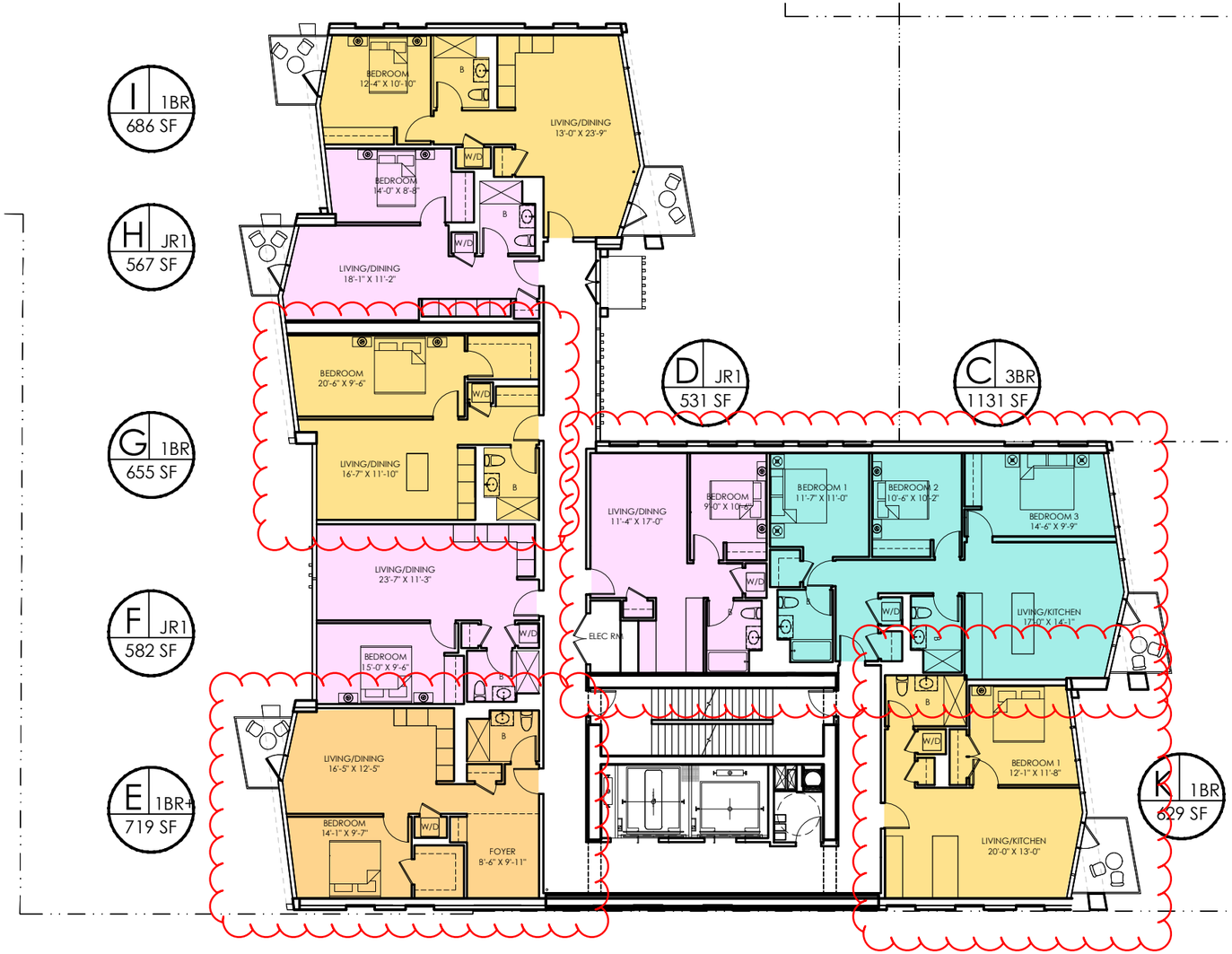
NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

8-16TH FLOOR PLAN A

2413 3rd Ave

CETRARUDDY

PRELIMINARY



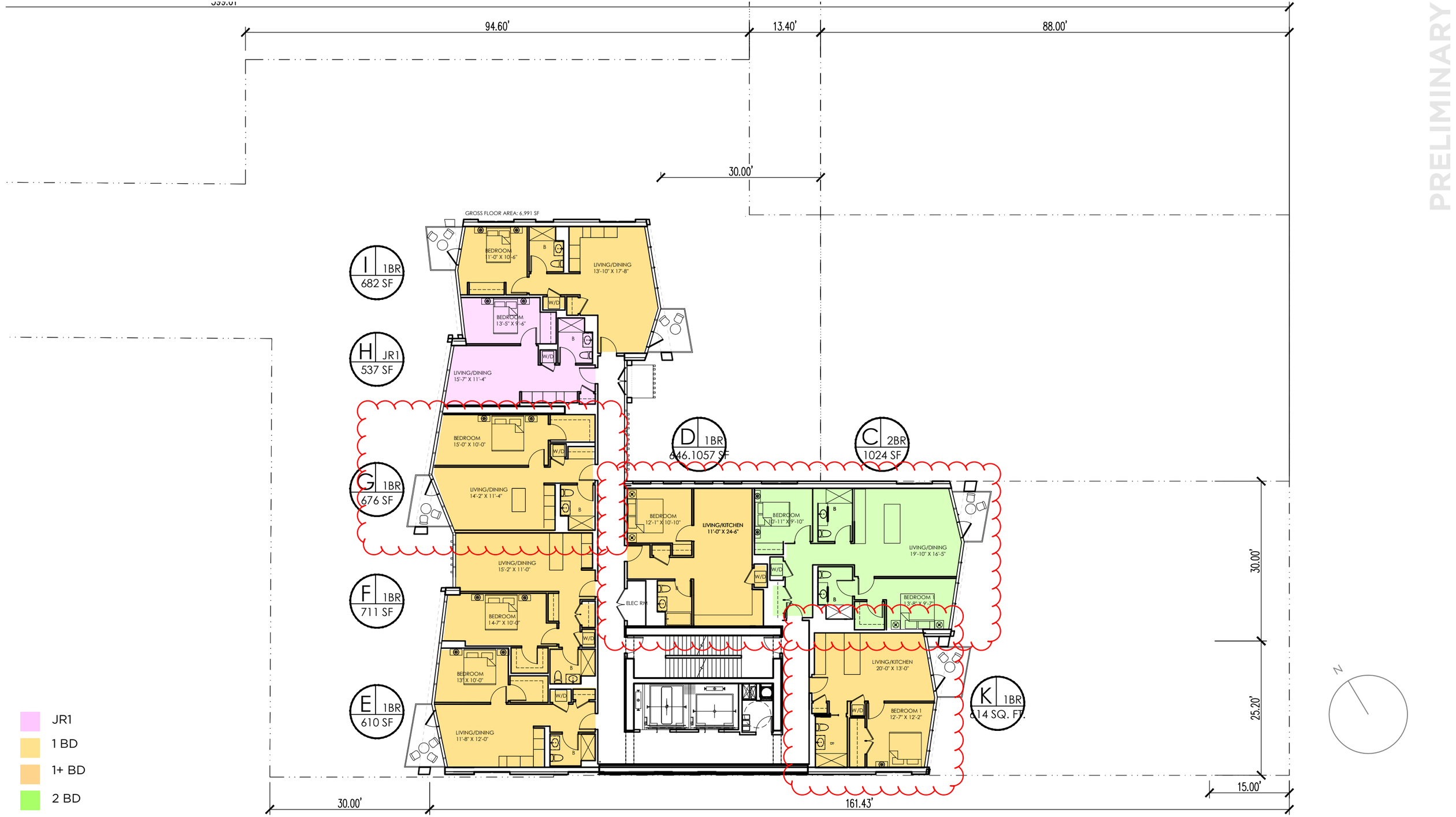
JR1
1 BD
1+ BD
2 BD
3 BD

NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

8-16TH FLOOR PLAN B

2413 3rd Ave

CETRARUDDY



JR1
1 BD
1+ BD
2 BD
3 BD

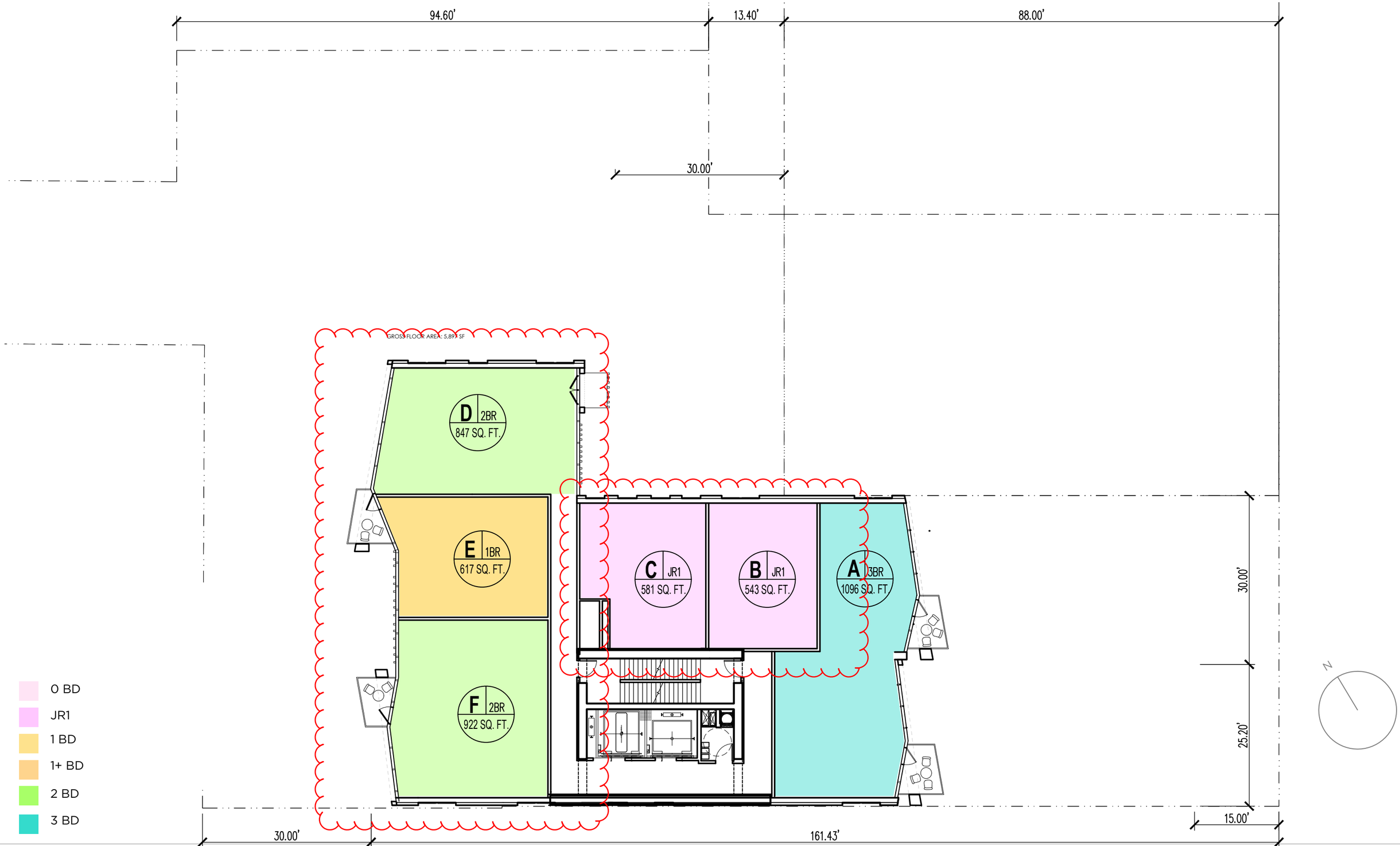
NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

17-22ND FLOOR PLAN

2413 3rd Ave

CETRARUDDY

PRELIMINARY



NOTE:
PLANS ARE PRELIMINARY AND SUBJECT TO FURTHER DEVELOPMENT, MODIFICATION, AND CHANGE ONCE A MORE THROUGH REVIEW OF MUNICIPAL CODES, LAND SURVEY, AND ON-SITE CONDITIONS IS COMPLETED.

23-26TH FLOOR PLAN

2413 3rd Ave

CETRARUDDY

PRELIMINARY

RXR - 2413 THIRD AVENUE, BRONX, NY (CURRENT OPTION)

CETRARUDDY ARCHITECTURE

Program	Floor	Elevation	Height	Fin CLG	Floor Area by Use														Residential Efficiency	
					Residential (UG2 - Multi-family)									Accessory Parking		Community Facility		Commercial		Total Building			
					GSF		MECH DEDUCTIONS	QH DEDUCTIONS			STAIR WIDTH	ZONE GREEN DEDUCTION	ZSF	GSF	ZSF	GSF	ZSF	GSF	ZSF	GSF	ZSF	SSF	EFF
					Residential	Amenity / BOH	MECH	CORRIDOR	TRASH	REC		4"											
MEP	C	-4.00	16.00		2,055	2,859	1,665		584				0	11,538	0					**18,701**	**0**		
Lobby & Parking	1	8.00	12.00		7,169	2,776	1,355	0	12		30	215	8,333	6,982	0			611	605	**17,538**	**8,938**		
Amenity & Mechanical	2	20.00	12.00		3,329	7,345	1,707	0	12	4,644	30	198	4,083							**10,674**	**4,083**		
Residential Base	3	32.00	9.67	9.00	9,447		189	518	12		30	160	8,539							**9,447**	**8,539**	7,539	80%
Residential Base	4	41.67	9.67	9.00	9,447		189	518	12		30	160	8,539							**9,447**	**8,539**	7,539	80%
Residential Base	5	51.34	9.67	9.00	9,447		189	518	12		30	160	8,539							**9,447**	**8,539**	7,539	80%
Residential Base	6	61.01	10.67	10.00	9,447		189	518	12		30	160	8,539							**9,447**	**8,539**	7,539	80%
Residential Tower	7	71.68	9.67	9.00	6,246	598	125	713	12		30	91	5,873							**6,844**	**5,873**	5,359	78%
Residential Tower	8	81.35	10.67	10.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,452	78%
Residential Tower	9	92.02	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	10	101.69	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	11	111.36	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	12	121.03	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	13	130.70	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	14	140.37	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	15	150.04	9.67	9.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,520	79%
Residential Tower	16	159.71	10.67	10.00	6,995		140	709	12		30	91	6,013							**6,995**	**6,013**	5,452	78%
Residential Tower	17	170.38	9.67	9.00	6,991		140	709	12		30	91	6,010							**6,991**	**6,010**	5,503	79%
Residential Tower	18	180.05	9.67	9.00	6,991		140	702	12		30	91	6,017							**6,991**	**6,017**	5,536	79%
Residential Tower	19	189.72	9.67	9.00	6,991		140	702	12		30	91	6,017							**6,991**	**6,017**	5,536	79%
Residential Tower	20	199.39	9.67	9.00	6,991		140	702	12		30	91	6,017							**6,991**	**6,017**	5,536	79%
Residential Tower	21	209.06	9.67	9.00	6,991		140	702	12		30	91	6,017							**6,991**	**6,017**	5,536	79%
Residential Tower	22	218.73	10.67	9.00	6,991		140	702	12		30	91	6,017							**6,991**	**6,017**	5,536	79%
Residential Penthouse	23	229.40	9.67	9.00	5,897		118	283	12		30	82	5,373							**5,897**	**5,373**	4,549	77%
Residential Penthouse	24	239.07	9.67	9.00	5,897		118	283	12		30	82	5,373							**5,897**	**5,373**	4,549	77%
Residential Penthouse	25	248.74	9.67	9.00	5,897		118	283	12		30	82	5,373							**5,897**	**5,373**	4,549	77%
Residential Penthouse	26	258.41	10.60	9.00	5,897		118	283	12		30	82	5,373							**5,897**	**5,373**	4,549	77%
Bulkhead Mechanical	BH	269.01	33.75										0							**0**	**0**		
	R	302.76																					
	PROPOSED FLOOR AREA				**185,076**	**13,578**	8,178	14,515	312	4,644	780	2,830	164,146	18,520	0	0	0	611	605	**220,034**	**164,751**	136,438	78%
	AVAILABLE FLOOR AREA												165,869				*179,095*		*1,723*		165,869		
	EFFECTIVE FAR												**5.96**										

Density Regulations	
Max Number of Dwelling Units Permitted Per ZR 23-22-	244
Proposed Dwelling Unit:	192

Required parking - ZR25-23		
40% of DU	77	Required
cellar	10	
1st	74	
	84	Provided - complies

11/7/2019

ALL AREAS ARE PRELIMINARY, AND SUBJECT TO CHANGE

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AREA CHART 26 FLOORS

2413 3rd Ave

CETRARUDDY

RXR - 2413 THIRD AVENUE, BRONX, NY (27 FLOOR OPTION)

CETRARUDDY ARCHITECTURE

Program	Floor	Elevation	Height	Fin CLG	Floor Area by Use: Residential (UG2 - Multi-family) GSF: Residential	Amenity / BOH	MECH DEDUCTIONS: MECH	QH DEDUCTIONS: CORRIDOR	TRASH	REC	STAIR WIDTH	ZONE GREEN DEDUCTION: 8"/4"	ZSF	Accessory Parking GSF	Accessory Parking ZSF	Community Facility GSF	Community Facility ZSF	Commercial GSF	Commercial ZSF	Total Building GSF	Total Building ZSF	Residential Efficiency SSF	Residential Efficiency EFF
MEP	C	-4.00	16.00		2,055	2,859	1,665		584				0	11,538	0					**18,701**	**0**		
Lobby & Parking	1	8.00	10.58	9.91	7,169	2,776	1,355	0	12		30	215	8,333	6,982	0			611	605	**17,538**	**8,938**		
Amenity & Mechanical	2	18.58	10.00	9.33	3,329	7,345	1,707	0	12	4,644	30	395	3,885							**10,674**	**3,885**		
Residential Base	3	28.58	9.42	8.80	9,447		189	1,036	12		30	319	7,861							**9,447**	**7,861**	7,539	80%
Residential Base	4	38.00	9.42	8.80	9,447		189	1,036	12		30	319	7,861							**9,447**	**7,861**	7,539	80%
Residential Base	5	47.42	9.42	8.80	9,447		189	1,036	12		30	319	7,861							**9,447**	**7,861**	7,539	80%
Residential Base	6	56.84	10.42	9.80	9,447		189	1,036	12		30	319	7,861							**9,447**	**7,861**	7,539	80%
Residential Tower	7	67.26	9.42	8.80	6,995		140	713	12		30	197	5,903							**6,995**	**5,903**	5,359	77%
Residential Tower	8	76.68	10.42	9.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,452	78%
Residential Tower	9	87.10	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	10	96.52	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	11	105.94	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	12	115.36	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	13	124.78	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	14	134.20	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	15	143.62	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	16	153.04	9.42	8.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,520	79%
Residential Tower	17	162.46	10.42	9.80	6,995		140	709	12		30	197	5,907							**6,995**	**5,907**	5,452	78%
Residential Tower	18	172.88	9.42	8.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,503	79%
Residential Tower	19	182.30	9.42	8.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,536	79%
Residential Tower	20	191.72	9.42	8.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,536	79%
Residential Tower	21	201.14	9.42	8.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,536	79%
Residential Tower	22	210.56	9.42	8.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,536	79%
Residential Tower	23	219.98	10.42	9.80	6,991		140	702	12		30	196	5,911							**6,991**	**5,911**	5,536	79%
Residential Penthouse	24	230.40	9.42	8.80	5,897		118	283	12		30	178	5,277							**5,897**	**5,277**	4,549	77%
Residential Penthouse	25	239.82	9.42	8.80	5,897		118	283	12		30	178	5,277							**5,897**	**5,277**	4,549	77%
Residential Penthouse	26	249.24	9.42	8.80	5,897		118	283	12		30	178	5,277							**5,897**	**5,277**	4,549	77%
Residential Penthouse	27	258.66	10.42	9.80	5,897		118	283	12		30	178	5,277							**5,897**	**5,277**	4,549	77%
Bulkhead Mechanical	BH	269.08	33.75										0							**0**	**0**		
	R	302.83																					
	PROPOSED FLOOR AREA				**192,820**	**12,980**	8,333	17,289	324	4,644	810	5,941	165,210	18,520	0	0	0	611	605	**227,180**	**165,815**	141,958	77%
	AVAILABLE FLOOR AREA												165,869				*179,095*		*659*		165,869		
	EFFECTIVE FAR												**6.00**										

Density Regulations	
Max Number of Dwelling Units Permitted Per ZR 23-22-	244
Proposed Dwelling Unit:	202

Required parking - ZR25-23		
40% of DU	81	Required
cellar	66	
1st	15	
	81	Provided - complies (pending review)

11/7/2019

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AREA CHART FOR 27 FLOORS

2413 3rd Ave

CETRARUDDY

FLOOR NO.	APARTMENT TYPES/ NUMBER OF UNITS												NET FLOOR AREA/ FLOOR	TOTAL UNITS/ FLOOR
	3BED/ 2 BATH		2BED/ 2 BATH		2BED/1BATH		1 BED+/ 1 BATH		1BED/ 1 BATH		JR1/ 1 BATH			
3		-	1,947	2		-	754	1	1,974	3	2,811	5	7,486	11
4		-	1,947	2		-	754	1	1,974	3	2,811	5	7,486	11
5		-	1,947	2		-	754	1	1,974	3	2,811	5	7,486	11
6		-	1,947	2		-	754	1	1,974	3	2,811	5	7,486	11
7		1	1,008			-	720	1	1,951	3	1,084	2	4,763	7
8	1,129	1				-		-	2,644	4	1,679	3	5,452	8
9	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
10	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
11	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
12	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
13	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
14	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
15	1,129	1				-	716	1	1,996	3	1,679	3	5,520	8
16	1,129	1				-		-	2,644	4	1,679	3	5,452	8
17		-	990	1		-		-	3,975	6	537	1	5,502	8
18		-	990	1		-		-	3,975	6	537	1	5,502	8
19		-	990	1		-		-	3,975	6	537	1	5,502	8
20		-	990	1		-		-	3,975	6	537	1	5,502	8
21		-	990	1		-		-	3,975	6	537	1	5,502	8
22		-	990	1		-		-	3,975	6	537	1	5,502	8
23	1,123	1	1,739	2		-		-	629	1	1,090	2	4,581	6
24	1,123	1	1,739	2		-		-	629	1	1,090	2	4,581	6
25	1,123	1	1,739	2		-		-	629	1	1,090	2	4,581	6
26	1,123	1	1,739	2		-		-	629	1	1,090	2	4,581	6
TOTALS	14,653	14	21,692	22	-	-	8,748	12	55,473	84	35,021	63		
PERCENTAGES	10.8%	7.2%	16.0%	11.3%	0.0%	0.0%	6.5%	6.2%	40.9%	43.1%	25.8%	32.3%	**135,587**	**195**
AVERAGE UNIT SIZE	1046.642857		986		0		729		660		556		695	

SUMMARY			
Type	**Count**	**Total SF**	**Average SF**
JR1/ 1 BATH	63	35,021	**556**
1BED/ 1 BATH	84	55,473	**660**
1 BED+/ 1 BATH	12	8,748	**729**
2BED/1BATH			
2BED/ 2 BATH	22	21,692	**986**
3BED/ 2 BATH	14	14,653	**1,047**
	195	**135,587**	**695**

JR1/ 1 BATH		
UNIT TYPE	FLOORS	# OF UNITS
B: 579	3 TO 6	4
C: 572	3 TO 6	4
E: 535	3 TO 6	4
G: 583	3 TO 6	4
J: 542	3 TO 6	4
C:531	7	1
H: 502	7	1
E: 582	7	1
D: 534	8 TO 16	9
H: 540	8 TO 16	9
H: 537	17 TO 22	6
B: 543	23 TO 26	4
C: 581	23 TO 26	4
TOTAL		55

1BED/ 1 BATH		
UNIT TYPE	FLOORS	# OF UNITS
A: 676	3 TO 6	4
H: 683	3 TO 6	4
I: 615	3 TO 6	4
G: 649	7	1
F: 656	7	1
E: 648	8 TO 16	2
F: 605	8 TO 16	9
I: 681	8 TO 16	9
G: 686	8 TO 16	9
K: 629	8 TO 16	9
D: 646	17 TO 22	6
F: 711	17 TO 22	6
E: 610	17 TO 22	6
G: 676	17 TO 22	6
I: 682	17 TO 22	6
K: 614	17 TO 22	6
E: 617	23 TO 26	4
TOTAL		92

1 BED+/ 1 BATH		
UNIT TYPE	FLOORS	# OF UNITS
F: 754	3 TO 6	4
D: 720	7	1
E: 716	9 TO 15	7

OPT 3			
Type	**Count**	**Total SF**	**Average SF**
JR 1	55	19,190	**349**
1 Bed/1 Bath A	92	56,350	**613**
1 Bed +	12	18,144	**1,512**
2 Bed/1 Bath A	22	32,938	**1,497**
3 Bed/2 Bath A	14	10,659	**761**
	195	**137,281**	**704**

TOTAL	12

2BED/ 2 BATH		
UNIT TYPE	FLOORS	# OF UNITS
D: 964	3 TO 6	4
K: 983	3 TO 6	4
C: 1024	17 TO 22	6
D: 847	23 TO 26	4
F: 922	23 TO 26	4
TOTAL		22

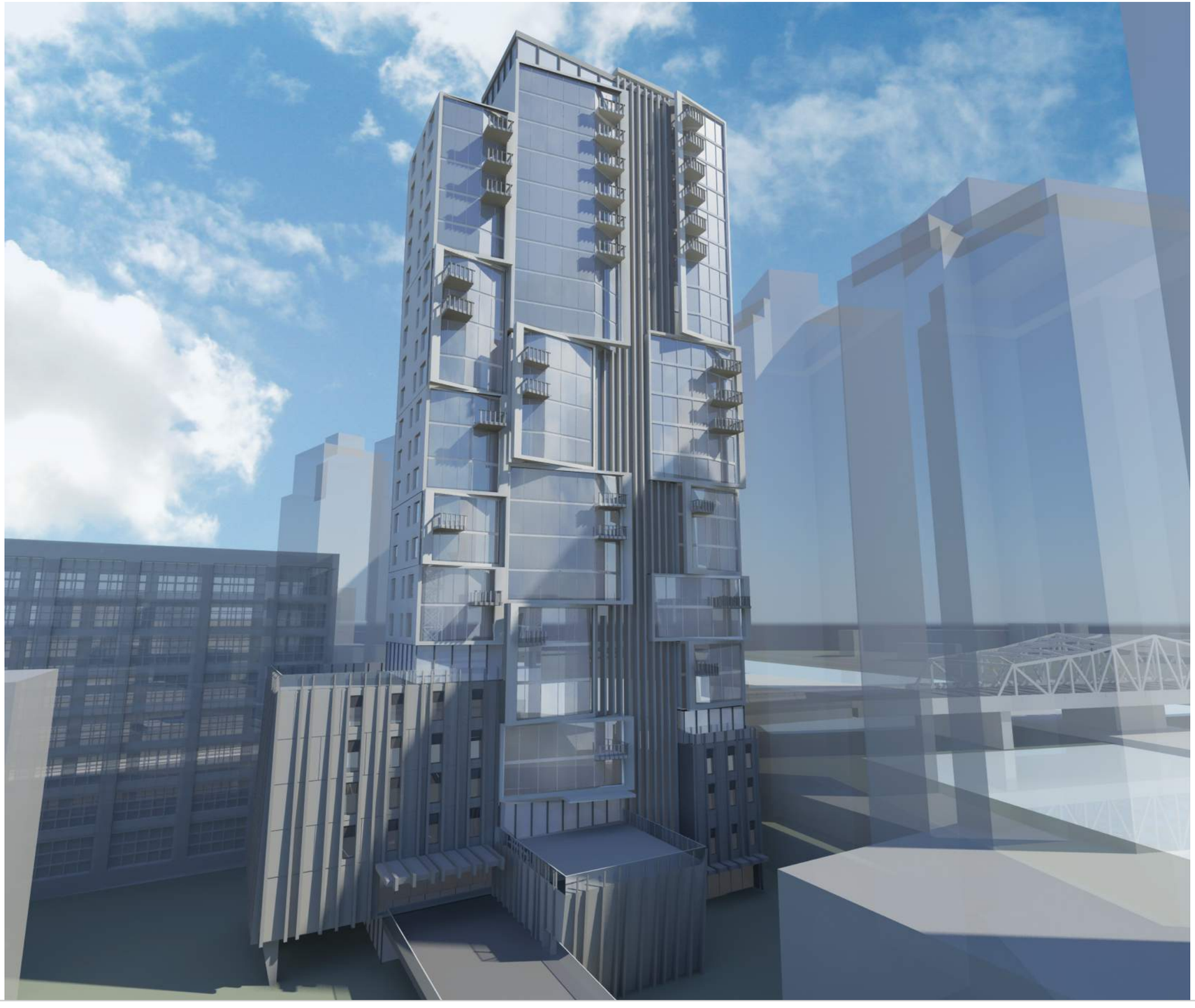
3BED/ 2 BATH		
UNIT TYPE	FLOORS	# OF UNITS
B: 1131	7	1
C: 1129	8 TO 16	9
A: 1096	23 TO 26	4
TOTAL		14

UNIT MIX - 26 FLOORS

2413 3rd Ave

FLOOR NO.	APARTMENT TYPES/ NUMBER OF UNITS												NET FLOOR AREA/ FLOOR	TOTAL UNITS/ FLOOR
	3BED/ 2 BATH		2BED/ 2 BATH		2BED/1BATH		1 BED+/ 1 BATH		1BED/ 1 BATH		JR1/ 1 BATH			
3		-	3,827	4		-	754	1	1,298	2	1,660	3	7,539	10
4		-	3,827	4		-	754	1	1,298	2	1,660	3	7,539	10
5		-	3,827	4		-	754	1	1,298	2	1,660	3	7,539	10
6		-	3,827	4		-	754	1	1,298	2	1,660	3	7,539	10
7	1,131	1		-		-	720	1	1,305	2	2,203	4	5,359	8
8	1,129	1		-		-	-	-	3,249	5	1,074	2	5,452	8
9	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
10	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
11	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
12	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
13	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
14	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
15	1,129	1		-		-	716	1	2,601	4	1,074	2	5,520	8
16	1,129	1		-		-	716	1	2,601	5	1,074	3	5,520	10
17	1,129	1		-		-	-	-	3,249	5	1,074	2	5,452	8
18		-	1,024	1		-		-	3,942	6	537	1	5,503	8
19		-	1,024	1		-		-	3,975	6	537	1	5,536	8
20		-	1,024	1		-		-	3,975	6	537	1	5,536	8
21		-	1,024	1		-		-	3,975	6	537	1	5,536	8
22		-	1,024	1		-		-	3,975	6	537	1	5,536	8
23		-	1,024	1		-		-	3,975	6	537	1	5,536	8
24	1,123	1	1,722	2		-		-	620	1	1,084	2	4,549	6
25	1,123	1	1,722	2		-		-	620	1	1,084	2	4,549	6
26	1,123	1	1,722	2		-		-	620	1	1,084	2	4,549	6
27	1,123	1	1,722	2		-		-	620	1	1,084	2	4,549	6
TOTALS	16,913	15	28,340	30	-	-	9,464	13	60,100	93	27,141	51		
PERCENTAGES	11.9%	7.4%	20.0%	14.9%	0.0%	0.0%	6.7%	6.4%	42.3%	46.0%	19.1%	25.2%	**141,958**	**202**
AVERAGE UNIT SIZE	1,128		945		0		728		646		532		703	

SUMMARY			
Type	**Count**	**Total SF**	**Average SF**
JR1/ 1 BATH	51	27,141	**532**
1BED/ 1 BATH	93	60,100	**646**
1 BED+/ 1 BATH	13	9,464	**728**
2BED/1BATH			
2BED/ 2 BATH	30	28,340	**945**
3BED/ 2 BATH	15	16,913	**1,128**
	202	**141,958**	**703**



EAST ELEVATION

2413 3rd Ave

CETRARUDDY

APPENDIX B
Previous Environmental Reports

APPENDIX C
Geophysical Survey Report

GEOPHYSICAL ENGINEERING SURVEY REPORT

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451

NOVA PROJECT NUMBER:

19-1303

DATED:

June 12, 2019

PREPARED FOR:

LANGAN

21 Penn Plaza
360 West 31st Street, 8th Floor 4th Floor
New York, New York 10001-2727

PREPARED BY:

NOVA
GEOPHYSICAL
ENGINEERING
Subsurface Mapping Solutions

56-01 Marathon Parkway # 765
Douglaston, New York 11362
347-556-7787 (PHONE)
718-261-1527(FAX)
www.nova-gsi.com

NOVA GEOPHYSICAL SERVICES

SUBSURFACE MAPPING SOLUTIONS
56-01 Marathon Parkway #765, Douglaston, New York 11362
Ph. 347-556-7787 Fax. 718-261-1527
www.novagsi.com

June 12, 2019

Kimberly Del Col, PE
Project Engineer
LANGAN
21 Penn Plaza
360 West 31st Street, 8th Floor 4th Floor
New York, New York 10001-2727
P: 212.479.5444 | E: kdelcol@langan.com

Re: Geophysical Engineering Survey (GES) Report
Commercial Site
2413 3rd Avenue,
Bronx, New York 10451

Dear Ms. Del Col,

Nova Geophysical Services (NOVA) is pleased to provide the findings of the geophysical engineering survey (GES) at the above referenced project site: 2413 3rd Avenue, Bronx, New York 10451 (the "Site").

INTRODUCTION TO GEOPHYSICAL ENGINEERING SURVEY (GES)

NOVA performed a geophysical engineering survey (GES) consisting of a Ground Penetrating Radar (GPR) and Electromagnetic (EM) survey at the site. The purpose of this survey is to locate and identify utilities, underground storage tanks and other substructures on June 6th, 2019.

The equipment selected for this investigation was a Sensors and Software Noggin 250 MHz ground penetrating radar (GPR) with a shielded antenna and a Radio Detection RD7100 Electromagnetic utility locator.

A GPR system consists of a radar control unit, control cable, and transducer (antenna). The control unit transmits a trigger pulse at a normal repetition rate of 250 MHz. The trigger pulse is sent to the transmitter electronics in the transduce via the control cable. The transmitter electronics amplify the trigger pulse into bipolar pulses that are radiated to the surface. The transformed pulses vary in shape and frequency according to the transducer used. In the subsurface, variations of the signal occur at boundaries where there is a dielectric contrast (void,

steel, soil type, etc.). Signal reflections travel back to the control unit and are represented as color graphic images for interpolation.

A typical electromagnetic (EM) utility locating system consists of a transmitter unit and a receiver unit. The receiver unit can be used independently of the transmitter unit in order to detect utility lines with an inherent EM signature (electric utility lines, water lines, etc.). If needed a current at a specific frequency can also be placed on a utility that is being located. This can be done via the transmitter unit by either direct connection or induction via an EM field varying at specific frequency. The receiver unit is then set to the selected frequency and the electromagnetic field created by the current running through the utility can be located allowing the utility to be marked.

GEOPHYSICAL METHODS

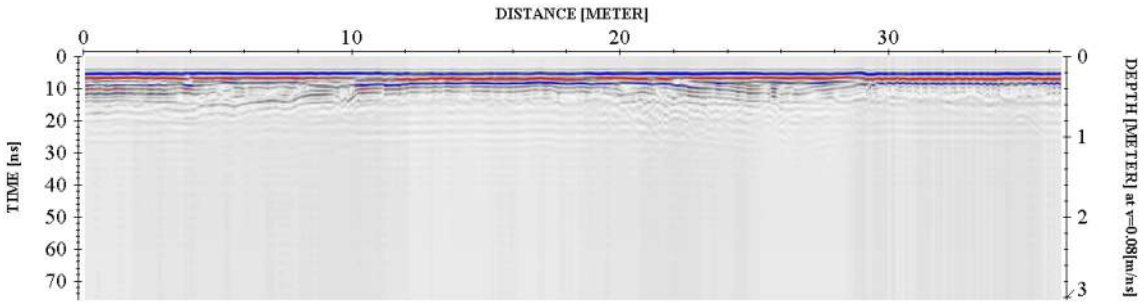
The project site was screened using GPR to search the specified area and inspected for reflections, which could be indicative of substructures and utilities within the subsurface. An EM utility locator was used to help determine the locations of utilities within the survey area.

EM data was collected and interpreted on site and suspected utilities marked as needed. GPR data profiles were collected for the areas of the Site specified by the client and processed as specified below.

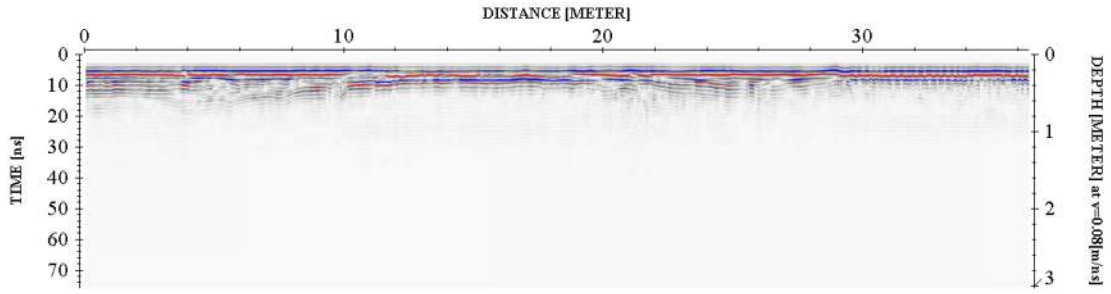
DATA PROCESSING

In order to improve the quality of the results and to better identify anomalies NOVA processed the collected data. The processing work flow is briefly described in this section.

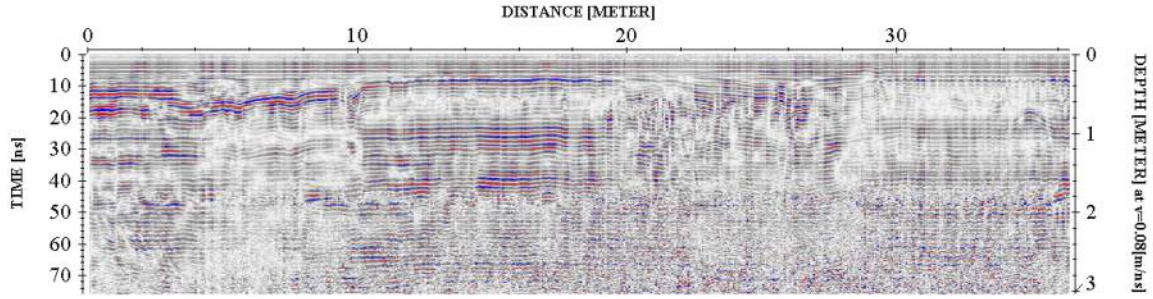
Step 1. Import Raw RAMAC data to standard processing format



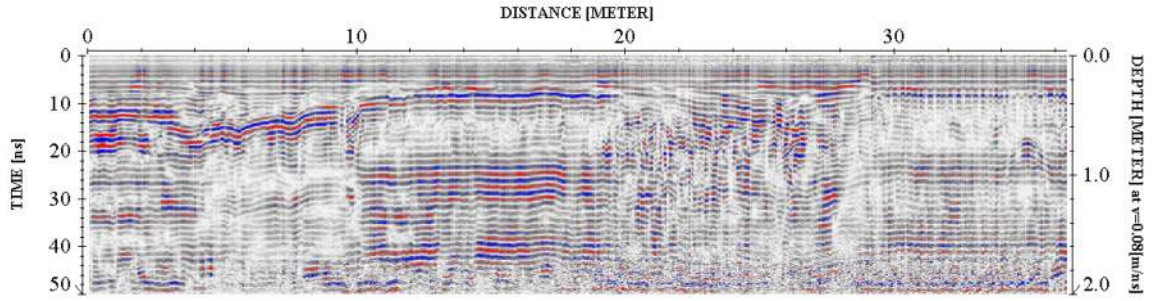
Step 2. Remove instrument noise *(dewow)*



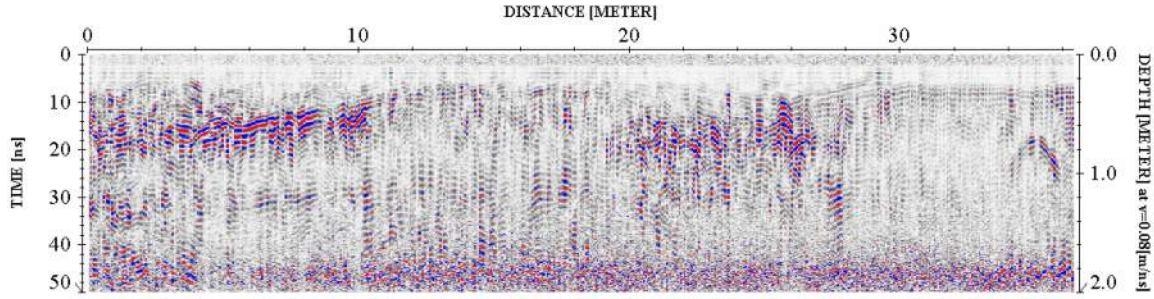
Step 3. Correct for attenuation losses *(energy decay function)*



Step 4. Remove static from bottom of profile *(time cut)*



Step 5. Mute horizontal ringing/noise *(subtracting average)*



The above example shows the significance of data processing. The last image (step 5) has higher resolution than the starting image (raw data – step 1) and represents the subsurface anomalies much more accurately.

PHYSICAL SETTINGS

NOVA observed the following physical conditions at the time of the survey.

Weather: Partly Cloudy

Temperature: 65° F

Surface: Concrete, Asphalt, Fill, Cobblestone

Geophysical Noise Level (GNL): The GNL was high at the site. The noise was a result of the site being located in an urban environment, thick concrete foundations, and the presence of fill material in the subsurface.

RESULTS

The results of the geophysical engineering survey (GES) identified the following at the project site:

- Anomalies resembling potential subsurface utilities (such as sewer, water, gas and electric) were identified during the GES. A geophysical anomaly resembling a potential utility was identified, but couldn't be correlated with known utilities. The approximate locations are shown in the survey plan.
- Two capped pipes were identified along with a geophysical anomaly resembling subsurface piping. Shown in the survey plan. NOVA could not verify any large geophysical anomalies resembling an underground storage tanks (UST) during the GES due to excessive geophysical noise levels.
- All detected subsurface anomalies were marked in the onsite mark out.
- All cleared boring locations were marked in the onsite mark out.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

NOVA Geophysical Services

Levent Eskicakit, P.G., E.P.

Project Engineer

Attachments:

Location Map

Survey Plan

Geophysical Images

NOVA Geophysical Services

Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

Location Map

SITE:	**Commercial Site** 2413 3rd Avenue, Bronx, New York 10451
CLIENT:	Langan
DATE:	June 6th, 2019
AUTH:	Chris Steinley

LEGEND

NOVA Geophysical Services

Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

SURVEY PLAN

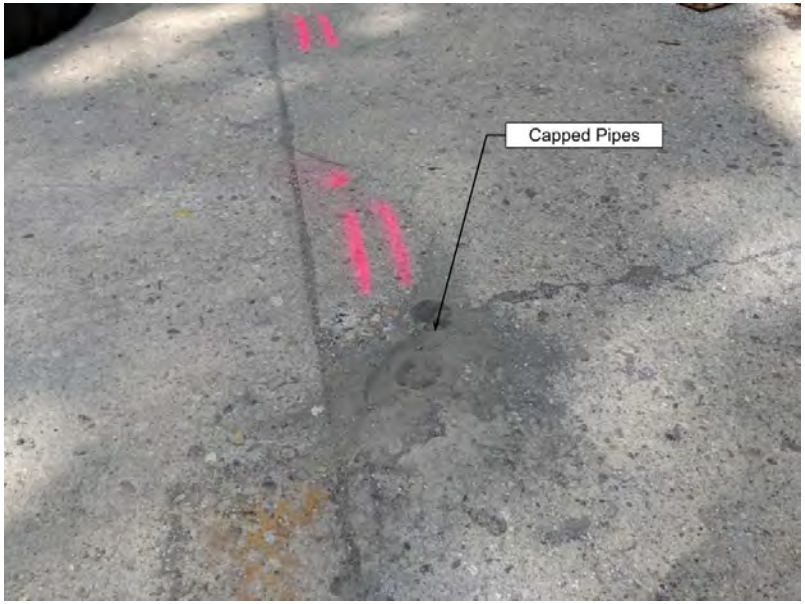
SITE:	**Commercial Site** 2413 3rd Avenue, Bronx, New York 10451
CLIENT:	Langan
DATE:	June 6th, 2019
AUTH:	Chris Steinley

LEGEND

- Survey Area
- Water
- Electric
- Sewer
- Unknown
- Gas
- Capped Pipe
- Anomaly

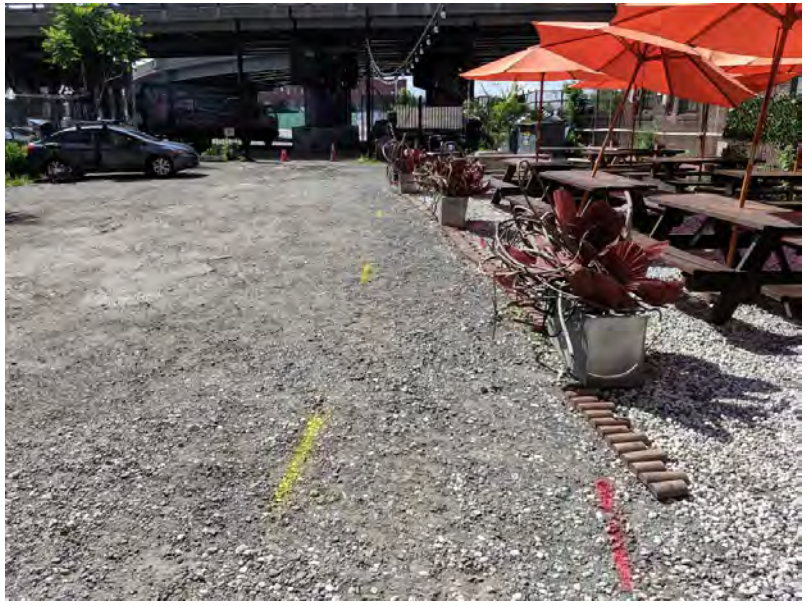
GEOPHYSICAL IMAGES

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019



GEOPHYSICAL IMAGES

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019



GEOPHYSICAL IMAGES

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019

GEOPHYSICAL IMAGES

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2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019

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June 6th, 2019

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2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019

GEOPHYSICAL IMAGES

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019

GEOPHYSICAL IMAGES

Commercial Site
2413 3rd Avenue,
Bronx, New York 10451
June 6th, 2019

APPENDIX D
Soil Boring Logs

LANGAN

Log of Boring **SB06/TMW06** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/6/19 — Date Finished: 6/6/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Julio Galarza
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-24") Brown fine SAND, some fine gravel, brick (dry) [FILL]	0	R1	MACROCORE	24/48		0.0	
			1					0.0	
			2					0.0	Collected SB06_1-2 at 12:10
			3					0.0	
			4					0.0	
		R2 (0-28") Brown fine SAND, brick, trace fine gravel (moist) [FILL]	5	R2	MACROCORE	28/48		0.4	
			6					0.4	
		▽	7					3.6	Collected SB06_7-8 at 12:00
			8					1.6	Slight petroleum-like odor and staining from 7 to 8 feet bgs
		R3 (0-32") Soft grey CLAY, trace peat, shells (moist)	9	R3	MACROCORE	32/48		0.1	
			10					0.1	
			11					0.3	
			12					0.1	
			13					0.1	End of boring at 12 feet bgs. Temporary monitoring well TMW06 installed. Soil vapor point SV06 installed at offset location.
			14						

\\LANGAN.COM\DATA\NYC\DATA0\170396002\PROJECT DATA_DISCIPLINE\ENV\RONMENTAL\GINTLOGS\SB06 THROUGH SB15 - 3RD AVE.GPJ ... 6/14/2019 10:00:11 AM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB07** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/6/19 — Date Finished: 6/6/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 10.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Julio Galarza
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-24") Light brown medium SAND, some fine sand, brick, quartz (dry) [FILL]	0	R1	MACROCORE	24/48		0.0	
			1					0.0	
			2					0.0	
			3					0.0	
			4					0.0	Collected SB07_2-3 at 12:30
		R2 (0-36") Light brown fine SAND, trace silt (moist)	5	R2	MACROCORE	36/48		0.0	Collected SB07_5-6 at 12:35
			6					0.0	
			7					0.0	
			8					0.0	
			9					0.0	
		R3 (0-32") Light brown fine SAND, trace silt (wet)	10 ▽	R3	MACROCORE	32/48		0.0	
			11					0.0	
			12					0.0	End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings.
			13						
			14						

LANGAN

Log of Boring **SB08/TMW08** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/6/19 — Date Finished: 6/6/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Julio Galarza
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-28") Light brown medium SAND, trace fine sand (dry) [FILL]	0					0.0	
			1					0.0	
								0.4	Collected SB08_1-2 at 11:30
			2	R1	MACROCORE	28/48		1.6	
								0.3	
			3						
			4						
			5						
		R2a (0-12") Light brown medium SAND, trace fine sand (dry) [FILL]	6	R2	MACROCORE	22/48		0.0	Collected SB08_6-7 at 11:35
			7 ▽					0.0	
		R2b (12-22") Dark brown fine SAND, some silt (moist)						0.0	
			8					0.0	
			9						
			10	R3	MACROCORE	10/48			
			11					0.0	
		R3 (0-10") Greyish-black fine SAND, some silt (moist)						0.0	
			12						End of boring at 12 feet bgs. Temporary monitoring well TMW08 installed.
			13						
			14						

LANGAN

Log of Boring **SB09** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/6/19 — Date Finished: 6/6/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 5.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Julio Galarza
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-6") BRICK	0					0.0	
		R1b (6-32") Greyish-black schist COBBLES (dry)	1					0.0	
								0.0	
			2	R1	MACROCORE	32/48		0.0	Collected SB09_2-3 at 10:30
			3						
			4						
		R2a (0-12") Brown micaceous fine SAND (moist) ▽	5					0.0	Collected SB09_5-6 at 10:40
		R2b (12-30") Dark brown fine SAND, trace silt (wet)	6	R2	MACROCORE	36/48		0.0	
			7					0.0	
		R2c (30-36") Dark brown PEAT (wet)	8					0.0	
		R3a (0-12") Greyish-black fine SAND, trace silt (wet)						0.0	
		R3b (12-24") Black PEAT	9					0.0	
		R3c (24-48") Dark brown fine SAND, trace silt (moist)	10	R3	MACROCORE	48/48		0.0	
			11					0.0	
			12					0.0	End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings.
			13						
			14						

\\LANGAN.COM\DATA\NYC\DATA0\170396002\PROJECT DATA_DISCIPLINE\ENV\IRONMENTAL\GINTLOGS\SB06 THROUGH SB15 - 3RD AVE.GPJ ... 6/14/2019 10:00:20 AM ... Report: Log - LANGAN

LANGAN

Log of Boring **SB10** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/7/19 — Date Finished: 6/7/19
Drilling Equipment: Geoprobe 420M	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Sergio Magana
Sampler: 2-inch by 3-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		CONCRETE SLAB	0					0.0	
		R1a (3-7") BRICK						0.0	
		R1b (7-30") Reddish-brown fine SAND, trace coal, fine gravel (dry) [FILL]	1	R1	MACROCORE	30/36		0.0	Collected SB10_1-2 at 8:45
			2					0.0	
								0.0	
			3						
		R2 (0-26") Reddish-brown fine SAND, trace coal, fine gravel (dry) [FILL]	4	R2	MACROCORE	26/36		0.0	
								0.0	
			5					0.0	
								0.0	
			6						
		R2 (0-24") Reddish-brown to dark brown fine SAND, some fine gravel, trace coarse sand, coal (moist-wet)	7	R3	MACROCORE	24/36		0.0	Collected SB10_7-8 at 8:55
								0.0	
			8					0.0	
			▽					0.0	
			9						
		R4 (0-16") Brown fine SAND, trace medium gravel (wet)	10	R4	MACROCORE	16/36			
			11					0.0	
								0.0	
			12						End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings. Sub-slab vapor point SSV10 installed at offset location.
			13						
			14						

LANGAN

Log of Boring **SB11/TMW11** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/7/19 — Date Finished: 6/7/19
Drilling Equipment: Geoprobe 420M	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 9 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Sergio Magana
Sampler: 2-inch by 3-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		CONCRETE SLAB	0					0.0	
		R1 (6-20") Brown fine SAND, trace coal, brick, slag, concrete (dry) [FILL]	1	R1	MACROCORE	20/36		0.0	Slight chemical-like odor from 1 to 2 feet bgs.
			2					0.0	Collected SB11_1-2 at 10:40
			3						
		R2 (0-24") Reddish-brown fine SAND	4	R2	MACROCORE	24/36		0.0	
			5					0.0	Collected at SB11_5-6 at 10:50
			6					0.0	
		R3 (0-10") Reddish-brown fine SAND	7	R3	MACROCORE	10/36			
			8					0.0	
			9 ▽					0.0	
		R4 (0-32") Brown medium SAND, trace fine gravel (wet)	10	R4	MACROCORE	32/36		0.0	
			11					0.0	
			12					0.0	End of boring at 12 feet bgs. Temporary monitoring well TMW11 installed. Sub-slab vapor point SSV11 installed at offset location.
			13						
			14						

LANGAN

Log of Boring **SB12/TMW12** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/6/19 — Date Finished: 6/6/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 7 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Julio Galarza
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-40") Brown to reddish-brown fine gravelly fine SAND, brick (dry) [FILL]	0	R1	MACROCORE	40/48		0.7	
			1					2.6	
								1.1	
			2					2.1	
								3.0	
			3					4.0	
								71.1	Collected SB12_3-4 at 8:50
			4	R2	MACROCORE	36/48			
		R2a (0-12") Brown to reddish-brown fine SAND, some coal (dry) [FILL]	5					1.1	Collected SB12_5-6 at 9:20
		R2b (12-36") Reddish-brown fine SAND, some silt (wet)						0.1	
			6					0.2	
		▽						1.1	
			7					0.2	
								0.1	
		R3a (0-12") Soft dary brown CLAY, trace peat (moist)	8	R3	MACROCORE	48/48		0.1	
								0.1	
		R3b (12-24") PEAT	9					0.2	
								0.2	
		R3c (24-48") Olive to brown fine SAND, trace silt, clay (mosit)	10					0.2	
								0.2	
			11					0.0	
								0.0	
			12						End of boring at 12 feet bgs. Temporary monitoring well TMW12 installed. Soil vapor point SV12 installed at offset location.
			13						
			14						

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Log of Boring **SB13** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/7/19 — Date Finished: 6/7/19
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 2 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Sergio Magana
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-42") Light brown to black fine SAND, brick (dry) [FILL]	0					0.0	
			1					0.0	
			1					0.0	
			2	R1	MACROCORE	42/48		0.0	
			2					0.6	
			3					0.2	
			3					0.2	Collected SB13_3-4 at 9:50
			4					0.1	
			5						
		R2 (0-28") BRICK, trace brown fine sand	6	R2	MACROCORE	28/48		0.1	
			6					0.1	
			7					0.1	
			7					0.2	
			8					0.1	
		▽	9						
		R3 (0-28") Brown fine SAND, trace silt, fibrous material, brick (wet) [FILL]	10	R3	MACROCORE	28/48		0.1	
			10					0.1	Slight petroleum-like odor from 10 to 11 feet bgs.
			11					0.1	Collected SB13_10-11 at 9:55
			11					0.1	
			12					0.1	End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings.
			13						
			14						

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Log of Boring **SB14** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/7/19 — Date Finished: 6/7/19
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 1 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Sergio Magana
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-42") Brown to reddish-brown fine SAND, trace coal, concrete, brick (dry) [FILL]	0	R1	MACROCORE	42/48		1.3	
			1					1.1	
								1.1	
			2					8.4	
								1.3	
			3					7.6	
								29.0	Collected SB14_3-4 at 11:50
								18.8	
			4						
			5						
		R2 (0-28") Reddish-brown fine SAND, trace silt (moist)	6	R2	MACROCORE	28/48		0.0	
								0.0	
			7					0.0	
								0.0	
		R3 (0-48") Dark brown to grey CLAY, trace fine sand, fibrous material (wet) ▽	8	R3	MACROCORE	48/48			
			9						
			10					0.0	
								0.0	
			11					0.0	
								0.0	
			12						End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings.
			13						
			14						

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Log of Boring **SB15** Sheet 1 of 1

Project: 2413 Third Ave	Project No.: 170396002
Location: Bronx, NY	Elevation and Datum: N/A
Drilling Company: AARCO Environmental Services Corp.	Date Started: 6/7/19 — Date Finished: 6/7/19
Drilling Equipment: Geoprobe 6610 DT	Completion Depth: 12 ft — Rock Depth: N/A
Size and Type of Bit: 2-inch Direct Push	Number of Samples: Disturbed 1 — Undisturbed N/A — Core N/A
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 8.5 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Sergio Magana
Sampler: 2-inch by 4-foot Macrocore	Field Engineer: Patrick Stovall
Sampler Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1 (0-24") Dark brown fine gravelly fine SAND, trace coal, concrete, brick (dry) [FILL]	0	R1	MACROCORE	28/48		0.2	
			1					0.8	
			2					0.1	
			3					0.1	
			4					0.1	Collected SB15_3-4 at 12:27
		R2 (0-24") Dark brown fine gravelly fine SAND, trace coal, concrete, brick (dry) [FILL]	5	R2	MACROCORE	24/48		0.9	
			6					0.1	
			7					0.0	
			8					0.0	End of boring at 8 feet bgs. Borehole backfilled with clean soil cuttings.
			▽						
			9						
			10						
			11						
			12						
			13						
			14						

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Log of Boring **SB16** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental Services, Corp.	Date Started: 9/27/19 — Date Finished: 9/27/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.5 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-48") Brown silty GRAVEL; with slag, brick, coal (dry) [FILL].	0	R1	MACROCORE	30/48		0.0	
			1					0.0	
								0.0	Sample SB16_0-2 collected.
			2					0.0	
								0.0	
			3						Sample SB16_2-4 collected.
		R2a (0-33") Brown, fine SAND (wet) [FILL].	4	R2	MACROCORE	36/48		0.1	
								0.0	
			5					0.0	
								0.0	
			6					0.0	
								0.0	
			7					0.0	
		R2b (33-36") Dark Gray sandy CLAY (wet) [FILL]. ▽						0.0	
		R3a (0-6") Brown, fine SAND (wet)	8	R3	MACROCORE	32/48		0.0	
								0.0	
			9					0.0	
		R3b (6-24") Dark Brown, fine SAND, some fine gravel, trace silt (wet).						0.0	
			10					0.0	
								0.0	
			11					0.0	
		R3c (24-32") Dark Brown, medium SAND, trace fine gravel (wet).						0.0	
			12					0.0	
		R4a (0-28") Brownish-Olive, fine SAND, trace fine gravel (wet).	13	R4	MACROCORE	36/48		0.0	
								0.0	
			14					0.0	End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, bentonite chips, and cold patch asphalt to grade.
								0.0	
			15					0.0	
		R4b (28-36") Light Brown, fine SAND (wet).						0.0	
			16					0.0	
			17						
			18						
			19						
			20						

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Log of Boring **SB17** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental Services, Corp.	Date Started: 9/27/19 — Date Finished: 9/27/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.5 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-20") Brown sandy fine GRAVEL; with glass, brick (dry) [FILL].	0					0.0	
			1					0.0	
								0.0	Sample SB17_0-2 collected.
		R1b (20-23") Red, fine GRAVEL; with brick (dry) [FILL].	2	R1	MACROCORE	23/48		0.0	
								0.0	
			3						
			4						
		R2a (0-12") Brown, WOOD (wet) [FILL].	5					0.0	
								0.0	
		R2b (12-30") Red, fine GRAVEL; with brick (wet) [FILL].	6	R2	MACROCORE	36/48		1.0	Sample SB17_5.5-7.5 collected.
								1.0	
			7 ▽					0.3	
		R2c (30-36") Dark Gray to black CLAY (wet).						0.3	
			8					0.0	
		R3a (0-6") Dark Brown CLAY, some fine gravel lenses (wet).						0.0	
			9					0.0	
		R3b (6-30") Dark Brown, organic CLAY (wet).		R3	MACROCORE	42/48		0.2	
			10					0.3	
								0.2	
		R3c (30-42") Gray, fine SAND, trace fine gravel, trace organics (wet).	11					0.1	
								0.1	
		R4a (0-48") Gray, fine SAND, some medium sand, trace organics (wet).	12					0.0	End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, bentonite chips, and cold patch asphalt to grade.
								0.0	
			13					0.0	
				R4	MACROCORE	48/48		0.0	
			14					0.0	
								0.0	
			15					0.0	
								0.0	
			16					0.0	
			17						
			18						
			19						
			20						

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Log of Boring **SB18** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/1/19 / Date Finished: 10/1/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): 2in / Casing Depth (ft): NA	Water Level (ft.): First ▽ 10.5 / Completion ▼ / 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-15") Dark Brown, fine SAND, some fine gravel; with coal brick (dry) [FILL].	0					0.0	
			1					0.2	
		R1b (15-30") Brown, fine SAND; with coal, brick (dry) [FILL].						0.1	Sample SB18_0-2 collected.
			2	R1	MACROCORE	30/48		0.0	
			3					0.0	
			4					0.0	
			5						
			6	R2	MACROCORE	24/48		0.0	
		R2a (0-6") Brown, fine SAND, some fine gravel; with brick (dry) [FILL].						0.0	
		R2b (6-18") Brown, fine SAND (dry).	7					0.0	
		R2c (18-24") Brown, gravely fine SAND (dry).	8					0.0	
			9						
		R3a (0-24") Brown, gravely fine SAND, some medium sand (moist to wet). ▽	10	R3	MACROCORE	24/48		0.0	
								0.0	
			11					0.0	Sample SB18_10-12 collected.
			12					0.0	
			13						
		R4a (0-24") Orangish-brown, gravelly SAND, trace medium SAND (wet).	14	R4	MACROCORE	21/48		0.0	End of boring at 16 feet bgs.
								0.0	Boring completed with a permanent 2-inch PVC monitroing well screened from 6 to 16 feet bgs.
			15					0.0	
								0.0	
			16					0.0	
			17						
			18						
			19						
			20						

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Log of Boring **SB19** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO ENvironmental	Date Started: 10/2/19 — Date Finished: 10/2/19
Drilling Equipment: Geoprobe 420 M	Completion Depth: 15 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 5 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 3ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-7") Light Brown, medium SAND; with brick (dry) [FILL].	0					0.6	
		R1b (7-30") Dark Brown, silty SAND, trace fine gravel; with coal (dry) [FILL].	1	R1	MACROCORE	30/36		0.6	
			2					0.8	Sample SB19_0-2 collected.
			3					0.7	
								0.6	
								0.6	
		R2a (0-20") Dark Brown, silty SAND, trace fine gravel; with coal, brick (moist) [FILL].	4					0.7	
				R2	MACROCORE	30/36		0.7	
		R2b (20-36") Dark Brown, medium SAND, some fine gravel (moist) [FILL].	5					0.7	
								0.7	
								0.6	
		R3a (0-9") Dark Brown, gravelly SAND (wet).	6					0.6	
			7						
		▽	8	R3	MACROCORE	9/36		0.8	
								0.8	Sample SB19_8-9 collected.
			9					0.8	
		R4a (0-10") Dark Brown, coarse SAND, some fine gravel (wet).	10					0.8	
		R4b (10-24") Light Tan, coarse SAND (wet).	11	R4	MACROCORE	24/36		0.8	
								0.7	
								0.7	
		R5a (0-12") Brown to tan, coarse SAND, trace fine gravel (wet).	12					0.7	
		R5b (12-25") Black, fine SAND, trace fine gravel (wet).	13					0.7	
								0.7	
		R5c (25-36") Light Tan, coarse SAND (wet).	14	R5	MACROCORE	36/36		0.7	
								0.7	End of boring at 15 feet bgs. Boring completed with a permanent 1-inch PVC monitroing well screened from 5 to 15 feet bgs.
			15					0.7	
			16					0.7	
			17					0.7	
			18						
			19						
			20						

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Log of Boring **SB20** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/3/19 — Date Finished: 10/3/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4, Undisturbed NA, Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 14, Completion ▼, 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-31") Brown to tan, silty SAND, trace fine gravel; with brick, coal (dry) [FILL].	0	R1	MACROCORE	31/48		0.0	
			1					0.0	
			2					0.0	Sample SB20_0-2 collected.
			3					0.0	
		R2a (0-48") Brown to gray, fine SAND, sone medium SAND (dry).	4					0.0	
			5	R2	MACROCORE	28/48		0.0	
			6					0.0	
			7					0.0	
			8					0.0	
			9	R3	MACROCORE	15/48			
			10						
		R3a (0-15") Dark brown, fine SAND, some fine gravel (dry).	11					0.0	
			12					0.0	
			13					0.0	
		R4a (0-6") Dark brown, fine SAND (wet).	14 ▽	R4	MACROCORE	24/48		0.0	Sample SB20_13-15 collected.
		R4b (6-16") Brown, fine GRAVEL, some coarse sand (wet).	15					0.0	
			16					0.0	End of boring at 16 feet bgs. Borehold filled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
		R4c (16-24") Light Tan, coarse SAND, trace fine gravel (wet).	17						
			18						
			19						
			20						

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Log of Boring **SB21** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 9/30/19 — Date Finished: 9/30/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 6.5 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-6") Dark Brown, fine SAND, some medium sand, some fine gravel (dry) [FILL].	0					0.0	
		R1b (6-23") Brown, fine SAND, some medium sand, some fine gravel; with coal (dry) [FILL].	1					0.0	
								1.4	Sample SB21_0-2 collected.
			2	R1	MACROCORE	36/48		2.4	
		R1c (23-36") Light Brown, fine SAND (moist).						0.2	
			3					0.0	
								0.0	
			4						
		R2a (0-27") Light Brown, fine SAND (moist to wet).	5					0.0	
								0.0	
			6	R2	MACROCORE	36/48		0.0	Sample SB21_5-7 collected.
								0.0	
		R2b (27-36") Gray, organic CLAY (wet).	7					0.0	
								0.0	
		R3a (0-24") Dark Gray, clayey SAND (wet).	8					0.0	
			9					0.0	
								0.0	
		R3b (24-36") Brownish-Gray, medium SAND (wet).	10	R3	MACROCORE	36/48		0.0	
								0.0	
			11					0.0	
								0.0	
		R4a (0-12") Gray, fine SAND (wet).	12					0.0	
								0.0	
		R4b (12-48") Brown, medium SAND (wet).	13					0.0	
								0.0	
			14	R4	MACROCORE	48/48		0.0	End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
			15					0.0	
								0.0	
			16					0.0	
			17						
			18						
			19						
			20						

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Log of Boring **SB22** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 9/30/19 — Date Finished: 9/30/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-30") Brown, fine SAND, some medium sand, trace fine gravel; with coal, slag, brick (dry) [FILL].	0					0.0	
			1	R1	MACROCORE	36/48		0.0	Sample SB22_0-2 collected.
		R1b (30-36") Brown, fine SAND (dry).	2					0.1	
			3					0.0	
			4					0.0	
		R2a (0-25") Brown, fine SAND, trace fine gravel (moist to wet).	5					0.0	
			6	R2	MACROCORE	28/48		0.0	Sample SB22_5-7 collected.
			7 ▽					0.0	
		R2b (25-28") Dark Brown, organic CLAY (wet).	8					0.0	
			9					0.0	
		R3a (0-8") Grayish-Brown, fine SAND (wet).	10	R3	MACROCORE	22/48		0.0	
		R3b (8-18") Gray, clayey SAND, some fine gravel (wet).	11					0.0	Organic material observed.
		R3c (18-22") Light Gray, medium SAND (wet).	12					0.0	
		R4a (0-9") Gray, fine SAND, trace fine gravel (wet).	13					0.0	
		R4b (9-42") Gray to light brown, medium SAND (wet).	14	R4	MACROCORE	42/48		0.0	End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
			15					0.0	
			16					0.0	
			17						
			18						
			19						
			20						

LANGAN

Log of Boring **SB23** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 9/30/19 / Date Finished: 9/30/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): 2in / Casing Depth (ft): NA	Water Level (ft.): First ▽ 6.5 / Completion / 24 HR.
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-30") Brown, silty SAND, trace coarse sand, trace fine gravel; with brick, coal (dry) [FILL].	0					0.0	
			1					0.0	
								0.0	Sample SB23_0-2 collected.
			2	R1	MACROCORE	36/48		0.1	
								0.0	
		R1b (30-36") Brown, fine SAND (dry).	3					0.0	
			4						
			5						
		R2a (0-24") Brown, fine SAND (moist to wet).						0.0	
			6	R2	MACROCORE	30/48		0.0	Sample SB23_5.5-7.5 collected.
								0.0	
			7					0.0	
		R2b (24-30") Gray, organic CLAY (wet).	8					0.0	
			9						
		R3a (0-12") Brown, fine SAND, trace fine gravel (wet).						0.0	
			10					0.0	
		R3b (12-24") Dark Gray, clayey SAND, trace fine gravel (wet).		R3	MACROCORE	30/48		0.0	
			11					0.0	
		R3c (24-30") Brownish-Olive, medium SAND, trave fine gravel (wet).						0.0	
		R4a (0-36") Olive to brown, medium SAND (wet).	12					0.0	
								0.0	
			13					0.0	
								0.0	
			14	R4	MACROCORE	48/48		0.0	End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
								0.0	
		R4b (36-42") Tan, fine SAND (wet).	15					0.0	
		R4c (42-48") Brown, coarse SAND (wet).						0.0	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **SB24** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/1/19 — Date Finished: 10/1/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 10.5 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-12") Light gray, silty SAND, some fine gravel; with slag (dry) [FILL].	0					0.1	
			1					0.1	
		R1b (12-34") Brown, silty SAND, trace fine gravel; with brick, coal (dry) [FILL].						0.0	Sample SB24_0-2 collected.
			2	R1	MACROCORE	34/48		0.0	
			3					0.0	
			4					0.0	
			5					0.0	
		R2a (0-24") Brown, fine SAND, trace fine gravel, trace medium sand (moist).	6	R2	MACROCORE	24/48		0.0	
			7					0.0	
								0.0	
			8					0.1	
		R3a (0-6") Brown, fine SAND (moist).	9					0.0	
		R3b (6-18") Light Brown, fine SAND, some fine gravel (wet).	10					0.1	
								0.0	
			11	R3	MACROCORE	30/48		0.0	Sample SB24_10-12 collected.
		R3c (18-30") Dark Gray, fine SAND, some fine gravel (wet).	12					0.1	Petroleum-like odor and dark staining observed.
			13					0.1	
		R4a (0-24") Dark Olive to gray, medium SAND, trace fine gravel (wet).						0.1	
			14					0.1	
				R4	MACROCORE	36/48		0.2	
		R4b (24-36") Tan, medium SAND, trace fine gravel (wet).	15					0.2	
								0.3	Sample SB24_15-16 collected.
			16						End of boring at 16 feet bgs. Boring completed with a permanent 2-inch monitoring well comprised of PVC and screened from 6 to 16 feet bgs. See monitoring well construction log for additional detail.
			17						
			18						
			19						
			20						

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Log of Boring **SB25** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/1/19 / Date Finished: 10/1/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft / Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 3, Undisturbed NA, Core NA
Casing Diameter (in): 2in / Casing Depth (ft): NA	Water Level (ft.): First ▽ 7, Completion ▼, 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-9") Light Gray, silty SAND, some fine gravel (dry) [FILL].	0					0.2	
		R1b (9-30") Brown, silty SAND, trace fine gravel; with brick, coal (dry) [FILL].	1					0.1	
				R1	MACROCORE	30/48		0.1	Sample SB25_0-2 collected.
			2					0.0	
								0.0	
			3					0.0	
			4						
		R2a (0-24") Brown, silty SAND, some fine gravel; with wood, brick, coal (moist) [FILL].						0.0	
			5					0.0	
								0.0	
			6	R2	MACROCORE	42/48		0.0	Petroleum-like odor and dark staining observed.
		R2b (24-42") Dark Gray, fine SAND; with wood (wet) [FILL]. ▽						0.0	Sample SB25_6-8 collected.
			7					4.9	
								0.4	
			8						
			9						
		R3a (0-6") Black, medium SAND, some fine gravel (wet) [FILL].	10					0.2	
		R3b (6-21") Olive, fine SAND, trace fine gravel (wet).		R3	MACROCORE	24/48		0.3	
			11					0.2	
		R3c (21-24") Gray, organic CLAY (wet).						0.2	Sample SB25_11-12 collected.
			12						End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings and No. 2 sand to grade.
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **SB26** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/1/19 / Date Finished: 10/1/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 12 ft / Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 3, Undisturbed NA, Core NA
Casing Diameter (in): 2in / Casing Depth (ft): NA	Water Level (ft.): First ▽ 7, Completion ▼, 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-30") Brownish-Gray, silty SAND, some fine gravel; with brick, coal, glass, wood (dry) [FILL].	0	R1	MACROCORE	30/48		0.2	
			1					0.1	
								0.0	Sample SB26_0-2 collected.
			2					0.0	
								0.0	
			3					0.0	
			4						
		R2a (0-12") Brownish-Gray, silty SAND, some fine gravel; with brick, glass (dry) [FILL].		R2	MACROCORE	41/48		0.3	
		R2b (12-18") Black, fine SAND, trace fine gravel; with slag, coal (dry) [FILL].	5					0.3	
		R2c (18-42") Brown to tan, fine SAND, trave fine gravel; with brick, coal (moist to wet) [FILL].						0.0	
			6					0.3	
								0.2	Sample SB26_6-8 collected.
		▽	7					0.3	
		R2d (42-48") Brown, fine SAND; with brick, glass (wet) [FILL].						0.2	
			8					0.2	
		R3a (0-12") Brown, gravelly SAND, some medium sand; with brick, coal (wet) [FILL].		R3	MACROCORE	48/48		0.3	
		R3b (12-16") Orangish-tan, medium SAND, some fine gravel (wet).	9					0.3	
								0.3	
		R3c (16-48") Gray, CLAY, trace fine gravel (wet).	10					1.5	Sulfur-like odor observed.
								14.5	
			11					6.2	
								7.5	
			12						End of boring at 12 feet bgs. Borehole backfilled with clean soil cuttings and No. 2 sand to grade.
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **SB27** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/2/19 — Date Finished: 10/2/19
Drilling Equipment: Geoprobe 420 M	Completion Depth: 15 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 5, Undisturbed NA, Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.5, Completion ▼, 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 3ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (Light Brown, medium SAND, trace fine gravel; with brick (dry) [FILL]. R1b (Brown, silty SAND, trace fine gravel; with coal, brick (dry) [FILL].	0–3	R1	MACROCORE	30/36		0.5, 0.4, 0.5, 0.6, 0.6	Sample SB27_0-2 collected.
		R2a (0-20") Brown, silty SAND, trace coarse gravel, trace medium sand; with coal (moist) [FILL]. R2b (20-28") Brown, medium SAND, some fine gravel; with brick (moist) [FILL].	3–6	R2	MACROCORE	28/36		0.6, 0.6, 0.5, 0.5, 0.5	
		R3a (0-6") Dark Brown, fine SAND, trace coarse gravel; with brick (moist) [FILL]. R3b (6-25") Brown, fine SAND, some fine gravel (wet) [FILL]. R3c (25-30") Dark Gray, fine SAND, trace fine gravel; with wood, coal (wet) [FILL].	6–9	R3	MACROCORE	30/36		0.6, 0.6, 0.6, 0.6, 0.6	Sample SB27_6-8 collected.
		R4a (0-20") Brown, medium SAND, trace fine gravel (wet). R4b (20-28") Light Tan, medium SAND (wet).	9–12	R4	MACROCORE	28/36		0.6, 0.6, 0.6	
		R5a (0-30") Olive to light brown, coarse SAND, trace fine gravel (wet).	12–15	R5	MACROCORE	30/36		0.7, 0.7, 0.7, 0.6, 0.6	End of boring at 15 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
			15–20						

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Log of Boring **SB28** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/2/19 / Date Finished: 10/2/19
Drilling Equipment: Geoprobe 420 M	Completion Depth: 15 ft / Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 5 / Undisturbed NA / Core NA
Casing Diameter (in): 2in / Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.5 / Completion ▼ / 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 3ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-25") Dark Brown, silty SAND; with brick, coal (dry) [FILL].	0	R1	MACROCORE	25/36		0.4	
			1					0.6	
			2					0.4	Sample SB28_0-2 collected.
			3					0.4	
		R2a (0-24") Dark Brown, silty SAND; with coal (moist) [FILL].	4	R2	MACROCORE	24/36		0.3	
			5					0.4	
			6					0.4	
			7					0.4	
		R3a (0-24") Brown, fine SAND, some fine gravel; with coal (moist to wet([FILL]. ▽	8	R3	MACROCORE	24/36		0.4	Sample SB28_5.5-7.5 collected.
			9					0.6	
			10					0.6	
			11					0.6	
			12					0.6	
		R4a (0-12") Dark Brown, coarse SAND, some fine gravel (wet).	13	R4	MACROCORE	36/36		0.6	
		R4b (12-24") Brown, fine SAND (wet).	14					0.5	
		R4c (24-36") Brown, coarse SAND, trace fine gravel (wet).	15					0.7	
			16					0.7	
		R5a (0-26") Tannish-Brown, coarse SAND, some fine gravel (wet).	17	R5	MACROCORE	36/36		0.7	
			18					0.0	
			19					0.0	
		R5b (26-36") Light Tan, coarse SAND, trace fine gravel (wet).	20					0.0	End of boring at 15 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.

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Log of Boring **SB30** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 10/3/19 — Date Finished: 10/3/19
Drilling Equipment: Geoprobe 420 M	Completion Depth: 15 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 5, Undisturbed NA, Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 10.5, Completion ▼, 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 3ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-18") Dark Brown, silty SAND, trace fine gravel; with brick, coal (dry) [FILL].	0	R1	MACROCORE	24/36		0.0	
			1					0.0	
								0.0	Sample SB30_0-2 collected.
		R1b (18-24") Brown, silty SAND, some fine sand (dry).	2					0.0	
			3						
		R2a (0-24") Brown, silty SAND, some fine sand (dry).	4	R2	MACROCORE	24/36		0.0	
								0.0	
			5					0.0	
								0.0	
			6	R3	MACROCORE	6/36			
			7						
		R3a (0-6") Dark Brown, fine SAND, some fine gravel (dry).	8					0.0	
								0.0	
			9						
		R4a (0-9") Brown, fine SAND, trace fine gravel (moist). ▽	10	R4	MACROCORE	24/36		0.0	
								0.0	
		R4b (9-24") Dark Olive, fine SAND, some fine gravel (wet).	11					0.0	Sample SB30_10-12 collected.
								0.0	
		R5a (0-24") Dark Olive, coarse SAND, some fine gravel (wet).	12					0.0	
								0.0	
			13	R5	MACROCORE	36/36		0.0	
								0.0	
		R5b (24-36") Olive, fine SAND, trace fine gravel (wet).	14					0.0	End of boring at 15 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
								0.0	
			15						
			16						
			17						
			18						
			19						
			20						

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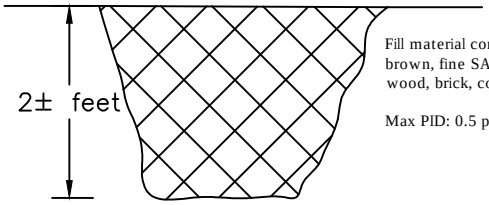
Log of Boring **SB31** Sheet 1 of 1

Project: 2413 Third Avenue	Project No.: 170396002
Location: The Bronx, New York	Elevation and Datum: TBD
Drilling Company: AARCO Environmental	Date Started: 9/27/19 — Date Finished: 9/27/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft — Rock Depth: NA
Size and Type of Bit: 2in. Direct Push	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): 2in — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.5 — Completion ▼ — 24 HR. ▼
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Sergio M.
Sampler: 4ft Macrocore	Field Engineer: Andew Nesci
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		R1a (0-15") Dark Brown, fine SAND, some fine gravel; with coal (dry) [FILL].	0	R1	MACROCORE	15/48		15.4	
			1					215.0	Sample SB31_0-2 collected.
			2						
			3						
			4						
		R2a (0-12") Gray, fine SAND, some fine gravel (dry) [FILL].	5	R2	MACROCORE	33/58		2.7	
		R2b (12-22") Brown, fine SAND (wet).	6					1.9 1.4	
		R2c (22-33") Black, clayey SAND, trace fine gravel (wet). ▽	7					4.5 3.7	Sample SB31_6.5-8.5 collected.
			8					2.5	
			9	R3	MACROCORE	26/48			
		R3a (0-12") Brown, fine SAND (wet).	10					2.2	
		R3b (12-26") Black, clayey SAND, some fine gravel (wet).	11					1.9 1.8	
			12					1.9	
			13	R4	MACROCORE	13/48			
			14						End of boring at 16 feet bgs. Borehole backfilled with clean soil cuttings, No. 2 sand, and cold asphalt patch to grade.
		R4a (0-13") Black, clayey SAND (wet).	15					1.5	
			16					1.2	
			17						
			18						
			19						
			20						

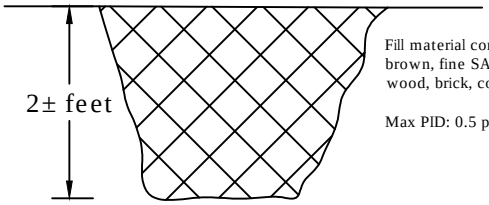
TP-01



Fill material consisted of:
brown, fine SAND, some fine gravel,
wood, brick, coal

Max PID: 0.5 ppm

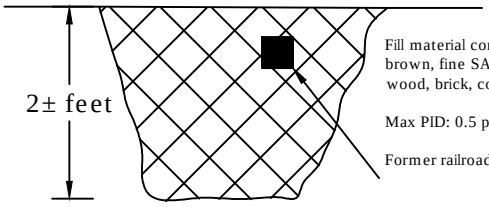
TP-02



Fill material consisted of:
brown, fine SAND, some fine gravel,
wood, brick, coal

Max PID: 0.5 ppm

TP-03



Fill material consisted of:
brown, fine SAND, some coarse gravel,
wood, brick, coal

Max PID: 0.5 ppm

Former railroad spur

APPENDIX E
Monitoring Well Construction Logs

LANGAN

WELL CONSTRUCTION SUMMARY

Well No. TMW06

PROJECT 2413 Third Avenue	**PROJECT NO.** 170396002
LOCATION Bronx, NY	**ELEVATION AND DATUM** N/A
DRILLING AGENCY AARCO Environmental Services Corp.	**DATE STARTED** 6/6/2019 **DATE FINISHED** 6/6/2019
DRILLING EQUIPMENT Geoprobe 7730DT	**DRILLER** Julio Galarza
SIZE AND TYPE OF BIT 2-inch Direct Push	**LANGAN REP.** Patrick Stovall

METHOD OF INSTALLATION

1. Boring was drilled to 12' with Geoprobe 7730DT.
2. AARCO installed 10' of 1" 20-slot PVC screen and 2' of PVC riser.
3. AARCO backfilled the borehole annulus with clean sand to the grade surface.

METHOD OF WELL DEVELOPMENT

Pumped until dry and allowed to recharge.

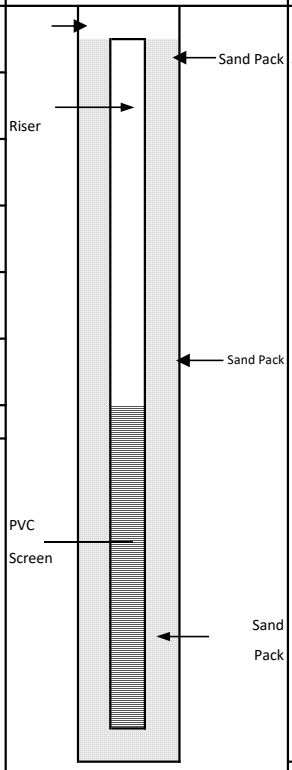
TYPE OF CASING	**DIAMETER** N/A	**TYPE OF BACKFILL MATERIAL** Filpro Sand	
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** N/A	
BOREHOLE DIAMETER 2"		**TYPE OF FILTER MATERIAL** Filpro Sand	

TOP OF CASING **ELEVATION**	**DEPTH (ft)** N/A	
TOP OF SEAL **ELEVATION**	**DEPTH (ft)** N/A	
TOP OF FILTER **ELEVATION**	**DEPTH (ft)** 0'	
TOP OF SCREEN **ELEVATION**	**DEPTH (ft)** 2'	
BOTTOM OF BORING **ELEVATION**	**DEPTH (ft)** 12'	
SCREEN LENGTH	10'	
SLOT SIZE	20-slot	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
	6/10/2019	8.5'

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See boring log	0.0
	2.0
	12.0

LANGAN

WELL CONSTRUCTION SUMMARY

Well No. TMW08

PROJECT 2413 Third Avenue	**PROJECT NO.** 170396002
LOCATION Bronx, NY	**ELEVATION AND DATUM** N/A
DRILLING AGENCY AARCO Environmental Services Corp.	**DATE STARTED** 6/6/2019 **DATE FINISHED** 6/6/2019
DRILLING EQUIPMENT Geoprobe 7730DT	**DRILLER** Julio Galarza
SIZE AND TYPE OF BIT 2-inch Direct Push	**LANGAN REP.** Patrick Stovall

METHOD OF INSTALLATION

1. Boring was drilled to 12' with Geoprobe 7730DT.
2. AARCO installed 10' of 1" 20-slot PVC screen and 2' of PVC riser.
3. AARCO backfilled the borehole annulus with clean sand to the grade surface.

METHOD OF WELL DEVELOPMENT

Pumped until dry and allowed to recharge.

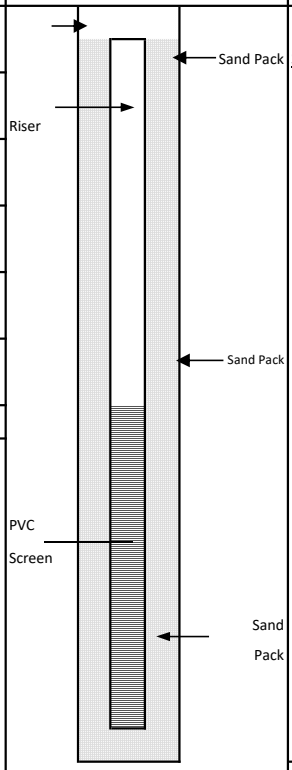
TYPE OF CASING 	**DIAMETER** N/A	**TYPE OF BACKFILL MATERIAL** Filpro Sand
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** N/A
BOREHOLE DIAMETER 	2"	**TYPE OF FILTER MATERIAL** Filpro Sand

TOP OF CASING **ELEVATION**		**DEPTH (ft)** N/A
TOP OF SEAL **ELEVATION**		**DEPTH (ft)** N/A
TOP OF FILTER **ELEVATION**		**DEPTH (ft)** 0'
TOP OF SCREEN **ELEVATION**		**DEPTH (ft)** 2'
BOTTOM OF BORING **ELEVATION**		**DEPTH (ft)** 12'
SCREEN LENGTH		10'
SLOT SIZE		20-slot

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
	6/10/2019	7.4'

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See boring log	0.0
	2.0
	12.0

LANGAN

WELL CONSTRUCTION SUMMARY

Well No. TMW11

PROJECT 2413 Third Avenue	**PROJECT NO.** 170396002
LOCATION Bronx, NY	**ELEVATION AND DATUM** N/A
DRILLING AGENCY AARCO Environmental Services Corp.	**DATE STARTED** 6/6/2019 **DATE FINISHED** 6/6/2019
DRILLING EQUIPMENT Geoprobe 7730DT	**DRILLER** Julio Galarza
SIZE AND TYPE OF BIT 2-inch Direct Push	**LANGAN REP.** Patrick Stovall

METHOD OF INSTALLATION

1. Boring was drilled to 12' with Geoprobe 7730DT.
2. AARCO installed 10' of 1" 20-slot PVC screen and 2' of PVC riser.
3. AARCO backfilled the borehole annulus with clean sand to the grade surface.

METHOD OF WELL DEVELOPMENT

Pumped until dry and allowed to recharge.

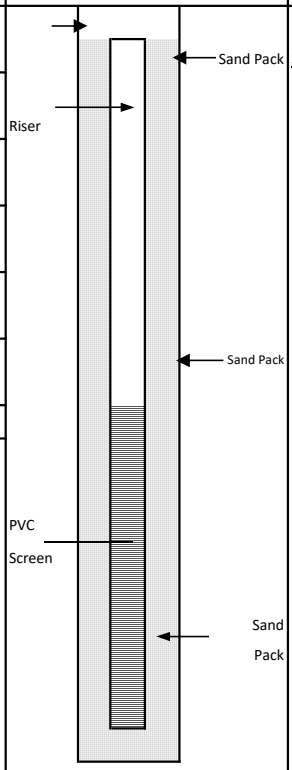
TYPE OF CASING 	**DIAMETER** N/A	**TYPE OF BACKFILL MATERIAL** Filpro Sand
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** N/A
BOREHOLE DIAMETER 	2"	**TYPE OF FILTER MATERIAL** Filpro Sand

TOP OF CASING **ELEVATION**		**DEPTH (ft)** N/A
TOP OF SEAL **ELEVATION**		**DEPTH (ft)** N/A
TOP OF FILTER **ELEVATION**		**DEPTH (ft)** 0'
TOP OF SCREEN **ELEVATION**		**DEPTH (ft)** 2'
BOTTOM OF BORING **ELEVATION**		**DEPTH (ft)** 12'
SCREEN LENGTH		10'
SLOT SIZE		20-slot

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
	6/10/2019	8.08'

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See boring log	0.0
	2.0
	12.0

LANGAN

WELL CONSTRUCTION SUMMARY

Well No. TMW12

PROJECT 2413 Third Avenue	**PROJECT NO.** 170396002
LOCATION Bronx, NY	**ELEVATION AND DATUM** N/A
DRILLING AGENCY AARCO Environmental Services Corp.	**DATE STARTED** 6/6/2019 **DATE FINISHED** 6/6/2019
DRILLING EQUIPMENT Geoprobe 7730DT	**DRILLER** Julio Galarza
SIZE AND TYPE OF BIT 2-inch Direct Push	**LANGAN REP.** Patrick Stovall

METHOD OF INSTALLATION

1. Boring was drilled to 12' with Geoprobe 7730DT.
2. AARCO installed 10' of 1" 20-slot PVC screen and 2' of PVC riser.
3. AARCO backfilled the borehole annulus with clean sand to the grade surface.

METHOD OF WELL DEVELOPMENT

Pumped until dry and allowed to recharge.

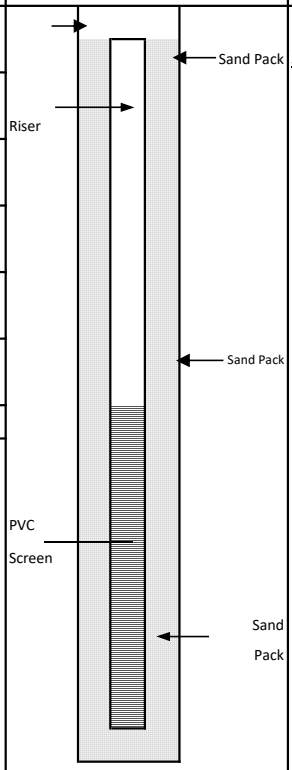
TYPE OF CASING 	**DIAMETER** N/A	**TYPE OF BACKFILL MATERIAL** Filpro Sand
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** N/A
BOREHOLE DIAMETER 	2"	**TYPE OF FILTER MATERIAL** Filpro Sand

TOP OF CASING **ELEVATION**		**DEPTH (ft)** N/A
TOP OF SEAL **ELEVATION**		**DEPTH (ft)** N/A
TOP OF FILTER **ELEVATION**		**DEPTH (ft)** 0'
TOP OF SCREEN **ELEVATION**		**DEPTH (ft)** 2'
BOTTOM OF BORING **ELEVATION**		**DEPTH (ft)** 12'
SCREEN LENGTH		10'
SLOT SIZE		20-slot

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
	6/10/2019	7.0'

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See boring log	0.0
	2.0
	12.0

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. **MW18**

PROJECT			PROJECT NO.	
2413 Third Avenue			170396002	
LOCATION			**ELEVATION AND DATUM**	
The Bronx, New York			el. NA NAVD88	
DRILLING AGENCY			**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.			10/1/2019	10/1/2019
DRILLING EQUIPMENT			**DRILLER**	
Geoprobe® 7730 DT			Sergio M.	
SIZE AND TYPE OF BIT			**INSPECTOR**	
3.75-inch Steel Casings			Eric Monfort	
BOREHOLE DIAMETER			**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75-inch			Overburden	
RISER MATERIAL	**DIAMETER**		**TYPE OF BACKFILL MATERIAL**	
PVC	2-inch		Clean Cuttings	
TYPE OF SCREEN	**DIAMETER**		**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	2-inch		No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Geoprobe 7730 DT was used to advance the boring to approximately 16 feet bgs. A permanent 2-inch (2") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 2" PVC riser. Well screen was installed from approximately 6 to 16 feet bgs with riser from 6 feet bgs to grade surface.

WELL DEVELOPMENT DATA

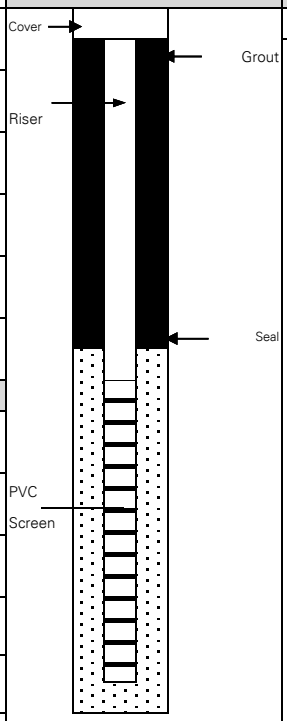
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	1 GPM	Well developed and surged with submersible whale pump until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	15 Gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)** 4.0
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)** 6.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)** 16.0
SCREEN LENGTH		10 ft
SLOT SIZE		No. 10 Slot; 0.010 Inches

GROUNDWATER ELEVATIONS

ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0.0
See Soil Boring Log	4.0
	6.0
	16.0

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. **MW19**

PROJECT		PROJECT NO.	
2413 Third Avenue		170396002	
LOCATION		**ELEVATION AND DATUM**	
The Bronx, New York		el. NA NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		10/2/2019	10/2/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 420 M		Sergio M.	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Eric Monfort	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
2-inch		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	1-inch	Clean Cuttings	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	1-inch	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Geoprobe 420M was used to advance the boring to approximately 15 feet bgs. A permanent 1-inch (1") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 1" PVC riser. Well screen was installed from approximately 5 to 15 feet bgs with riser from 5 feet bgs to grade surface.

WELL DEVELOPMENT DATA

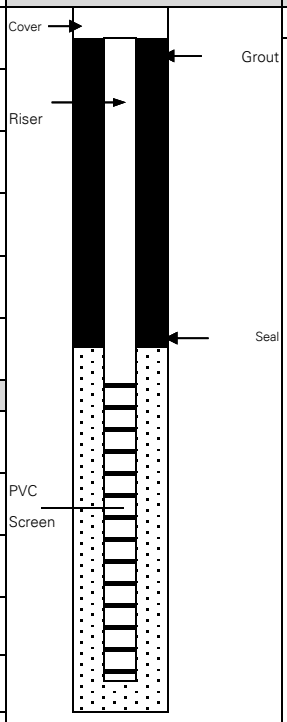
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Check Valve	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	1 GPM	Well developed with check valve until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	7 Gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)** 3.0
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)** 5.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)** 15.0
SCREEN LENGTH		10 ft
SLOT SIZE		No. 10 Slot; 0.010 Inches

GROUNDWATER ELEVATIONS

ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**
ELEVATION	**DATE**	**DEPTH TO WATER**

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0.0
See Soil Boring Log	3.0
	5.0
	15.0

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. **MW24**

PROJECT			PROJECT NO.	
2413 Third Avenue			170396002	
LOCATION			**ELEVATION AND DATUM**	
The Bronx, New York			el. NA NAVD88	
DRILLING AGENCY			**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.			10/1/2019	10/1/2019
DRILLING EQUIPMENT			**DRILLER**	
Geoprobe® 7730 DT			Sergio M.	
SIZE AND TYPE OF BIT			**INSPECTOR**	
3.75-inch Steel Casings			Eric Monfort	
BOREHOLE DIAMETER			**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.75-inch			Overburden	
RISER MATERIAL	**DIAMETER**		**TYPE OF BACKFILL MATERIAL**	
PVC	2-inch		Clean Cuttings	
TYPE OF SCREEN	**DIAMETER**		**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 10 Slot	2-inch		No. 2 Sand	Bentonite

METHOD OF INSTALLATION

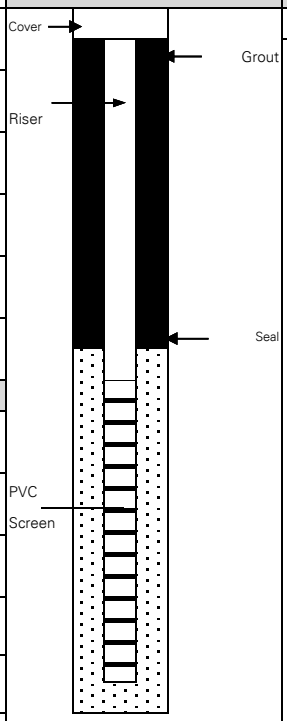
Geoprobe 7730 DT was used to advance the boring to approximately 16 feet bgs. A permanent 2-inch (2") PVC monitoring well was installed which consisted of 10' of 10 slot (0.010-inch) well screen, and a solid 2" PVC riser. Well screen was installed from approximately 6 to 16 feet bgs with riser from 6 feet bgs to grade surface.

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	1 GPM	Well developed and surged with submersible whale pump until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	10 Gal	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)** 0.0
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)** 4.0
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)** 6.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)** 16.0
SCREEN LENGTH		10 ft
SLOT SIZE		No. 10 Slot; 0.010 Inches

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
	0.0
See Soil Boring Log	4.0
	6.0
	16.0

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER

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APPENDIX F
Groundwater Sampling Logs

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**2413 Third Ave**	**Well No:**	TMW06	**Water Quality Device Model:**	**Horiba**	**Weather:**	Rain	**Sample(s):**	TMW06_061019
Project Number:	**170396002**	**Well Depth:**	12	**Pine Number:**	**14597**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	1-inch	**Pump Make and Model:**	**Peri Pump**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**Patrick Stovall**	**Well Screen**	2 feet bgs	**Pine Number:**	**29851**	**Pump Intake Depth:**	10 feet bgs	**Sample Date:**	6/10/2019
Personnel:		**Interval:**	12 feet bgs	**Tubing Diameter:**	**3/8-inch**	**Depth to Water Before Purge:**	8.5 feet	**Sample Time:**	12:10

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:35	13.42	6.86	-7	3.96	800.0	8.75	8.50		0.25	Grey, no odor	**N/A**
11:40	14.32	6.89	10	4.01	800.00	8.79			0.4		**N/A**
											N
		TMW06_061019 was collected for VOCs and SVOCs due to poor recharge. Well dry after sampling									**N**
											N
											N
											N
											N
											N
											N
											N
											N
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											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

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GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**2413 Third Ave**	**Well No:**	TMW06	**Water Quality Device Model:**	**Horiba**	**Weather:**	Rain	**Sample(s):**	TMW08_061019
Project Number:	**170396002**	**Well Depth:**	12	**Pine Number:**	**14597**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	1-inch	**Pump Make and Model:**	**Peri Pump**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**Patrick Stovall**	**Well Screen**	2 feet bgs	**Pine Number:**	**29851**	**Pump Intake Depth:**	10 feet bgs	**Sample Date:**	6/10/2019
Personnel:		**Interval:**	12 feet bgs	**Tubing Diameter:**	**3/8-inch**	**Depth to Water Before Purge:**	7.40 feet bgs	**Sample Time:**	10:50

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
9:50	14.54	7.07	18	0.25	800.0	1.99	7.40		0.25	Light brown	**N/A**
9:55	14.41	7.00	56	0.26	800.00	6.10	7.40	0.05	0.5	no odor	**N/A**
10:00	14.44	7.04	27	0.25	800.00	6.00	7.40	0.05	0.75		**N**
10:05	14.42	7.05	46	0.25	800.00	5.95	7.40	0.03	0.9		**N**
10:10	14.46	7.02	117	0.25	466.00	7.48	7.40	0.04	1.1		**N**
10:15	14.49	6.99	139	0.50	343.00	7.55	7.40	0.03	1.25		**N**
10:20	14.64	6.90	142	0.50	179.00	7.97	7.40	0.03	1.4		**N**
10:25	14.44	6.78	74	0.51	86.8	8.23	7.40	0.04	1.6		**N**
10:30	14.53	6.77	75	0.51	72.6	8.30	7.40	0.03	1.75		**N**
10:35	14.40	6.73	84	0.51	70.5	8.20	7.40	0.03	1.9		**N**
10:40	14.47	6.77	127	0.51	69.2	8.07	7.40	0.04	2.1		**N**
10:45	14.54	6.78	131	0.51	81.6	8.15	7.40	0.04	2.3		**N**
								0.46			**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**2413 Third Ave**	**Well No:**	TMW11	**Water Quality Device Model:**	**Horiba**	**Weather:**	Rain	**Sample(s):**	TMW11_061219
Project Number:	**170396002**	**Well Depth:**	12	**Pine Number:**	**14597**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	1-inch	**Pump Make and Model:**	**Peri Pump**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**Patrick Stovall**	**Well Screen**	2 feet bgs	**Pine Number:**	**29851**	**Pump Intake Depth:**	10 feet bgs	**Sample Date:**	6/12/2019
Personnel:		**Interval:**	12 feet bgs	**Tubing Diameter:**	**3/8-inch**	**Depth to Water Before Purge:**	8.08 feet bgs	**Sample Time:**	15:50

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
14:55	14.54	7.07	18	0.25	800.0	1.99	7.40		0.25	Light brown	**N/A**
15:00	14.41	7.00	56	0.26	800.00	6.10	7.40	0.05	0.5	no odor	**N/A**
15:05	14.44	7.04	27	0.25	800.00	6.00	7.40	0.05	0.75		**N**
15:10	14.42	7.05	46	0.25	800.00	5.95	7.40	0.03	0.9		**N**
15:15	14.46	7.02	117	0.25	466.00	7.48	7.40	0.04	1.1		**N**
15:20	14.49	6.99	139	0.50	343.00	7.55	7.40	0.03	1.25		**N**
15:25	14.64	6.90	142	0.50	179.00	7.97	7.40	0.03	1.4		**N**
15:30	14.44	6.78	74	0.51	86.8	8.23	7.40	0.04	1.6		**N**
15:35	14.53	6.77	75	0.51	72.6	8.30	7.40	0.03	1.75		**N**
15:40	14.40	6.73	84	0.51	70.5	8.20	7.40	0.03	1.9		**N**
15:45	14.47	6.77	127	0.51	69.2	8.07	7.40	0.04	2.1		**N**
15:50	14.54	6.78	131	0.51	81.6	8.15	7.40	0.04	2.3		**N**
								0.46			**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	2413 Third Ave	Well No:	TMW12	Water Quality Device Model:	Horiba	Weather:	Rain	Sample(s):	TMW12_061019
Project Number:	170396002	Well Depth:	12	Pine Number:	14597	Background PID (ppm):	0.0		
Site Location:	Bronx, NY	Well Diameter:	1-inch	Pump Make and Model:	Peri Pump	PID Beneath Inner Cap (ppm):	0.0		
Sampling Personnel:	Patrick Stovall	Well Screen Interval:	2 feet bgs 12 feet bgs	Pine Number:	29851	Pump Intake Depth:	10 feet bgs	Sample Date:	6/10/2019
				Tubing Diameter:	3/8-inch	Depth to Water Before Purge:	7 feet	Sample Time:	13:20

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
											N/A
			TMW12_061019 was sampled without stabilizing parameters due to low recharge.								N/A
											N
											N
											N
											N
											N
											N
											N
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											N
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											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	2413 Third Avenue	**Well No:**	MW18	**Water Quality Device Model:**	Horiba U-52	**Weather:**	Rain	**Sample(s):**	See COC
Project Number:	170396002	**Well Depth:**	16 ft	**Pine Number:**	51666	**Background PID (ppm):**	0.0		
Site Location:	The Bronx	**Well Diameter:**	2-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	Eric Monfort	**Well Screen Interval:**	6 ft 16 ft	**Pine Number:** **Tubing Diameter:**	51860 1/4" ID x 3/8" OD	**Pump Intake Depth:** **Depth to Water Before Purge:**	13 ft 7.78 ft	**Sample Date:** **Sample Time:**	10/9/2019 11:30

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:30	17.00	6.80	159	2.28	313.00	0.00	7.78	0.1	0.5	Cloudy	**N/A**
10:35	17.00	6.79	160	2.28	257.00	0.00	7.79	0.1	1	Cloudy	**N/A**
10:40	17.05	6.77	156	2.28	214.00	0.00	7.79	0.1	1.5	Cloudy	**N**
10:45	17.06	6.76	156	2.28	168.00	0.00	7.80	0.1	2	Clearing	**N**
10:50	17.02	6.80	107	2.26	145.00	0.00	7.82	0.1	2.25	Clearing	**N**
10:55	17.00	6.82	195	2.26	135.00	0.00	7.82	0.1	2.8	Clearing	**N**
11:00	17.00	6.83	112	2.25	56.80	0.00	7.82	0.1	3.2	Clear	**N**
11:05	17.00	6.83	85	2.25	42.1	0.00	7.82	0.1	3.6	Clear	**N**
11:10	17.00	6.83	72	2.25	21.6	0.00	7.82	0.1	4.2	Clear	**N**
11:15	17.00	6.83	65	2.23	22.3	0.00	7.82	0.1	5	Clear	**N**
11:20	16.97	6.84	63	2.20	21.2	0.00	7.85	0.1	5.5	Clear	**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	2413 Third Avenue	**Well No:**	MW19	**Water Quality Device Model:**	Horiba U-52	**Weather:**	Indoors	**Sample(s):**	See COC
Project Number:	170396002	**Well Depth:**	15 ft	**Pine Number:**	51666	**Background PID (ppm):**	0.0		
Site Location:	The Bronx	**Well Diameter:**	1-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	Eric Monfort	**Well Screen Interval:**	5 ft	**Pine Number:**	51860	**Pump Intake Depth:**	10 ft	**Sample Date:**	10/9/2019
			15 ft	**Tubing Diameter:**	1/4" ID x 3/8" OD	**Depth to Water Before Purge:**	6.62 ft	**Sample Time:**	16:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
15:30	18.09	7.08	121	3.09	897.0	2.35	6.63	0.1	0.5	Brown/Cloudy	**N/A**
15:35	18.10	7.04	120	3.08	665.00	2.32	6.65	0.1	1	Brown/Cloudy	**N/A**
15:40	18.54	7.03	112	3.12	342.00	2.35	6.65	0.1	1.5	Clearing	**N**
15:45	18.60	7.01	93	3.42	98.00	2.01	6.68	0.1	2	Clearing	**N**
15:50	18.59	7.01	95	3.38	47.90	1.58	6.69	0.1	2.5	Clearing	**N**
15:55	18.60	7.00	96	3.41	48.90	1.52	6.70	0.1	3	Clear	**N**
16:00	18.60	7.01	94	3.42	48.80	1.53	6.70	0.1	3.5	Clear	**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
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											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

GROUND WATER SAMPLE FIELD INFORMATION FORM

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	2413 Third Avenue	**Well No:**	MW24	**Water Quality Device Model:**	Horiba U-52	**Weather:**	Rain	**Sample(s):**	See COC
Project Number:	170396002	**Well Depth:**	16 ft	**Pine Number:**	51666	**Background PID (ppm):**	0.0		
Site Location:	The Bronx	**Well Diameter:**	2-inch	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling Personnel:	Eric Monfort	**Well Screen Interval:**	6 ft 16 ft	**Pine Number:** **Tubing Diameter:**	51860 1/4" ID x 3/8" OD	**Pump Intake Depth:** **Depth to Water Before Purge:**	13 ft 8.15 ft	**Sample Date:** **Sample Time:**	10/9/2019 14:15

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
13:00	17.58	7.40	-83	0.62	176.0	0.00	8.16	0.1	0.5	Clearing	**N/A**
13:05	17.57	7.40	-83	0.62	154.00	0.00	8.16	0.1	1	Clear	**N/A**
13:10	17.57	7.40	-83	0.62	123.00	0.00	8.16	0.1	1.5	Clear	**N**
13:15	17.56	7.40	-83	0.62	98.40	0.00	8.16	0.1	1.75	Clear	**N**
13:20	17.53	7.39	-83	0.62	86.10	0.00	8.16	0.1	2	Clear	**N**
13:25	17.53	7.30	-80	0.60	33.90	0.00	8.20	0.1	2.5	Clear	**N**
13:30	17.53	7.25	-80	0.65	12.20	0.00	8.21	0.1	3	Clear	**N**
13:35	17.53	7.16	-80	0.65	8.0	0.00	8.21	0.1	3.5	Clear	**N**
13:40	17.49	7.14	-80	0.65	7.4	0.00	8.21	0.1	4	Clear	**N**
13:45	17.47	7.10	-77	0.65	7.2	0.00	8.21	0.1	4.5	Clear	**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

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APPENDIX G
Soil Vapor Point and Indoor Air Construction and Sampling Logs

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV06

PROJECT: 2413 Third Ave	**PROJECT NO.:** 170396002
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Solutions Corp.	**INSTALLATION DATE STARTED:** 6/6/2019 **DATE FINISHED:** 6/6/2019
INSTALLATION FOREMAN: Julio Galarza	**SAMPLE DATE STARTED:** 6/7/2019 **DATE FINISHED:** 6/7/2019
INSTALLATION EQUIPMENT: Geoprobe 7730 DT	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Patrick Stovall	**SAMPLER:** Patrick Stovall
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 68 - 72 F Wind: N 0-3 mph Precipitation: N/A Pressure: 29.92 in Hg

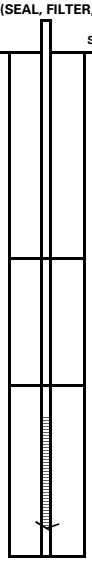
METHOD OF INSTALLATION AND PURGING:

Advance Geoprobe 7730 DT to 5 feet below grade surface (bgs) install 2-inch soil vapor probe backfill with FilPro #2 Sand and seal with bentonite to surface grade.

TUBING TYPE/DIAMETER: 1/4-inch polyethylene tubing	**TYPE OF MATERIAL ABOVE SEAL:** Bentonite
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: none	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-inches	**FILTER PACK MATERIAL (Sand or Glass Beads):** Filpro #2 sand

PURGE VOLUME (L):	0.02	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0	
HELIUM TEST IN BUCKET(%):	20.8%	17.8%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START DATE/TIME:	6/7/2019 8:21	
SAMPLE STOP DATE/TIME:	6/7/2019 10:23	
TOTAL SAMPLE TIME (MIN):	122	
FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.0	
SAMPLE MOISTURE CONTENT:	None	
CAN SERIAL NUMBER:	418	
REGULATOR SERIAL NUMBER:	1034	
CAN START VACUUM PRESS. (" HG):	-30.08	
CAN STOP VACUUM PRESS. (" HG):	-5.81	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE		
Top of Seal	0	
Top of Pack		
	5	



SAMPLE LOCATION SKETCH

See sample location plan.

NOTES

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SSV10

PROJECT: 2413 Third Ave	**PROJECT NO.:** 170396002
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Solutions Corp.	**INSTALLATION DATE STARTED:** 6/6/2019 **DATE FINISHED:** 6/6/2019
INSTALLATION FOREMAN: Sergio Magana	**SAMPLE DATE STARTED:** 6/7/2019 **DATE FINISHED:** 6/7/2019
INSTALLATION EQUIPMENT: Geoprobe 420M	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Patrick Stovall	**SAMPLER:** Patrick Stovall
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 68 - 72 F Wind: N 0-3 mph Precipitation: N/A Pressure: 29.92 in Hg

METHOD OF INSTALLATION AND PURGING:

Advance Geoprobe 420M to 2-inches below grade surface (bgs) install 2-inch soil vapor probe backfill with FilPro #2 Sand and seal with bentonite to surface grade.

TUBING TYPE/DIAMETER: 1/4-inch polyethylene tubing	**TYPE OF MATERIAL ABOVE SEAL:** Bentonite
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: none	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Filpro #2 sand

PURGE VOLUME (L):	0.02	**IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)**		**DEPTH (FEET FROM SURFACE)**	**NOTES**
PURGE FLOW RATE (ML/MIN):	200				
PID AFTER PURGE (PPM):	0.0	SURFACE	SURFACE		
HELIUM TEST IN BUCKET(%):	18.7% 18.0%				
HELIUM TEST IN TUBE (PPM):	0.0% 0.0%				
SAMPLE START DATE/TIME:	6/7/2019 11:30				
SAMPLE STOP DATE/TIME:	6/7/2019 13:25				
TOTAL SAMPLE TIME (MIN):	115				
FLOW RATE (L/MIN):	0.0235		**Top of Seal**	0	
VOLUME OF SAMPLE (LITERS):	2.7				
PID AFTER SAMPLE (PPM):	0.0				
SAMPLE MOISTURE CONTENT:	None				
CAN SERIAL NUMBER:	125		**Top of Pack**		
REGULATOR SERIAL NUMBER:	1167				
CAN START VACUUM PRESS. (" HG):	-29.55				
CAN STOP VACUUM PRESS. (" HG):	-6.75			0.17	

SAMPLE LOCATION SKETCH

See sample location plan.

NOTES

SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SSV11

PROJECT: 2413 Third Ave	**PROJECT NO.:** 170396002
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Solutions Corp.	**INSTALLATION DATE STARTED:** 6/6/2019 **DATE FINISHED:** 6/6/2019
INSTALLATION FOREMAN: Sergio Magana	**SAMPLE DATE STARTED:** 6/7/2019 **DATE FINISHED:** 6/7/2019
INSTALLATION EQUIPMENT: Geoprobe 420M	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Patrick Stovall	**SAMPLER:** Patrick Stovall
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 68 - 72 F; Wind: N 0-3 mph; Precipitation: N/A; Pressure: 29.92 in Hg

METHOD OF INSTALLATION AND PURGING:

Advance Geoprobe 420M to 2-inches below grade surface (bgs) install 2-inch soil vapor probe backfill with FilPro #2 Sand and seal with bentonite to surface grade.

TUBING TYPE/DIAMETER: 1/4-inch polyethylene tubing	**TYPE OF MATERIAL ABOVE SEAL:** Bentonite
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: none	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Filpro #2 sand

PURGE VOLUME (L):	0.02
PURGE FLOW RATE (ML/MIN):	200
PID AFTER PURGE (PPM):	0
HELIUM TEST IN BUCKET(%):	19.6% 18.2%
HELIUM TEST IN TUBE (PPM):	0.0% 0.0%
SAMPLE START DATE/TIME:	6/7/2019 11:37
SAMPLE STOP DATE/TIME:	6/7/2019 13:39
TOTAL SAMPLE TIME (MIN):	122
FLOW RATE (L/MIN):	0.0221
VOLUME OF SAMPLE (LITERS):	2.7
PID AFTER SAMPLE (PPM):	0
SAMPLE MOISTURE CONTENT:	None
CAN SERIAL NUMBER:	2301
REGULATOR SERIAL NUMBER:	1036
CAN START VACUUM PRESS. (" HG):	-29.98
CAN STOP VACUUM PRESS. (" HG):	-6.71

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE		
Top of Seal	0	
Top of Pack		
	0.17	

SAMPLE LOCATION SKETCH

See sample location plan.

NOTES

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV12

PROJECT: 2413 Third Ave	**PROJECT NO.:** 170396002
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Solutions Corp.	**INSTALLATION DATE STARTED:** 6/6/2019 **DATE FINISHED:** 6/6/2019
INSTALLATION FOREMAN: Julio Galarza	**SAMPLE DATE STARTED:** 6/7/2019 **DATE FINISHED:** 6/7/2019
INSTALLATION EQUIPMENT: Geoprobe 7730 DT	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Patrick Stovall	**SAMPLER:** Patrick Stovall
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 68 - 72 F Wind: N 0-3 mph Precipitation: N/A Pressure: 29.92 in Hg

METHOD OF INSTALLATION AND PURGING:

Advance Geoprobe 7730 DT to 5 feet below grade surface (bgs) install 2-inch soil vapor probe backfill with FilPro #2 Sand and seal with bentonite to surface grade.

TUBING TYPE/DIAMETER: 1/4-inch polyethylene tubing	**TYPE OF MATERIAL ABOVE SEAL:** Bentonite
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: none	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Filpro #2 sand

PURGE VOLUME (L):	0.02	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0	
HELIUM TEST IN BUCKET(%):	18.7%	17.9%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START DATE/TIME:	6/7/2019 8:10	
SAMPLE STOP DATE/TIME:	6/7/2019 9:58	
TOTAL SAMPLE TIME (MIN):	168	
FLOW RATE (L/MIN):	0.0161	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0	
SAMPLE MOISTURE CONTENT:	None	
CAN SERIAL NUMBER:	175	
REGULATOR SERIAL NUMBER:	401	
CAN START VACUUM PRESS. (" HG):	-29.67	
CAN STOP VACUUM PRESS. (" HG):	-6.61	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE		
Top of Seal	0	
Top of Pack		
	5	

SAMPLE LOCATION SKETCH

See sample location plan.

NOTES

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AMBIENT AIR SAMPLING LOG SHEET

Sample Number: AA01

PROJECT: 2413 Third Avenue	**PROJECT NO.:** 170396002	
LOCATION: The Bronx, New York	**SURFACE ELEVATION AND DATUM:** NA	
SAMPLER: Eric Monfort	**SAMPLE DATE STARTED:** 10/3/2019	**DATE FINISHED:** 10/3/2019
INSPECTOR: Eric Monfort	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister	
POTENTIAL SAMPLE INTERFERENCES: NA	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 60 to 70 Degrees F Wind: ENE @ 10 mph Precipitation: Light Rain Pressure: 29.98 in Hg	

METHOD OF INSTALLATION AND SAMPLING:

Langan field screened the sample location with a MultiRAE photoionization detector (PID) prior to sampling. Sample consisted of 6-liter Summa canister fitted with a 2-hour flow control valve. The flow controller was zeroed and valve opened to initiate the 2-hour sample collection. The sample and flow controller were checked approximately each half-hour during sampling to ensure proper operation.

SAMPLE DETAILS	
HEIGHT ABOVE GROUND (FT):	4 to 5
PID BEFORE SAMPLE (PPM):	0.0
SAMPLE START TIME:	10:41
SAMPLE STOP TIME:	12:41
TOTAL SAMPLE TIME (MIN):	120
REGULATOR FLOW RATE (L/MIN):	0.05
VOLUME OF SAMPLE (LITERS):	6
PID AFTER SAMPLE (PPM):	0.0
SAMPLE MOISTURE CONTENT:	NA
CAN SERIAL NUMBER:	24254
REGULATOR SERIAL NUMBER:	Y24
CAN START VACUUM PRESS. (" HG):	-29.08
CAN STOP VACUUM PRESS. (" HG):	-4.98

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: **SV16**

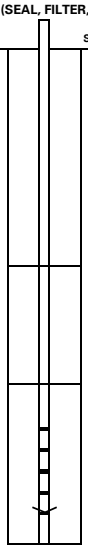
PROJECT: 2413 Third Avenue	**PROJECT NO.:** 170396002
LOCATION: The Bronx, New York	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO	**INSTALLATION DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION FOREMAN: Sergio M.	**SAMPLE DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION EQUIPMENT: Geoprobe® 7720 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister
INSPECTOR: Eric Monfort	**SAMPLER:** Eric Monfort
POTENTIAL SAMPLE INTERFERENCES: NA	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 60 to 70 Degrees F; Wind: ENE @ 10 mph; Precipitation: Light Rain; Pressure: 29.98 in Hg

METHOD OF INSTALLATION AND PURGING:
Advanced soil vapor boring to 5 ft below grade surface (bgs), installed inert, polyethylene tubing to 5 ft bgs, backfill with No. 2 sand to 4.5 feet bgs, seal to surface with hydrated bentonite.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** NA
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	48.8	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	30.0%	NA
HELIUM TEST IN TUBE (PPM):	0.0%	NA
SAMPLE START TIME:	10:38	
SAMPLE STOP TIME:	12:38	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.05	
VOLUME OF SAMPLE (LITERS):	6	
PID AFTER SAMPLE (PPM):	0.3	
SAMPLE MOISTURE CONTENT:	NA	
	23995	
REGULATOR SERIAL NUMBER:	Y17	
CAN START VACUUM PRESS. (" HG):	-28.92	
CAN STOP VACUUM PRESS. (" HG):	4.98	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)



	DEPTH (FEET FROM SURFACE)	NOTES
Top of Seal	0.00	
Top of Pack	4.50	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

Elevated PID values possibly impacted by high moisture content in soil due to rain.

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV22

PROJECT: 2413 Third Avenue	**PROJECT NO.:** 170396002
LOCATION: The Bronx, New York	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO	**INSTALLATION DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION FOREMAN: Sergio M.	**SAMPLE DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION EQUIPMENT: Geoprobe® 7720 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister
INSPECTOR: Eric Monfort	**SAMPLER:** Eric Monfort
POTENTIAL SAMPLE INTERFERENCES: NA	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 60 to 70 Degrees F; Wind: ENE @ 10 mph; Precipitation: Light Rain; Pressure: 29.98 in Hg

METHOD OF INSTALLATION AND PURGING:
Advanced soil vapor boring to 5 ft below grade surface (bgs), installed inert, polyethylene tubing to 5 ft bgs, backfill with No. 2 sand to 4.5 feet bgs, seal to surface with hydrated bentonite.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** NA
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	6.7	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	34.0%	NA
HELIUM TEST IN TUBE (PPM):	0.0%	NA
SAMPLE START TIME:	11:05	
SAMPLE STOP TIME:	13:05	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.05	
VOLUME OF SAMPLE (LITERS):	6	
PID AFTER SAMPLE (PPM):	3.9	
SAMPLE MOISTURE CONTENT:	NA	
CAN SERIAL NUMBER:	24128	
REGULATOR SERIAL NUMBER:	7360	
CAN START VACUUM PRESS. (" HG):	-29.47	
CAN STOP VACUUM PRESS. (" HG):	-4.99	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0.00	
Top of Pack	4.50	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

Elevated PID values possibly impacted by high moisture content in soil due to rain.

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: SV24

PROJECT: 2413 Third Avenue	**PROJECT NO.:** 170396002
LOCATION: The Bronx, New York	**SURFACE ELEVATION AND DATUM:** NA
DRILLING FIRM OR LANGAN INSTALLER: AARCO	**INSTALLATION DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION FOREMAN: Sergio M.	**SAMPLE DATE STARTED:** 10/3/2019 — **DATE FINISHED:** 10/3/2019
INSTALLATION EQUIPMENT: Geoprobe® 7720 DT	**TYPE OF SAMPLING DEVICE:** 6-Liter Summa Canister
INSPECTOR: Eric Monfort	**SAMPLER:** Eric Monfort
POTENTIAL SAMPLE INTERFERENCES: NA	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 60 to 70 Degrees F; Wind: ENE @ 10 mph; Precipitation: Light Rain; Pressure: 29.98 in Hg

METHOD OF INSTALLATION AND PURGING:
Advanced soil vapor boring to 5 ft below grade surface (bgs), installed inert, polyethylene tubing to 5 ft bgs, backfill with No. 2 sand to 4.5 feet bgs, seal to surface with hydrated bentonite.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** NA
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: 2-Inch Polyethylene Probe	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 2-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	7.1	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	34.0%	NA
HELIUM TEST IN TUBE (PPM):	0.0%	NA
SAMPLE START TIME:	11:19	
SAMPLE STOP TIME:	1:19	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.05	
VOLUME OF SAMPLE (LITERS):	6	
PID AFTER SAMPLE (PPM):	5.3	
SAMPLE MOISTURE CONTENT:	NA	
CAN SERIAL NUMBER:	28801	
REGULATOR SERIAL NUMBER:	Y11	
CAN START VACUUM PRESS. (" HG):	-29.5	
CAN STOP VACUUM PRESS. (" HG):	-4.97	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH FEET FROM SURFACE)**	**NOTES**
SURFACE … SURFACE		
Top of Seal	0.00	
Top of Pack	4.50	
Probe Depth	5.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

Elevated PID values possibly impacted by high moisture content in soil due to rain.

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APPENDIX H
Data Usability Summary Reports

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Sherief Saleh, Langan Senior Staff Scientist

From: Emily Strake, Langan Senior Project Chemist

Date: January 13, 2020

Re: Data Usability Summary Report
For 2413 3rd Avenue
June and October 2019 Groundwater Samples
Langan Project No.: 170396002

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in June and October 2019 by Langan Engineering and Environmental Services ("Langan") at the 2413 3rd Avenue site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) and York Analytical Laboratories, Inc. (NYSDOH NELAP registration # 10854) for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), per- and polyfluoroalkyl substances (PFAS), herbicides, polychlorinated biphenyls (PCBs), pesticides, metals including mercury (Hg), hexavalent chromium (CrVI), and trivalent chromium (CrIII) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D and 8270D SIM
- 1,4-Dioxane by SW-846 Method 8270D SIM
- PFAS by USEPA Method 537M
- Herbicides by SW-846 Method 8151A
- PCBs by SW-846 Method 8082A
- Pesticides by SW-846 Method 8081B
- Metals by SW-846 Method 6020B and 6010D
- Mercury by SW-846 Method 7470A and 7473
- Hexavalent Chromium by SW-846 Method 7196A
- Trivalent Chromium (calculated)

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1924686	L1924686-01	TMW06_061019	6/10/2019	VOCs, SVOCs, PCBs, Metals, Hg, CrVI, CrIII
L1924686	L1924686-02	TMW08_061019	6/10/2019	VOCs, SVOCs, PCBs, Metals, Hg, CrVI, CrIII
L1924686	L1924686-03	TMW12_061019	6/10/2019	VOCs, SVOCs, PCBs, Metals, Hg, CrVI, CrIII
L1926329	L1926329-01	TMW11_061219	6/12/2019	VOCs, SVOCs, PCBs, Pesticides, Metals, Hg, CrVI, CrIII
19J0468	19J0468-01	MW18_100919	10/9/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Herbicides, PCBs, Pesticides, Metals, Hg
19J0468	19J0468-02	MW19_100919	10/9/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Herbicides, PCBs, Pesticides, Metals, Hg
19J0468	19J0468-03	MW24_100919	10/9/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Herbicides, PCBs, Pesticides, Metals, Hg
19J0468	19J0468-04	RIGWDUP01_100919	10/9/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Herbicides, PCBs, Pesticides, Metals, Hg
19J0468	19J0468-05	RIGWFB01_100919	10/9/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Herbicides, PCBs, Pesticides, Metals, Hg
19J0468	19J0468-06	RITB06_100919	10/9/2019	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-17, "Validating Chlorinated Herbicides" (December 2010, Revision 3.1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) PCB Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-36A, "Pesticide Data Validation" (October 2016, Revision 1), USEPA Region II SOP #HW-3a, "ICP-AES Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3b, "ICP-MS Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data

Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), the USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

EPA Method 537 was developed and validated for the analysis of finished drinking water from surface water and groundwater sources. Laboratories have modified Method 537 to enable the analysis of groundwater and soil, and to incorporate PFAS analytes not currently addressed by the promulgated method. NYSDOH offers certification for PFOA and PFOS in the drinking water category. Non-potable water and soil certification is not available; however, the method describes acceptable modifications. EPA recommends that modified methods be assessed relative to project goals and data quality objectives.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, isotope dilution recoveries, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, field blank, and trip blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW18_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ
MW18_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
MW18_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
MW18_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
MW18_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
MW18_100919	8270D	51-28-5	2,4-Dinitrophenol	UJ
MW18_100919	8260C	591-78-6	2-Hexanone	UJ
MW18_100919	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
MW18_100919	8260C	67-64-1	Acetone	UJ
MW18_100919	8270D	98-86-2	Acetophenone	UJ
MW18_100919	8260C	107-02-8	Acrolein	UJ
MW18_100919	8270D	62-53-3	Aniline (Phenylamine, Aminobenzene)	UJ
MW18_100919	6020	7440-36-0	Antimony	UJ
MW18_100919	6020	7440-36-0	Antimony	UJ
MW18_100919	8270D	100-52-7	Benzaldehyde	UJ
MW18_100919	8260C	71-43-2	Benzene	UJ
MW18_100919	8270D	92-87-5	Benzidine	UJ
MW18_100919	6020	7440-41-7	Beryllium	UJ
MW18_100919	6020	7440-41-7	Beryllium	UJ
MW18_100919	8270D	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	UJ
MW18_100919	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
MW18_100919	8260C	74-83-9	Bromomethane	UJ
MW18_100919	6020	7440-43-9	Cadmium	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW18_100919	6010B	7440-70-2	Calcium	J
MW18_100919	6010B	7440-70-2	Calcium	J
MW18_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
MW18_100919	8260C	108-90-7	Chlorobenzene	UJ
MW18_100919	8260C	67-66-3	Chloroform	J
MW18_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
MW18_100919	6010B	7440-48-4	Cobalt	UJ
MW18_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ
MW18_100919	6010B	7439-89-6	Iron	UJ
MW18_100919	6010B	7439-89-6	Iron	UJ
MW18_100919	6010B	7439-92-1	Lead	UJ
MW18_100919	6010B	7439-95-4	Magnesium	J
MW18_100919	6010B	7439-95-4	Magnesium	J
MW18_100919	6010B	7439-96-5	Manganese	J
MW18_100919	6010B	7439-96-5	Manganese	J
MW18_100919	6010B	7440-02-0	Nickel	UJ
MW18_100919	8270D	621-64-7	n-Nitrosodi-N-Propylamine	UJ
MW18_100919	8270DSIM	87-86-5	Pentachlorophenol	UJ
MW18_100919	6010B	7440-09-7	Potassium	J
MW18_100919	6010B	7440-09-7	Potassium	J
MW18_100919	6020	7782-49-2	Selenium	J
MW18_100919	6010B	7440-22-4	Silver	UJ
MW18_100919	6010B	7440-23-5	Sodium	J
MW18_100919	6010B	7440-23-5	Sodium	J
MW18_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	J
MW18_100919	8260C	127-18-4	Tetrachloroethene (PCE)	J
MW18_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
MW18_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
MW18_100919	8260C	75-01-4	Vinyl Chloride	UJ
MW18_100919	6010B	7440-66-6	Zinc	UJ
MW18_100919	6010B	7440-66-6	Zinc	UJ
MW19_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW19_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
MW19_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
MW19_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
MW19_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
MW19_100919	8270D	51-28-5	2,4-Dinitrophenol	UJ
MW19_100919	8260C	591-78-6	2-Hexanone	UJ
MW19_100919	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
MW19_100919	8260C	67-64-1	Acetone	UJ
MW19_100919	8270D	98-86-2	Acetophenone	UJ
MW19_100919	8260C	107-02-8	Acrolein	UJ
MW19_100919	8270D	62-53-3	Aniline (Phenylamine, Aminobenzene)	UJ
MW19_100919	6020	7440-36-0	Antimony	UJ
MW19_100919	6020	7440-36-0	Antimony	UJ
MW19_100919	8270D	100-52-7	Benzaldehyde	UJ
MW19_100919	8260C	71-43-2	Benzene	UJ
MW19_100919	8270D	92-87-5	Benzidine	UJ
MW19_100919	6020	7440-41-7	Beryllium	UJ
MW19_100919	6020	7440-41-7	Beryllium	UJ
MW19_100919	8270D	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	UJ
MW19_100919	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
MW19_100919	8260C	74-83-9	Bromomethane	UJ
MW19_100919	6020	7440-43-9	Cadmium	UJ
MW19_100919	6010B	7440-70-2	Calcium	J
MW19_100919	6010B	7440-70-2	Calcium	J
MW19_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
MW19_100919	8260C	108-90-7	Chlorobenzene	UJ
MW19_100919	8260C	67-66-3	Chloroform	UJ
MW19_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
MW19_100919	6010B	7440-48-4	Cobalt	UJ
MW19_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW19_100919	6010B	7439-89-6	Iron	UJ
MW19_100919	6010B	7439-89-6	Iron	J
MW19_100919	6010B	7439-92-1	Lead	UJ
MW19_100919	6010B	7439-95-4	Magnesium	J
MW19_100919	6010B	7439-95-4	Magnesium	J
MW19_100919	6010B	7439-96-5	Manganese	J
MW19_100919	6010B	7439-96-5	Manganese	J
MW19_100919	6010B	7440-02-0	Nickel	UJ
MW19_100919	8270D	621-64-7	n-Nitrosodi-N-Propylamine	UJ
MW19_100919	8270DSIM	87-86-5	Pentachlorophenol	UJ
MW19_100919	6010B	7440-09-7	Potassium	J
MW19_100919	6010B	7440-09-7	Potassium	J
MW19_100919	6020	7782-49-2	Selenium	J
MW19_100919	6010B	7440-22-4	Silver	UJ
MW19_100919	6010B	7440-23-5	Sodium	J
MW19_100919	6010B	7440-23-5	Sodium	J
MW19_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	UJ
MW19_100919	8260C	127-18-4	Tetrachloroethene (PCE)	UJ
MW19_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
MW19_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
MW19_100919	8260C	75-01-4	Vinyl Chloride	UJ
MW19_100919	6010B	7440-66-6	Zinc	UJ
MW19_100919	6010B	7440-66-6	Zinc	UJ
MW24_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ
MW24_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
MW24_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
MW24_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
MW24_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
MW24_100919	8270D	51-28-5	2,4-Dinitrophenol	UJ
MW24_100919	8260C	591-78-6	2-Hexanone	UJ
MW24_100919	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
MW24_100919	8260C	67-64-1	Acetone	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW24_100919	8270D	98-86-2	Acetophenone	UJ
MW24_100919	8260C	107-02-8	Acrolein	UJ
MW24_100919	6010B	7429-90-5	Aluminum	J
MW24_100919	8270D	62-53-3	Aniline (Phenylamine, Aminobenzene)	UJ
MW24_100919	6020	7440-36-0	Antimony	UJ
MW24_100919	6020	7440-36-0	Antimony	UJ
MW24_100919	8270D	100-52-7	Benzaldehyde	UJ
MW24_100919	8260C	71-43-2	Benzene	UJ
MW24_100919	8270D	92-87-5	Benzidine	UJ
MW24_100919	6020	7440-41-7	Beryllium	UJ
MW24_100919	6020	7440-41-7	Beryllium	UJ
MW24_100919	8270D	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	UJ
MW24_100919	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
MW24_100919	8260C	74-83-9	Bromomethane	UJ
MW24_100919	6020	7440-43-9	Cadmium	UJ
MW24_100919	6010B	7440-70-2	Calcium	J
MW24_100919	6010B	7440-70-2	Calcium	J
MW24_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
MW24_100919	8260C	108-90-7	Chlorobenzene	UJ
MW24_100919	8260C	67-66-3	Chloroform	UJ
MW24_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
MW24_100919	6010B	7440-48-4	Cobalt	UJ
MW24_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ
MW24_100919	6010B	7439-89-6	Iron	UJ
MW24_100919	6010B	7439-89-6	Iron	J
MW24_100919	6010B	7439-92-1	Lead	UJ
MW24_100919	6010B	7439-95-4	Magnesium	J
MW24_100919	6010B	7439-95-4	Magnesium	J
MW24_100919	6010B	7439-96-5	Manganese	J
MW24_100919	6010B	7439-96-5	Manganese	J
MW24_100919	6010B	7440-02-0	Nickel	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW24_100919	8270D	621-64-7	n-Nitrosodi-N-Propylamine	UJ
MW24_100919	8270DSIM	87-86-5	Pentachlorophenol	UJ
MW24_100919	6010B	7440-09-7	Potassium	J
MW24_100919	6010B	7440-09-7	Potassium	J
MW24_100919	6020	7782-49-2	Selenium	J
MW24_100919	6020	7782-49-2	Selenium	J
MW24_100919	6010B	7440-22-4	Silver	UJ
MW24_100919	6010B	7440-23-5	Sodium	J
MW24_100919	6010B	7440-23-5	Sodium	J
MW24_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	UJ
MW24_100919	8260C	127-18-4	Tetrachloroethene (PCE)	UJ
MW24_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
MW24_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
MW24_100919	8260C	75-01-4	Vinyl Chloride	UJ
MW24_100919	6010B	7440-66-6	Zinc	UJ
MW24_100919	6010B	7440-66-6	Zinc	UJ
RIGWDUP01_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ
RIGWDUP01_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
RIGWDUP01_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
RIGWDUP01_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
RIGWDUP01_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
RIGWDUP01_100919	8270D	51-28-5	2,4-Dinitrophenol	UJ
RIGWDUP01_100919	8260C	591-78-6	2-Hexanone	UJ
RIGWDUP01_100919	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
RIGWDUP01_100919	8260C	67-64-1	Acetone	UJ
RIGWDUP01_100919	8270D	98-86-2	Acetophenone	UJ
RIGWDUP01_100919	8260C	107-02-8	Acrolein	UJ
RIGWDUP01_100919	6010B	7429-90-5	Aluminum	J
RIGWDUP01_100919	8270D	62-53-3	Aniline (Phenylamine, Aminobenzene)	UJ
RIGWDUP01_100919	6020	7440-36-0	Antimony	UJ
RIGWDUP01_100919	6020	7440-36-0	Antimony	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RIGWDUP01_100919	8270D	100-52-7	Benzaldehyde	UJ
RIGWDUP01_100919	8260C	71-43-2	Benzene	UJ
RIGWDUP01_100919	8270D	92-87-5	Benzidine	UJ
RIGWDUP01_100919	6020	7440-41-7	Beryllium	UJ
RIGWDUP01_100919	6020	7440-41-7	Beryllium	UJ
RIGWDUP01_100919	8270D	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	UJ
RIGWDUP01_100919	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
RIGWDUP01_100919	8260C	74-83-9	Bromomethane	UJ
RIGWDUP01_100919	6020	7440-43-9	Cadmium	UJ
RIGWDUP01_100919	6010B	7440-70-2	Calcium	J
RIGWDUP01_100919	6010B	7440-70-2	Calcium	J
RIGWDUP01_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
RIGWDUP01_100919	8260C	108-90-7	Chlorobenzene	UJ
RIGWDUP01_100919	8260C	67-66-3	Chloroform	UJ
RIGWDUP01_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
RIGWDUP01_100919	6010B	7440-48-4	Cobalt	UJ
RIGWDUP01_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ
RIGWDUP01_100919	6010B	7439-89-6	Iron	UJ
RIGWDUP01_100919	6010B	7439-89-6	Iron	J
RIGWDUP01_100919	6010B	7439-92-1	Lead	UJ
RIGWDUP01_100919	6010B	7439-95-4	Magnesium	J
RIGWDUP01_100919	6010B	7439-95-4	Magnesium	J
RIGWDUP01_100919	6010B	7439-96-5	Manganese	J
RIGWDUP01_100919	6010B	7439-96-5	Manganese	J
RIGWDUP01_100919	6010B	7440-02-0	Nickel	UJ
RIGWDUP01_100919	8270D	621-64-7	n-Nitrosodi-N-Propylamine	UJ
RIGWDUP01_100919	8270DSIM	87-86-5	Pentachlorophenol	UJ
RIGWDUP01_100919	6010B	7440-09-7	Potassium	J
RIGWDUP01_100919	6010B	7440-09-7	Potassium	J
RIGWDUP01_100919	6020	7782-49-2	Selenium	J
RIGWDUP01_100919	6010B	7440-22-4	Silver	UJ
RIGWDUP01_100919	6010B	7440-23-5	Sodium	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RIGWDUP01_100919	6010B	7440-23-5	Sodium	J
RIGWDUP01_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	UJ
RIGWDUP01_100919	8260C	127-18-4	Tetrachloroethene (PCE)	UJ
RIGWDUP01_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
RIGWDUP01_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
RIGWDUP01_100919	8260C	75-01-4	Vinyl Chloride	UJ
RIGWDUP01_100919	6010B	7440-66-6	Zinc	UJ
RIGWDUP01_100919	6010B	7440-66-6	Zinc	UJ
RIGWFB01_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ
RIGWFB01_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
RIGWFB01_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
RIGWFB01_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
RIGWFB01_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
RIGWFB01_100919	8270D	51-28-5	2,4-Dinitrophenol	UJ
RIGWFB01_100919	8260C	591-78-6	2-Hexanone	UJ
RIGWFB01_100919	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
RIGWFB01_100919	8260C	67-64-1	Acetone	UJ
RIGWFB01_100919	8270D	98-86-2	Acetophenone	UJ
RIGWFB01_100919	8260C	107-02-8	Acrolein	UJ
RIGWFB01_100919	8270D	62-53-3	Aniline (Phenylamine, Aminobenzene)	UJ
RIGWFB01_100919	6020	7440-36-0	Antimony	UJ
RIGWFB01_100919	6020	7440-36-0	Antimony	UJ
RIGWFB01_100919	8270D	100-52-7	Benzaldehyde	UJ
RIGWFB01_100919	8260C	71-43-2	Benzene	UJ
RIGWFB01_100919	8270D	92-87-5	Benzidine	UJ
RIGWFB01_100919	6020	7440-41-7	Beryllium	UJ
RIGWFB01_100919	6020	7440-41-7	Beryllium	UJ
RIGWFB01_100919	8270D	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	UJ
RIGWFB01_100919	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
RIGWFB01_100919	8270DSIM	117-81-7	Bis(2-Ethylhexyl) Phthalate	U (0.831)

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RIGWFB01_100919	8260C	74-83-9	Bromomethane	UJ
RIGWFB01_100919	6020	7440-43-9	Cadmium	UJ
RIGWFB01_100919	6010B	7440-70-2	Calcium	J
RIGWFB01_100919	6010B	7440-70-2	Calcium	J
RIGWFB01_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
RIGWFB01_100919	8260C	108-90-7	Chlorobenzene	UJ
RIGWFB01_100919	8260C	67-66-3	Chloroform	UJ
RIGWFB01_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
RIGWFB01_100919	6010B	7440-48-4	Cobalt	UJ
RIGWFB01_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ
RIGWFB01_100919	6010B	7439-89-6	Iron	UJ
RIGWFB01_100919	6010B	7439-89-6	Iron	UJ
RIGWFB01_100919	6010B	7439-92-1	Lead	UJ
RIGWFB01_100919	6010B	7439-95-4	Magnesium	UJ
RIGWFB01_100919	6010B	7439-95-4	Magnesium	J
RIGWFB01_100919	6010B	7439-96-5	Manganese	UJ
RIGWFB01_100919	6010B	7439-96-5	Manganese	UJ
RIGWFB01_100919	6010B	7440-02-0	Nickel	UJ
RIGWFB01_100919	8270D	621-64-7	n-Nitrosodi-N-Propylamine	UJ
RIGWFB01_100919	8270DSIM	87-86-5	Pentachlorophenol	UJ
RIGWFB01_100919	6010B	7440-09-7	Potassium	UJ
RIGWFB01_100919	6010B	7440-09-7	Potassium	UJ
RIGWFB01_100919	6010B	7440-22-4	Silver	UJ
RIGWFB01_100919	6010B	7440-23-5	Sodium	UJ
RIGWFB01_100919	6010B	7440-23-5	Sodium	UJ
RIGWFB01_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	UJ
RIGWFB01_100919	8260C	127-18-4	Tetrachloroethene (PCE)	UJ
RIGWFB01_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
RIGWFB01_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
RIGWFB01_100919	8260C	75-01-4	Vinyl Chloride	UJ
RIGWFB01_100919	6010B	7440-66-6	Zinc	J
RIGWFB01_100919	6010B	7440-66-6	Zinc	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RITB06_100919	8260C	79-34-5	1,1,2,2-Tetrachloroethane	UJ
RITB06_100919	8260C	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	UJ
RITB06_100919	8260C	75-34-3	1,1-Dichloroethane	UJ
RITB06_100919	8260C	96-18-4	1,2,3-Trichloropropane	UJ
RITB06_100919	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
RITB06_100919	8260C	591-78-6	2-Hexanone	UJ
RITB06_100919	8260C	67-64-1	Acetone	UJ
RITB06_100919	8260C	107-02-8	Acrolein	UJ
RITB06_100919	8260C	71-43-2	Benzene	UJ
RITB06_100919	8260C	74-83-9	Bromomethane	UJ
RITB06_100919	8260C	56-23-5	Carbon Tetrachloride	UJ
RITB06_100919	8260C	108-90-7	Chlorobenzene	UJ
RITB06_100919	8260C	67-66-3	Chloroform	UJ
RITB06_100919	8260C	156-59-2	Cis-1,2-Dichloroethene	UJ
RITB06_100919	8260C	75-71-8	Dichlorodifluoromethane	UJ
RITB06_100919	8260C	1634-04-4	Tert-Butyl Methyl Ether	UJ
RITB06_100919	8260C	127-18-4	Tetrachloroethene (PCE)	UJ
RITB06_100919	8260C	156-60-5	Trans-1,2-Dichloroethene	UJ
RITB06_100919	8260C	75-69-4	Trichlorofluoromethane	UJ
RITB06_100919	8260C	75-01-4	Vinyl Chloride	UJ
SB06_1-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB06_1-2	8270D	88-75-5	2-Nitrophenol	UJ
SB06_1-2	8260C	67-64-1	Acetone	J
SB06_1-2	6010D	7440-38-2	Arsenic	J
SB06_1-2	6010D	7440-39-3	Barium	J
SB06_1-2	8260C	74-83-9	Bromomethane	UJ
SB06_1-2	6010D	7440-43-9	Cadmium	J
SB06_1-2	8260C	74-87-3	Chloromethane	UJ
SB06_1-2	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB06_1-2	6010D	7440-47-3	Chromium, Total	J
SB06_1-2	6010D	7440-48-4	Cobalt	J
SB06_1-2	6010D	7440-50-8	Copper	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB06_1-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB06_1-2	8081B	5103-74-2	Gamma Chlordane	J
SB06_1-2	8260C	87-68-3	Hexachlorobutadiene	UJ
SB06_1-2	6010D	7439-89-6	Iron	J
SB06_1-2	6010D	7439-92-1	Lead	J
SB06_1-2	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB06_1-2	8260C	91-20-3	Naphthalene	UJ
SB06_1-2	6010D	7440-28-0	Thallium	UJ
SB06_1-2	8260C	75-69-4	Trichlorofluoromethane	UJ
SB06_1-2	6010D	7440-62-2	Vanadium	J
SB06_1-2	8260C	108-05-4	Vinyl Acetate	UJ
SB06_1-2	6010D	7440-66-6	Zinc	J
SB06_7-8	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB06_7-8	8270D	100-02-7	4-Nitrophenol	UJ
SB06_7-8	8260C	67-64-1	Acetone	J
SB06_7-8	6010D	7440-39-3	Barium	J
SB06_7-8	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB06_7-8	8260C	74-83-9	Bromomethane	UJ
SB06_7-8	8260C	74-87-3	Chloromethane	UJ
SB06_7-8	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB06_7-8	6010D	7440-50-8	Copper	J
SB06_7-8	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB06_7-8	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB06_7-8	8260C	87-68-3	Hexachlorobutadiene	UJ
SB06_7-8	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB06_7-8	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	J
SB06_7-8	8260C	91-20-3	Naphthalene	J
SB06_7-8	8270D	87-86-5	Pentachlorophenol	UJ
SB06_7-8	6010D	7440-28-0	Thallium	UJ
SB06_7-8	8260C	75-69-4	Trichlorofluoromethane	UJ
SB06_7-8	8260C	108-05-4	Vinyl Acetate	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB07_2-3	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB07_2-3	8270D	100-02-7	4-Nitrophenol	UJ
SB07_2-3	8260C	67-64-1	Acetone	J
SB07_2-3	6010D	7440-39-3	Barium	J
SB07_2-3	8081B	33213-65-9	Beta Endosulfan	UJ
SB07_2-3	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB07_2-3	8260C	74-83-9	Bromomethane	UJ
SB07_2-3	8260C	74-87-3	Chloromethane	UJ
SB07_2-3	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB07_2-3	6010D	7440-50-8	Copper	J
SB07_2-3	8081B	319-86-8	Delta Bhc (Delta Hexachlorocyclohexane)	UJ
SB07_2-3	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB07_2-3	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB07_2-3	8081B	5103-74-2	Gamma Chlordane	J
SB07_2-3	8260C	87-68-3	Hexachlorobutadiene	UJ
SB07_2-3	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB07_2-3	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB07_2-3	8260C	91-20-3	Naphthalene	UJ
SB07_2-3	8270D	87-86-5	Pentachlorophenol	UJ
SB07_2-3	6010D	7440-28-0	Thallium	UJ
SB07_2-3	8260C	75-69-4	Trichlorofluoromethane	UJ
SB07_2-3	8260C	108-05-4	Vinyl Acetate	UJ
SB07_5-6	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB07_5-6	8270D	100-02-7	4-Nitrophenol	UJ
SB07_5-6	8260C	67-64-1	Acetone	J
SB07_5-6	6010D	7440-36-0	Antimony	U (4.37)
SB07_5-6	6010D	7440-39-3	Barium	J
SB07_5-6	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB07_5-6	8260C	74-83-9	Bromomethane	UJ
SB07_5-6	8260C	74-87-3	Chloromethane	UJ
SB07_5-6	7196A	18540-29-9	Chromium, Hexavalent	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB07_5-6	6010D	7440-50-8	Copper	J
SB07_5-6	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB07_5-6	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB07_5-6	8260C	87-68-3	Hexachlorobutadiene	UJ
SB07_5-6	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB07_5-6	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB07_5-6	8260C	91-20-3	Naphthalene	UJ
SB07_5-6	8270D	87-86-5	Pentachlorophenol	UJ
SB07_5-6	6010D	7440-28-0	Thallium	UJ
SB07_5-6	8260C	75-69-4	Trichlorofluoromethane	UJ
SB07_5-6	8260C	108-05-4	Vinyl Acetate	UJ
SB08_1-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB08_1-2	8270D	100-02-7	4-Nitrophenol	UJ
SB08_1-2	8260C	67-64-1	Acetone	J
SB08_1-2	6010D	7440-39-3	Barium	J
SB08_1-2	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB08_1-2	8260C	74-83-9	Bromomethane	UJ
SB08_1-2	8260C	74-87-3	Chloromethane	UJ
SB08_1-2	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB08_1-2	6010D	7440-50-8	Copper	J
SB08_1-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB08_1-2	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB08_1-2	8260C	87-68-3	Hexachlorobutadiene	UJ
SB08_1-2	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB08_1-2	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB08_1-2	8260C	91-20-3	Naphthalene	UJ
SB08_1-2	8270D	87-86-5	Pentachlorophenol	UJ
SB08_1-2	6010D	7440-28-0	Thallium	UJ
SB08_1-2	8260C	75-69-4	Trichlorofluoromethane	UJ
SB08_1-2	8260C	108-05-4	Vinyl Acetate	UJ
SB08_5-6	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB08_5-6	8270D	100-02-7	4-Nitrophenol	UJ
SB08_5-6	6010D	7440-36-0	Antimony	U (4.85)
SB08_5-6	6010D	7440-39-3	Barium	J
SB08_5-6	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB08_5-6	8260C	74-83-9	Bromomethane	UJ
SB08_5-6	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB08_5-6	6010D	7440-50-8	Copper	J
SB08_5-6	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB08_5-6	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB08_5-6	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB08_5-6	8270D	87-86-5	Pentachlorophenol	UJ
SB08_5-6	8260C	100-42-5	Styrene	UJ
SB08_5-6	6010D	7440-28-0	Thallium	UJ
SB08_5-6	8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB08_5-6	8260C	75-69-4	Trichlorofluoromethane	UJ
SB09_2-3	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB09_2-3	8270D	100-02-7	4-Nitrophenol	UJ
SB09_2-3	6010D	7440-39-3	Barium	J
SB09_2-3	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB09_2-3	8260C	74-83-9	Bromomethane	UJ
SB09_2-3	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB09_2-3	6010D	7440-50-8	Copper	J
SB09_2-3	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB09_2-3	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB09_2-3	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB09_2-3	8270D	87-86-5	Pentachlorophenol	UJ
SB09_2-3	8260C	100-42-5	Styrene	UJ
SB09_2-3	6010D	7440-28-0	Thallium	UJ
SB09_2-3	8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB09_2-3	8260C	75-69-4	Trichlorofluoromethane	UJ
SB09_5-6	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB09_5-6	8270D	100-02-7	4-Nitrophenol	UJ
SB09_5-6	6010D	7440-36-0	Antimony	U (4.87)
SB09_5-6	6010D	7440-39-3	Barium	J
SB09_5-6	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB09_5-6	8260C	74-83-9	Bromomethane	UJ
SB09_5-6	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB09_5-6	6010D	7440-50-8	Copper	J
SB09_5-6	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB09_5-6	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB09_5-6	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB09_5-6	8270D	87-86-5	Pentachlorophenol	UJ
SB09_5-6	8260C	100-42-5	Styrene	UJ
SB09_5-6	6010D	7440-28-0	Thallium	UJ
SB09_5-6	8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB09_5-6	8260C	75-69-4	Trichlorofluoromethane	UJ
SB12_3-4	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB12_3-4	8270D	100-02-7	4-Nitrophenol	UJ
SB12_3-4	6010D	7440-39-3	Barium	J
SB12_3-4	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB12_3-4	8260C	74-83-9	Bromomethane	UJ
SB12_3-4	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB12_3-4	6010D	7440-50-8	Copper	J
SB12_3-4	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB12_3-4	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB12_3-4	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB12_3-4	8270D	87-86-5	Pentachlorophenol	UJ
SB12_3-4	8260C	100-42-5	Styrene	UJ
SB12_3-4	6010D	7440-28-0	Thallium	UJ
SB12_3-4	8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB12_3-4	8260C	75-69-4	Trichlorofluoromethane	UJ
SB12_5-6	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB12_5-6	8260C	591-78-6	2-Hexanone	UJ
SB12_5-6	8270D	100-02-7	4-Nitrophenol	UJ
SB12_5-6	6010D	7440-39-3	Barium	J
SB12_5-6	8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB12_5-6	8260C	75-15-0	Carbon Disulfide	UJ
SB12_5-6	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB12_5-6	6010D	7440-50-8	Copper	J
SB12_5-6	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB12_5-6	8270D	117-84-0	Di-N-Octylphthalate	UJ
SB12_5-6	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB12_5-6	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB12_5-6	8270D	87-86-5	Pentachlorophenol	UJ
SB12_5-6	6010D	7440-28-0	Thallium	UJ
SB10_1-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB10_1-2	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB10_1-2	8260C	591-78-6	2-Hexanone	UJ
SB10_1-2	8270D	88-75-5	2-Nitrophenol	UJ
SB10_1-2	8270D	99-09-2	3-Nitroaniline	UJ
SB10_1-2	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB10_1-2	8270D	100-01-6	4-Nitroaniline	UJ
SB10_1-2	8270D	65-85-0	Benzoic Acid	UJ
SB10_1-2	8260C	75-15-0	Carbon Disulfide	UJ
SB10_1-2	8260C	74-87-3	Chloromethane	UJ
SB10_1-2	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB10_1-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB10_1-2	8081B	7421-93-4	Endrin Aldehyde	UJ
SB10_1-2	8081B	72-43-5	Methoxychlor	UJ
SB10_1-2	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB10_1-2	8260C	1634-04-4	Tert-Butyl Methyl Ether	U (3.3)
SB10_1-2	8260C	75-01-4	Vinyl Chloride	UJ
SB10_7-8	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB10_7-8	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB10_7-8	8260C	591-78-6	2-Hexanone	UJ
SB10_7-8	8270D	88-75-5	2-Nitrophenol	UJ
SB10_7-8	8270D	99-09-2	3-Nitroaniline	UJ
SB10_7-8	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB10_7-8	8270D	100-01-6	4-Nitroaniline	UJ
SB10_7-8	8270D	65-85-0	Benzoic Acid	UJ
SB10_7-8	8260C	75-15-0	Carbon Disulfide	UJ
SB10_7-8	8260C	74-87-3	Chloromethane	UJ
SB10_7-8	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB10_7-8	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB10_7-8	8081B	7421-93-4	Endrin Aldehyde	UJ
SB10_7-8	8081B	5103-74-2	Gamma Chlordane	J
SB10_7-8	8081B	72-43-5	Methoxychlor	UJ
SB10_7-8	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB10_7-8	8260C	1634-04-4	Tert-Butyl Methyl Ether	U (2)
SB10_7-8	8260C	75-01-4	Vinyl Chloride	UJ
SB11_1-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB11_1-2	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB11_1-2	8260C	591-78-6	2-Hexanone	UJ
SB11_1-2	8270D	88-75-5	2-Nitrophenol	UJ
SB11_1-2	8270D	99-09-2	3-Nitroaniline	UJ
SB11_1-2	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB11_1-2	8270D	100-01-6	4-Nitroaniline	UJ
SB11_1-2	8270D	65-85-0	Benzoic Acid	UJ
SB11_1-2	8260C	75-15-0	Carbon Disulfide	UJ
SB11_1-2	8260C	74-87-3	Chloromethane	UJ
SB11_1-2	7196A	18540-29-9	Chromium, Hexavalent	J
SB11_1-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB11_1-2	8081B	7421-93-4	Endrin Aldehyde	UJ
SB11_1-2	8081B	5103-74-2	Gamma Chlordane	J
SB11_1-2	8081B	72-43-5	Methoxychlor	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB11_1-2	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB11_1-2	8260C	1634-04-4	Tert-Butyl Methyl Ether	U (3.6)
SB11_1-2	8260C	75-01-4	Vinyl Chloride	UJ
SB11_5-6	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
SB11_5-6	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB11_5-6	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB11_5-6	8260C	591-78-6	2-Hexanone	UJ
SB11_5-6	8270D	88-75-5	2-Nitrophenol	UJ
SB11_5-6	8270D	99-09-2	3-Nitroaniline	UJ
SB11_5-6	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB11_5-6	8270D	100-01-6	4-Nitroaniline	UJ
SB11_5-6	8270D	65-85-0	Benzoic Acid	UJ
SB11_5-6	8260C	75-15-0	Carbon Disulfide	UJ
SB11_5-6	7196A	18540-29-9	Chromium, Hexavalent	J
SB11_5-6	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB11_5-6	8081B	7421-93-4	Endrin Aldehyde	UJ
SB11_5-6	8081B	72-43-5	Methoxychlor	UJ
SB11_5-6	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB11_5-6	6010D	7440-23-5	Sodium	U (188)
SB11_5-6	8260C	75-01-4	Vinyl Chloride	UJ
SB13_3-4	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB13_3-4	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB13_3-4	8270D	88-75-5	2-Nitrophenol	UJ
SB13_3-4	8270D	99-09-2	3-Nitroaniline	UJ
SB13_3-4	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB13_3-4	8270D	100-01-6	4-Nitroaniline	UJ
SB13_3-4	8260C	107-13-1	Acrylonitrile	UJ
SB13_3-4	8270D	65-85-0	Benzoic Acid	UJ
SB13_3-4	8260C	74-83-9	Bromomethane	UJ
SB13_3-4	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB13_3-4	8081B	7421-93-4	Endrin Aldehyde	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB13_3-4	8081B	72-43-5	Methoxychlor	UJ
SB13_3-4	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB13_3-4	8260C	75-09-2	Methylene Chloride	UJ
SB13_3-4	8260C	100-42-5	Styrene	UJ
SB13_3-4	8260C	75-69-4	Trichlorofluoromethane	UJ
SB13_10-11	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB13_10-11	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB13_10-11	8260C	591-78-6	2-Hexanone	UJ
SB13_10-11	8270D	88-75-5	2-Nitrophenol	UJ
SB13_10-11	8270D	99-09-2	3-Nitroaniline	UJ
SB13_10-11	8081B	72-55-9	4,4'-DDE	J
SB13_10-11	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB13_10-11	8270D	100-01-6	4-Nitroaniline	UJ
SB13_10-11	8081B	5103-71-9	Alpha Chlordane	J
SB13_10-11	8270D	65-85-0	Benzoic Acid	UJ
SB13_10-11	8260C	75-15-0	Carbon Disulfide	UJ
SB13_10-11	8260C	74-87-3	Chloromethane	UJ
SB13_10-11	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB13_10-11	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB13_10-11	8081B	7421-93-4	Endrin Aldehyde	UJ
SB13_10-11	8081B	5103-74-2	Gamma Chlordane	UJ
SB13_10-11	8081B	72-43-5	Methoxychlor	UJ
SB13_10-11	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB13_10-11	8082A	11096-82-5	PCB-1260 (PCB 1260)	J
SB13_10-11	8260C	75-01-4	Vinyl Chloride	UJ
SB14_3-4	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB14_3-4	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB14_3-4	8260C	591-78-6	2-Hexanone	UJ
SB14_3-4	8270D	88-75-5	2-Nitrophenol	UJ
SB14_3-4	8270D	99-09-2	3-Nitroaniline	UJ
SB14_3-4	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB14_3-4	8270D	100-01-6	4-Nitroaniline	UJ
SB14_3-4	8270D	65-85-0	Benzoic Acid	UJ
SB14_3-4	8260C	75-15-0	Carbon Disulfide	UJ
SB14_3-4	8260C	74-87-3	Chloromethane	UJ
SB14_3-4	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB14_3-4	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB14_3-4	8081B	7421-93-4	Endrin Aldehyde	UJ
SB14_3-4	8081B	5103-74-2	Gamma Chlordane	J
SB14_3-4	8081B	72-43-5	Methoxychlor	UJ
SB14_3-4	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB14_3-4	8260C	75-01-4	Vinyl Chloride	UJ
SB15_3-4	8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
SB15_3-4	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB15_3-4	8270D	51-28-5	2,4-Dinitrophenol	UJ
SB15_3-4	8260C	591-78-6	2-Hexanone	UJ
SB15_3-4	8270D	88-75-5	2-Nitrophenol	UJ
SB15_3-4	8270D	99-09-2	3-Nitroaniline	UJ
SB15_3-4	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB15_3-4	8270D	100-01-6	4-Nitroaniline	UJ
SB15_3-4	8270D	65-85-0	Benzoic Acid	UJ
SB15_3-4	8260C	75-15-0	Carbon Disulfide	UJ
SB15_3-4	7196A	18540-29-9	Chromium, Hexavalent	UJ
SB15_3-4	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB15_3-4	8081B	7421-93-4	Endrin Aldehyde	UJ
SB15_3-4	8081B	5103-74-2	Gamma Chlordane	J
SB15_3-4	8081B	72-43-5	Methoxychlor	UJ
SB15_3-4	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB15_3-4	8260C	75-01-4	Vinyl Chloride	UJ
TMW06_061019	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TMW06_061019	8270DSIM	91-58-7	2-Chloronaphthalene	UJ
TMW06_061019	8260C	591-78-6	2-Hexanone	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TMW06_061019	8270DSIM	91-57-6	2-Methylnaphthalene	UJ
TMW06_061019	8270DSIM	83-32-9	Acenaphthene	UJ
TMW06_061019	8270DSIM	208-96-8	Acenaphthylene	UJ
TMW06_061019	8260C	67-64-1	Acetone	J
TMW06_061019	8260C	107-13-1	Acrylonitrile	UJ
TMW06_061019	6020	7440-36-0	Antimony	U (0.008)
TMW06_061019	8270D	85-68-7	Benzyl Butyl Phthalate	UJ
TMW06_061019	8270D	117-81-7	Bis(2-Ethylhexyl) Phthalate	UJ
TMW06_061019	8260C	75-71-8	Dichlorodifluoromethane	UJ
TMW06_061019	8270D	117-84-0	Di-N-Octylphthalate	UJ
TMW06_061019	8270DSIM	87-68-3	Hexachlorobutadiene	UJ
TMW06_061019	8270DSIM	67-72-1	Hexachloroethane	UJ
TMW06_061019	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	J
TMW06_061019	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
TMW06_061019	8270DSIM	91-20-3	Naphthalene	UJ
TMW06_061019	8270DSIM	87-86-5	Pentachlorophenol	UJ
TMW08_061019	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TMW08_061019	8270DSIM	91-58-7	2-Chloronaphthalene	UJ
TMW08_061019	8260C	591-78-6	2-Hexanone	UJ
TMW08_061019	8270DSIM	91-57-6	2-Methylnaphthalene	UJ
TMW08_061019	8270DSIM	83-32-9	Acenaphthene	UJ
TMW08_061019	8270DSIM	208-96-8	Acenaphthylene	UJ
TMW08_061019	8260C	67-64-1	Acetone	J
TMW08_061019	8260C	107-13-1	Acrylonitrile	UJ
TMW08_061019	6020	7440-36-0	Antimony	U (0.004)
TMW08_061019	6020	7440-36-0	Antimony	U (0.004)
TMW08_061019	8270D	85-68-7	Benzyl Butyl Phthalate	UJ
TMW08_061019	8270D	117-81-7	Bis(2-Ethylhexyl) Phthalate	UJ
TMW08_061019	8260C	75-71-8	Dichlorodifluoromethane	UJ
TMW08_061019	8270D	117-84-0	Di-N-Octylphthalate	UJ
TMW08_061019	8270DSIM	87-68-3	Hexachlorobutadiene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TMW08_061019	8270DSIM	67-72-1	Hexachloroethane	UJ
TMW08_061019	6020	7439-89-6	Iron	U (0.05)
TMW08_061019	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TMW08_061019	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
TMW08_061019	8270DSIM	91-20-3	Naphthalene	UJ
TMW08_061019	8082A	11096-82-5	PCB-1260 (PCB 1260)	UJ
TMW08_061019	8270DSIM	87-86-5	Pentachlorophenol	UJ
TMW12_061019	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TMW12_061019	8270DSIM	91-58-7	2-Chloronaphthalene	UJ
TMW12_061019	8260C	591-78-6	2-Hexanone	UJ
TMW12_061019	8270DSIM	91-57-6	2-Methylnaphthalene	UJ
TMW12_061019	8270DSIM	83-32-9	Acenaphthene	UJ
TMW12_061019	8270DSIM	208-96-8	Acenaphthylene	UJ
TMW12_061019	8260C	67-64-1	Acetone	J
TMW12_061019	8260C	107-13-1	Acrylonitrile	UJ
TMW12_061019	6020	7440-36-0	Antimony	U (0.004)
TMW12_061019	6020	7440-36-0	Antimony	U (0.004)
TMW12_061019	8270DSIM	56-55-3	Benzo(a)Anthracene	U (0.1)
TMW12_061019	8270D	85-68-7	Benzyl Butyl Phthalate	UJ
TMW12_061019	8270D	117-81-7	Bis(2-Ethylhexyl) Phthalate	J
TMW12_061019	8260C	75-71-8	Dichlorodifluoromethane	UJ
TMW12_061019	8270D	117-84-0	Di-N-Octylphthalate	UJ
TMW12_061019	8270DSIM	87-68-3	Hexachlorobutadiene	UJ
TMW12_061019	8270DSIM	67-72-1	Hexachloroethane	UJ
TMW12_061019	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TMW12_061019	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
TMW12_061019	8270DSIM	91-20-3	Naphthalene	UJ
TMW12_061019	8082A	11096-82-5	PCB-1260 (PCB 1260)	UJ
TMW12_061019	8270DSIM	87-86-5	Pentachlorophenol	UJ
TMW11_061219	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TMW11_061219	8260C	594-20-7	2,2-Dichloropropane	UJ
TMW11_061219	8270D	105-67-9	2,4-Dimethylphenol	UJ
TMW11_061219	8270D	51-28-5	2,4-Dinitrophenol	UJ
TMW11_061219	8270D	121-14-2	2,4-Dinitrotoluene	UJ
TMW11_061219	8270D	606-20-2	2,6-Dinitrotoluene	UJ
TMW11_061219	8270DSIM	91-57-6	2-Methylnaphthalene	UJ
TMW11_061219	8270D	88-75-5	2-Nitrophenol	UJ
TMW11_061219	8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
TMW11_061219	8270DSIM	83-32-9	Acenaphthene	UJ
TMW11_061219	8260C	67-64-1	Acetone	J
TMW11_061219	6020	7429-90-5	Aluminum	J
TMW11_061219	8270DSIM	120-12-7	Anthracene	UJ
TMW11_061219	6020	7440-36-0	Antimony	U (0.004)
TMW11_061219	6020	7440-36-0	Antimony	U (0.004)
TMW11_061219	8270DSIM	56-55-3	Benzo(a)Anthracene	UJ
TMW11_061219	8270DSIM	50-32-8	Benzo(a)Pyrene	J
TMW11_061219	8270DSIM	205-99-2	Benzo(b)Fluoranthene	J
TMW11_061219	8270DSIM	191-24-2	Benzo(g,h,i)Perylene	J
TMW11_061219	8270DSIM	207-08-9	Benzo(k)Fluoranthene	J
TMW11_061219	8260C	74-83-9	Bromomethane	UJ
TMW11_061219	6020	7440-70-2	Calcium	J
TMW11_061219	6020	7440-70-2	Calcium	J
TMW11_061219	8260C	74-87-3	Chloromethane	UJ
TMW11_061219	8270DSIM	218-01-9	Chrysene	UJ
TMW11_061219	8270DSIM	53-70-3	Dibenz(a,h)Anthracene	J
TMW11_061219	8081B	53494-70-5	Endrin Ketone	UJ
TMW11_061219	8270DSIM	86-73-7	Fluorene	UJ
TMW11_061219	8270DSIM	118-74-1	Hexachlorobenzene	UJ
TMW11_061219	8270DSIM	87-68-3	Hexachlorobutadiene	UJ
TMW11_061219	8270DSIM	193-39-5	Indeno(1,2,3-c,d)Pyrene	J
TMW11_061219	6020	7439-89-6	Iron	U (0.05)
TMW11_061219	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TMW11_061219	8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
TMW11_061219	8082A	11100-14-4	PCB-1268 (PCB 1268)	UJ
TMW11_061219	8270DSIM	87-86-5	Pentachlorophenol	UJ
TMW11_061219	8270DSIM	85-01-8	Phenanthrene	UJ
TMW11_061219	8270DSIM	129-00-0	Pyrene	U (0.1)
TMW11_061219	6020	7440-62-2	Vanadium	J
TP01_2-2.5	8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP01_2-2.5	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP01_2-2.5	8260C	591-78-6	2-Hexanone	UJ
TP01_2-2.5	8081B	72-54-8	4,4'-DDD	UJ
TP01_2-2.5	8081B	72-55-9	4,4'-DDE	J
TP01_2-2.5	8260C	67-64-1	Acetone	UJ
TP01_2-2.5	6010D	7440-36-0	Antimony	J
TP01_2-2.5	6010D	7440-38-2	Arsenic	J
TP01_2-2.5	6010D	7440-39-3	Barium	J
TP01_2-2.5	6010D	7440-43-9	Cadmium	J
TP01_2-2.5	8260C	74-87-3	Chloromethane	UJ
TP01_2-2.5	6010D	7440-47-3	Chromium, Total	J
TP01_2-2.5	6010D	7440-48-4	Cobalt	J
TP01_2-2.5	6010D	7440-50-8	Copper	J
TP01_2-2.5	8260C	75-71-8	Dichlorodifluoromethane	UJ
TP01_2-2.5	8081B	60-57-1	Dieldrin	J
TP01_2-2.5	8081B	5103-74-2	Gamma Chlordane	J
TP01_2-2.5	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
TP01_2-2.5	6010D	7439-89-6	Iron	J
TP01_2-2.5	6010D	7439-92-1	Lead	J
TP01_2-2.5	8081B	72-43-5	Methoxychlor	UJ
TP01_2-2.5	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP01_2-2.5	6010D	7440-02-0	Nickel	J
TP01_2-2.5	6010D	7440-09-7	Potassium	J
TP01_2-2.5	6010D	7440-22-4	Silver	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TP01_2-2.5	6010D	7440-62-2	Vanadium	J
TP01_2-2.5	6010D	7440-66-6	Zinc	J
TP02_1.5-2	8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP02_1.5-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP02_1.5-2	8081B	72-54-8	4,4'-DDD	UJ
TP02_1.5-2	8260C	67-64-1	Acetone	UJ
TP02_1.5-2	8081B	5103-71-9	Alpha Chlordane	J
TP02_1.5-2	6010D	7440-39-3	Barium	J
TP02_1.5-2	8081B	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	UJ
TP02_1.5-2	6010D	7440-43-9	Cadmium	J
TP02_1.5-2	6010D	7440-47-3	Chromium, Total	J
TP02_1.5-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
TP02_1.5-2	8081B	60-57-1	Dieldrin	J
TP02_1.5-2	8081B	5103-74-2	Gamma Chlordane	J
TP02_1.5-2	8081B	72-43-5	Methoxychlor	UJ
TP02_1.5-2	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP02_1.5-2	6010D	7440-02-0	Nickel	J
TP03_1-1.5	8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP03_1-1.5	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP03_1-1.5	8081B	72-54-8	4,4'-DDD	UJ
TP03_1-1.5	8081B	50-29-3	4,4'-DDT	J
TP03_1-1.5	8260C	67-64-1	Acetone	UJ
TP03_1-1.5	8081B	319-84-6	Alpha BHC (Alpha Hexachlorocyclohexane)	J
TP03_1-1.5	6010D	7440-39-3	Barium	J
TP03_1-1.5	6010D	7440-43-9	Cadmium	J
TP03_1-1.5	8081B	57-74-9	Chlordane (alpha and gamma)	J
TP03_1-1.5	6010D	7440-47-3	Chromium, Total	J
TP03_1-1.5	8260C	75-71-8	Dichlorodifluoromethane	UJ
TP03_1-1.5	8081B	60-57-1	Dieldrin	J
TP03_1-1.5	8081B	5103-74-2	Gamma Chlordane	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TP03_1-1.5	8081B	72-43-5	Methoxychlor	UJ
TP03_1-1.5	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP03_1-1.5	6010D	7440-02-0	Nickel	J
SB16_0-2	8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
SB16_0-2	8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB16_0-2	8081B	72-54-8	4,4'-DDD	UJ
SB16_0-2	8260C	67-64-1	Acetone	UJ
SB16_0-2	6010D	7440-38-2	Arsenic	U (1)
SB16_0-2	6010D	7440-39-3	Barium	J
SB16_0-2	6010D	7440-39-3	Barium	J
SB16_0-2	8081B	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	UJ
SB16_0-2	6010D	7440-43-9	Cadmium	UJ
SB16_0-2	6010D	7440-43-9	Cadmium	J
SB16_0-2	8081B	57-74-9	Chlordane (alpha and gamma)	J
SB16_0-2	6010D	7440-47-3	Chromium, Total	J
SB16_0-2	6010D	7440-47-3	Chromium, Total	UJ
SB16_0-2	8260C	75-71-8	Dichlorodifluoromethane	UJ
SB16_0-2	8081B	5103-74-2	Gamma Chlordane	J
SB16_0-2	8081B	72-43-5	Methoxychlor	UJ
SB16_0-2	8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB16_0-2	6010D	7440-02-0	Nickel	J

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1924686:

The initial calibration (ICAL) for instrument VOA122 exhibited response factors (RFs) below the control limit for acetone (0.033), acrylonitrile (0.041), 2-butanone (0.049), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.062), and 2-hexanone (0.100). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "J" or "UJ" based on potential indeterminate bias.

The initial calibration verification (ICV) analyzed on 6/11/2019 at 19:02 exhibited a percent difference (%D) above the control limit for dichlorodifluoromethane (-25.6%). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "UJ" based on potential indeterminate bias.

L1926329:

The ICAL for instrument ELAINE exhibited RFs below the control limit for acetone (0.054), 2-butanone (0.073), 1,4-dioxane (0.002), and 4-methyl-2-pentanone (0.070). The associated results in sample TMW11_061219 are qualified as "J" or "UJ" based on potential indeterminate bias.

The continuing calibration verification (CCV) analyzed on 6/17/2019 at 07:06 exhibited %Ds above the control limit for chloromethane (30.0%), bromomethane (50.2%), and 2,2-dichloropropane (-24.0%). The associated results in sample TMW11_061219 are qualified as "UJ" based on potential indeterminate bias.

19J0468:

The laboratory control sample and duplicate (LCS/LCSD) for batch BJ90897 exhibited percent recoveries below the lower control limit (LCL) for chlorobenzene (87.7%), tetrachloroethylene (80.2%), cis-1,2-dichloroethylene (78%), trans-1,2-dichloroethene (78.8%), tert-butyl methyl ether (74.2%), chloroform (81.9%, 77%), benzene (83.5%, 77%), and 1,1-dichloroethane (81.9%, 76.3%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, RIGWFB01_100919, and RITB06_100919 are qualified as "J" or "UJ" based on potential low bias.

The ICV analyzed on 10/7/2019 at 17:57 exhibited %Ds above the control limit for acetone (-31.8%) and acrolein (-42.1%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, RIGWFB01_100919, and RITB06_100919 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/15/2019 at 10:21 exhibited %Ds above the control limit for 1,1,2,2-tetrachloroethane (-23.2%), 1,1,2-trichloro-1,2,2-trifluoroethane (21.0%), 1,2,3-trichloropropane (-21.3%), 1,2-dibromo-3-chloropropane (-22.9%), 2-hexanone (-23.5%), bromomethane (20.5%), carbon tetrachloride (21.7%), dichlorodifluoromethane (26.0%), trichlorofluoromethane (31.3%), and vinyl chloride (20.2%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, RIGWFB01_100919, and RITB06_100919 are qualified as "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Method 8270D and 8270D SIM:

L1924686:

The ICV analyzed on 6/2/2019 at 12:59 exhibited %Ds above the control limit for butyl benzyl phthalate (20.0%) and di-n-octylphthalate (23.4%). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/16/2019 at 14:54 exhibited a %D above the control limit for bis(2-ethylhexyl)phthalate (35.2%). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "J" or "UJ" based on potential indeterminate bias.

The method blank (MB) for batch WG1248650 exhibited a detection of benzo(a)anthracene (0.02 ug/L). The associated results in sample TMW12_061019 are qualified as "U" at the reporting limit based on potential blank contamination.

The LCS/LCSD for batch WG1248650 exhibited relative percent differences (RPDs) above the control limit for 2-chloronaphthalene (47%), 2-methylnaphthalene (54%), acenaphthene (42%), acenaphthylene (42%), hexachlorobutadiene (64%), hexachloroethane (64%), and naphthalene (62%). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/16/2019 at 17:07 exhibited a %D above the control limit for pentachlorophenol (33.1%). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "UJ" based on potential indeterminate bias.

L1926329:

The CCV analyzed on 6/20/2019 at 10:49 exhibited %Ds above the control limit for 2-nitrophenol (-26.7%), 2,4-dimethylphenol (35.4%), 2,6-dinitrotoluene (-21.2%), 2,4-dinitrophenol (-46.9%),

2,4-dinitrotoluene (-25.2%), and 4,6-dinitro-o-cresol (-47.7%). The associated results in sample TMW11_061219 are qualified as "UJ" based on potential indeterminate bias.

The MB for batch WG1248886 exhibited a detection of pyrene (0.02 ug/L). The associated results in sample TMW11_061219 are qualified as "U" at the reporting limit based on potential blank contamination.

The LCS/LCSD for batch WG1248886 exhibited RPDs above the control limit for 2-methylnaphthalene (42%), acenaphthene (45%), anthracene (47%), benzo(a)anthracene (52%), benzo(a)pyrene (49%), benzo(b)fluoranthene (49%), benzo(ghi)perylene (62%), benzo(k)fluoranthene (47%), chrysene (50%), dibenzo(a,h)anthracene (59%), fluorene (42%), hexachlorobenzene (46%), indeno(1,2,3-cd)pyrene (63%), and phenanthrene (48%). The associated results in sample TMW11_061219 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/17/2019 at 13:05 exhibited %Ds above the control limit for hexachlorobutadiene (21.6%) and pentachlorophenol (40.5%). The associated results in sample TMW11_061219 are qualified as "UJ" based on potential indeterminate bias.

<u>19J0468:</u>

The CCV analyzed on 10/14/2019 at 08:25 exhibited %Ds above the control limit for 2,4-dinitrophenol (30.4%), 4,6-dinitro-2-methylphenol (40.9%), acetophenone (-26.0%), aniline (-23.9%), benzaldehyde (-42.6%), benzidine (-41.8%), bis(2-chloroethyl)ether (-22.2%), bis(2-chloroisopropyl)ether (-33.2%), and n-nitroso-di-n-propylamine (-20.7%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential indeterminate bias.

The MB for batch BJ90749 exhibited a detection of bis(2-ethylhexyl)phthalate (1.3 ug/L). The associated results in sample RIGWFB01_100919 are qualified as "U" at the sample concentration based on potential blank contamination.

The CCV analyzed on 10/14/2019 at 08:59 exhibited a %D above the control limit for pentachlorophenol (-47.1%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential indeterminate bias.

PCBs by SW-846 Method 8082A:

L1924686:

The LCS/LCSD for batch WG1248400 exhibited a RPD above the control limit for PCB 1260 (56%). The associated results in sample TMW08_061019 and TMW12_061019 are qualified as "UJ" based on potential indeterminate bias.

L1926329:

The CCV analyzed on 6/18/2019 at 04:34 exhibited a %D above the control limit for PCB 1268 (26.7%). The associated results in sample TMW11_061219 are qualified as "UJ" based on potential indeterminate bias.

Pesticides by SW-846 Method 8081B:

L1926329:

The CCV analyzed on 6/18/2019 at 16:34 exhibited a %D above the control limit for endrin ketone (-31.0%). The associated results in sample TMW11_061219 are qualified as "UJ" based on potential indeterminate bias.

Metals by SW-846 Method 6020B and 6010D:

L1924686:

The MB for batch WG1249156 exhibited a detection of antimony, total (0.00088 mg/L). The associated results in sample TMW06_061019, TMW08_061019, and TMW12_061019 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1249325 exhibited a detection of antimony, dissolved (0.00094 mg/L). The associated results in sample TMW08_061019 and TMW12_061019 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1249325 exhibited a detection of iron, dissolved (0.0209 mg/L). The associated results in sample TMW08_061019 are qualified as "U" at the reporting limit based on potential blank contamination.

L1926329:

The MB for batch WG1250346 exhibited a detection of dissolved antimony (0.00116 mg/L). The associated results in sample TMW11_061219 are qualified as "U" at the reporting limit based on potential blank contamination.

The MS for batch WG1250346 exhibited a percent recovery above the UCL for dissolved calcium (128%). The associated results in sample TMW11_061219 are qualified as "J" based on potential high bias.

The MB for batch WG1250347 exhibited a detection of total antimony (0.00062 mg/L). The associated results in sample TMW11_061219 are qualified as "U" at the reporting limit based on potential blank contamination.

The matrix spike (MS) for batch WG1250347 exhibited a percent recovery above the upper control limit (UCL) for total calcium (131%). The associated results in sample TMW11_061219 are qualified as "J" based on potential high bias.

The laboratory duplicate and parent sample (TMW11_061219) exhibited RPDs above the control limit for total aluminum (23%) and total vanadium (21%). The associated results are qualified as "J" based on potential indeterminate bias.

The continuing calibration blank (CCB) analyzed on 6/19/2019 at 15:22 exhibited a detection of dissolved iron (28.8 ug/L). The associated results in sample TMW11_061219 are qualified as "U" at the reporting limit based on potential blank contamination.

19J0468:

The LCS for batch BJ90783 exhibited percent recoveries below the LCL for total potassium (75.9%), total silver (77.6%), and total calcium (79.9%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential low bias.

The field duplicate and parent sample (RIGWDUP01_100919 and MW24_100919) exhibited absolute differences above the RL for total aluminum (0.058 mg/L) and dissolved selenium (0.00256 mg/L). The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 10/15/2019 at 15:23 exhibited percent recoveries below the LCL for total cobalt (89.2%), total iron (89.4%), total lead (87.4%), total magnesium (88.3%), total nickel (89.5%), and total zinc (86.5%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential low bias.

The CCV analyzed on 10/15/2019 at 16:32 exhibited a percent recovery below the LCL for dissolved potassium (89.4%). The associated results in sample MW18_100919, MW19_100919, and MW24_100919 are qualified as "J" based on potential low bias.

The CCV analyzed on 10/15/2019 at 17:08 exhibited percent recoveries below the LCL for dissolved calcium (88.9%), dissolved iron (89.5%), dissolved magnesium (89.6%), and dissolved zinc (89.1%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential low bias.

The LCS for batch BJ90782 exhibited a percent recovery below the LCL for total antimony (76.6%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential low bias.

The laboratory duplicate and parent sample (MW24_100919) exhibited a RPD above the control limit for total selenium (38.9%). The associated results are qualified as "J" based on potential indeterminate bias.

The MS for batch BJ90782 exhibited a percent recovery below the LCL for total beryllium (53.8%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential low bias.

The LCS for batch BJ90922 exhibited percent recoveries below the LCL for dissolved antimony (78.9%) and dissolved beryllium (78.0%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 10/16/2019 at 18:36 exhibited a percent recovery below the LCL for dissolved cadmium (85.2%). The associated results in sample MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 10/16/2019 at 18:36 exhibited a percent recovery above the UCL for dissolved selenium (111%). The associated results in sample MW18_100919 and MW19_100919 are qualified as "J" based on potential high bias.

The serial dilution for batch BJ90783 exhibited %Ds above the control limit for total manganese (31.5%) and total sodium (17.5%). The associated results in samples MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential indeterminate bias.

The serial dilution for batch BJ90921 exhibited %Ds above the control limit for dissolved manganese (45.8%) and dissolved sodium (31.8%). The associated results in samples

MW18_100919, MW19_100919, MW24_100919, RIGWDUP01_100919, and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential indeterminate bias.

The serial dilution for batch BJ90921 exhibited a %D above the control limit for dissolved potassium (31.8%). The associated results in samples RIGWDUP01_100919 and RIGWFB01_100919 are qualified as "J" or "UJ" based on potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1924686:

The ICV analyzed on 6/11/2019 at 19:02 exhibited a %D above the control limit for acetone (-30.3%). The associated results were previously qualified. No further action is necessary.

The CCV analyzed on 6/13/2019 at 08:30 exhibited %Ds above the control limit for acetone (-21.2%) and 1,4-dioxane (-33.7%). The associated results were previously qualified. No further action is necessary.

L1926329:

The CCV analyzed on 6/17/2019 at 07:06 exhibited a %D above the control limit for 1,4-dioxane (25.8%). The associated results were previously qualified. No further action is necessary.

19J0468:

The field blank (RIGWFB01_100919) exhibited a detection of carbon disulfide (0.49 ug/L). The associated results are non-detections. No qualification is necessary.

The trip blank (RITB06_100919) exhibited a detection of chloromethane (0.28 ug/L). The associated results are non-detections. No qualification is necessary.

The CCV analyzed on 10/15/2019 at 10:21 exhibited a %D above the control limit for acetone (-30.8%). The associated results were previously qualified. No further action is necessary.

SVOCs by SW-846 Method 8270D and 8270D SIM:

L1924686:

The sample TMW08_061019 exhibited a percent recovery above the UCL for the surrogate nitrobenzene-d5 (131%). The other two base/neutral extractable surrogates were recovered within the control limits. No qualification is necessary.

The LCS/LCSD for batch WG1248646 exhibited percent recoveries above the UCL for 1,2,4-trichlorobenzene (118%, 117%), 1,4-dichlorobenzene (114%, 116%), 2,4-dichlorophenol (137%, 136%), 2-chlorophenol (131%, 136%), 4-nitrophenol (109%, 106%), acenaphthene (129%, 129%), acenaphthylene (137%, 136%), acetophenone (131%, 133%), benzo(a)anthracene (143%, 144%), benzo(ghi)perylene (160%, 156%), benzyl alcohol (120%, 124%), dibenzo(a,h)anthracene (142%, 144%), n-nitrosodi-n-propylamine (140%, 147%), p-chloro-m-cresol (138%, 135%), and 2-nitrophenol (137%). The associated results are non-detections. No qualification is necessary.

The CCV analyzed on 6/16/2019 at 14:54 exhibited a %D above the control limit for di-n-octylphthalate (35.3%). The associated results were previously qualified. No further action is necessary.

L1926329:

The LCS/LCSD for batch WG1248885 exhibited percent recoveries above the UCL for 1,2,4-trichlorobenzene (100%), 4-nitrophenol (99%, 105%), and p-chloro-m-cresol (110%, 113%). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1248886 exhibited detections of anthracene (0.03 ug/L), fluoranthene (0.02 ug/L), fluorene (0.02 ug/L), and phenanthrene (0.04 ug/L). The associated results are non-detections. No qualification is necessary.

The CCV analyzed on 6/17/2019 at 13:05 exhibited %Ds above the control limit for hexachlorobenzene (22.0%) and dibenzo(a,h)anthracene (-27.4%). The associated results were previously qualified. No further action is necessary.

19J0468:

The MS and matrix spike duplicate (MSD) for batch BJ90749 exhibited RPDs above the control limit for 4-nitrophenol (34.5%), 2,4-dimethylphenol (26.6%), bis(2-chloroethoxy)methane (28.6%), 2,4-dichlorophenol (33.1%), dimethyl phthalate (45.7%), 2,6-dinitrotoluene (46.5%), hexachlorocyclopentadiene (34.7%), 2,4,6-trichlorophenol (32.2%), 2-nitroaniline (34%), 1,2,4,5-

tetrachlorobenzene (30.1%), 2,4,5-trichlorophenol (32.2%), and 3-nitroaniline (27.1%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch BJ90749 exhibited percent recoveries below the LCL for benzoic acid (0%) and caprolactam (0%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The field blank (RIGWFB01_100919) exhibited a detection of bis(2-ethylhexyl)phthalate (0.831 ug/L). The associated results are non-detections. No qualification is necessary.

PFAS by USEPA Method 537M:

19J0468:

The MS for batch BJ90667 exhibited a percent recovery above the UCL for perfluorooctanesulfonic acid (150%, 151%). Organic results are not qualified on the basis of MS recoveries alone. No qualification is necessary.

The sample MW24_100919 exhibited a percent recovery above the UCL for the surrogate sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (177%). The associated results are non-detections. No qualification is necessary.

The sample RIGWDUP01_100919 exhibited a percent recovery above the UCL for the surrogate sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (182%). The associated results are non-detections. No qualification is necessary.

Herbicides by SW-846 Method 8151A:

19J0468:

The MS/MSD for batch BJ90892 exhibited percent recoveries below the LCL for 2,4,5-tp (24.4%, 18.8%), 2,4,5-t (19.4%, 15%), and 2,4-d (25.6%, 19.4%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The CCV analyzed on 10/15/2019 at 17:21 exhibited a %D above the control limit for 2,4,5-t (-24.7%). No associated results are reported from the corresponding column. No qualification is necessary.

PCBs by SW-846 Method 8082A:

L1924686:

The MB for batch WG1248400 exhibited detections of PCB 1260 (0.035 ug/L) and PCBs, total (0.035 ug/L). The associated results are non-detections. No qualification is necessary.

19J0468:

The sample MW18_100919 exhibited a percent recovery above the UCL for the surrogate tetrachloro-m-xylene (124%). No associated results are reported from the corresponding column. No qualification is necessary.

The sample MW19_100919 exhibited a percent recovery above the UCL for the surrogate tetrachloro-m-xylene (126%). No associated results are reported from the corresponding column. No qualification is necessary.

Pesticides by SW-846 Method 8081B:

19J0468:

The LCS for batch BJ90704 exhibited percent recoveries above the UCL for p,p'-DDT (154%) and methoxychlor (177%). The associated results are non-detections. No qualification is necessary.

The MS for batch BJ90704 exhibited a percent recovery above the UCL for methoxychlor (189%, 206%). Organic results are not qualified on the basis of MS recoveries alone. No qualification is necessary.

The MS/MSD for batch BJ90704 exhibited a RPD above the control limit for p,p'-DDT (21%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

Metals by SW-846 Method 6020B and 6010D:

L1924686:

The MB for batch WG1249156 exhibited a detection of iron, total (0.0236 mg/L). The associated results are >10X the contamination. No qualification is necessary.

The CCB analyzed on 6/17/2019 at 17:28 exhibited a detection of total antimony (2.21 ug/L). The associated results were previously qualified. No further action is necessary.

The CCB analyzed on 6/17/2019 at 17:28 exhibited a detection of total iron (26.6 ug/L). The associated results are >10X the contamination. No qualification is necessary.

The CCB analyzed on 6/17/2019 at 16:32 exhibited a detection of dissolved iron (29.3 ug/L). The associated results were previously qualified. No further action is necessary.

The CCB analyzed on 6/17/2019 at 16:32 exhibited a detection of dissolved antimony (2.17 ug/L). The associated results were previously qualified. No further action is necessary.

The CCB analyzed on 6/17/2019 at 17:28 exhibited a detection of dissolved antimony (2.21 ug/L). The associated results were previously qualified. No further action is necessary.

L1926329:

The MS/MSD for batch WG1250346 exhibited a percent recovery below the LCL for dissolved sodium (54%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS for batch WG1250347 exhibited a percent recovery above the UCL for total antimony (132%). The associated results were previously qualified. No further action is necessary.

The MS/MSD for batch WG1250347 exhibited a percent recovery below the LCL for total iron (70%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The CCB analyzed on 6/19/2019 at 16:19 exhibited detections of dissolved antimony (3.86 ug/L) and dissolved thallium (0.158 ug/L). The associated results were previously qualified or are non-detections. No further action or qualification is necessary.

The CCB analyzed on 6/19/2019 at 16:19 exhibited detections of total antimony (3.86 ug/L) and total thallium (0.158 ug/L). The associated results were previously qualified or are non-detections. No further action or qualification is necessary.

The CCB analyzed on 6/19/2019 at 17:14 exhibited a detection of total iron (29.9 ug/L). The associated results are >10X the contamination. No qualification is necessary.

19J0468:

The MS/MSD for batch BJ90783 exhibited percent recoveries above the UCL for total magnesium (572%), total potassium (128%), total sodium (566%), and total calcium (833%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The post digestion spike for batch BJ90783 exhibited percent recoveries above the UCL for total magnesium (323%) and total calcium (275%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The post digestion spike for batch BJ90783 exhibited percent recoveries below the LCL for total potassium (28.6%) and total sodium (-160%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The post digestion spike for batch BJ90921 exhibited percent recoveries below the LCL for dissolved magnesium (-224%), dissolved potassium (-113%), dissolved sodium (-955%), and dissolved calcium (-862%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The field blank (RIGWFB01_100919) exhibited detections of total aluminum (0.0804 mg/L), total zinc (0.0869 mg/L), total calcium (0.087 mg/L), dissolved magnesium (0.096 mg/L), dissolved zinc (0.0557 mg/L), and dissolved calcium (0.135 mg/L). The associated results are >10X the contamination or non-detections. No qualification is necessary.

The CCV analyzed on 10/15/2019 at 15:23 exhibited percent recoveries below the LCL for total calcium (87.4%) and total potassium (87.3%). The associated results were previously qualified. No further action is necessary.

The laboratory duplicate and parent sample (MW24_100919) exhibited a RPD above the control limit for dissolved selenium (35.0%). The associated results were previously qualified. No further action is necessary.

The MS for batch BJ90922 exhibited a percent recovery below the LCL for dissolved beryllium (58.4%). The associated results were previously qualified. No further action is necessary.

The CCV analyzed on 10/16/2019 at 17:32 exhibited percent recoveries below the LCL for total antimony (86.0%) and total beryllium (86.4%). The associated results were previously qualified. No further action is necessary.

The CCV analyzed on 10/16/2019 at 18:36 exhibited percent recoveries below the LCL for dissolved antimony (77.9%) and dissolved beryllium (78.4%). The associated results were previously qualified. No further action is necessary.

The serial dilution for batch BJ90783 exhibited a %D above the control limit for total aluminum (318%). The parent sample concentration is <50X the MDL. No qualification is necessary.

The serial dilution for batch BJ90783 exhibited %Ds above the control limit for total calcium (19.8%), total magnesium (29.5%), and total potassium (14.8%). The associated results are previously qualified. No further action is necessary.

The serial dilution for batch BJ90921 exhibited a %D above the control limit for dissolved aluminum (592%). The parent sample concentration is <50X the MDL. No qualification is necessary.

The serial dilution for batch BJ90921 exhibited %Ds above the control limit for dissolved calcium (28.0%) and dissolved magnesium (34.8%). The associated results are previously qualified. No further action is necessary.

Mercury by SW-846 Method 7470A and 7473:

L1926329:

The MB for batch WG1250013 exhibited a detection of dissolved mercury (0.00009 mg/L). The associated results are non-detections. No qualification is necessary.

COMMENTS:

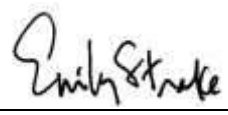
A field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±1X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 30%. The following field duplicate and parent sample pairs were compared to the precision criteria:

- RIGWDUP01_100919 and MW24_100919: total aluminum, dissolved selenium

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified, with the exception of the rejected results. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

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To: Sherief Saleh, Langan Senior Staff Scientist

From: Emily Strake, Langan Senior Project Chemist

Date: January 14, 2020

Re: Data Usability Summary Report
For 2413 Third Avenue
June through October 2019 Soil Samples
Langan Project No.: 170396002

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in June through October 2019 by Langan Engineering and Environmental Services ("Langan") at the 2413 Third Avenue site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) and York Analytical Laboratories, Inc. (NYSDOH NELAP registration # 10854) for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), 1,4-dioxane, per- and polyfluoroalkyl substances (PFAS), herbicides, polychlorinated biphenyls (PCBs), pesticides, metals including mercury (Hg), TCLP lead and mercury, hexavalent chromium (CrVI), trivalent chromium (CrIII), and total solids (%S) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D and 8270D SIM
- 1,4-Dioxane by SW-846 Method 8270D SIM
- PFAS by USEPA Method 537M
- Herbicides by SW-846 Method 8151A
- PCBs by SW-846 Method 8082A
- Pesticides by SW-846 Method 8081B
- Metals by SW-846 Method 6010D and 6020B
- Mercury by SW-846 Method 7470A and 7473
- Hexavalent Chromium by SW-846 Method 7196A
- Trivalent Chromium (calculated)
- Total Solids by Standard Method 2540G

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1927257	L1927257-01	SB06_1-2	6/6/2019	TCLP Lead, %S
L1927257	L1927257-02	SB06_7-8	6/6/2019	TCLP Lead, %S
L1927257	L1927257-03	SB07_2-3	6/6/2019	TCLP Lead, %S
L1924067	L1924067-01	SB06_1-2	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-02	SB06_7-8	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-03	SB07_2-3	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-04	SB07_5-6	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-05	SB08_1-2	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-06	SB08_5-6	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-07	SB09_2-3	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-08	SB09_5-6	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-09	SB12_3-4	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924067	L1924067-10	SB12_5-6	6/6/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1927257	L1927257-04	SB13_3-4	6/7/2019	TCLP Lead, %S
L1927257	L1927257-05	SB14_3-4	6/7/2019	TCLP Lead, %S
L1927257	L1927257-06	SB15_3-4	6/7/2019	TCLP Lead, %S
L1926266	L1926266-01	SB11_1-2	6/7/2019	TCLP Lead, %S
L1926266	L1926266-02	SB13_3-4	6/7/2019	TCLP Mercury, %S
L1926266	L1926266-03	SB15_3-4	6/7/2019	TCLP Mercury, %S
L1924383	L1924383-01	SB10_1-2	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-02	SB10_7-8	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-03	SB11_1-2	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-04	SB11_5-6	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1924383	L1924383-05	SB13_3-4	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-06	SB13_10-11	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-07	SB14_3-4	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1924383	L1924383-08	SB15_3-4	6/7/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1927636	L1927636-01	TP01_2-2.5	6/21/2019	TCLP Lead, %S
L1927241	L1927241-01	TP01_2-2.5	6/21/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1927241	L1927241-02	TP02_1.5-2	6/21/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1927241	L1927241-03	TP03_1-1.5	6/21/2019	VOCs, SVOCs, Pesticides, PCBs, Metals, CrVI, CrIII, %S
L1927241	L1927241-04	SB16_0-2	6/21/2019	TCLP Lead, %S
19I1299	19I1299-01	SB16_0-2	9/27/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-02	SB16_2-4	9/27/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-03	SB17_0-2	9/27/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-04	SB17_5.5-7.5	9/27/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-05	SB31_0-2	9/27/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-06	SB31_6.5-8.5	9/27/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1299	19I1299-07	RITB01_092719	9/27/2019	VOCs, %S
19I1369	19I1369-01	SB21_0-2	9/30/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-02	SB21_5-7	9/30/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-03	SB22_0-2	9/30/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
19I1369	19I1369-04	SB22_5-7	9/30/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-05	SB23_0-2	9/30/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-06	SB23_5.5-7.5	9/30/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-07	RISODUP01_093019	9/30/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-08	RISOFB01_093019	9/30/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19I1369	19I1369-09	RITB02_093019	9/30/2019	VOCs, %S
19J0068	19J0068-01	SB18_0-2	10/1/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-02	SB18_10-12	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-03	SB24_0-2	10/1/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-04	SB24_10-12	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII
19J0068	19J0068-05	SB24_15-16	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-06	SB25_0-2	10/1/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-07	SB25_6-8	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-08	SB25_11-12	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-09	SB26_0-2	10/1/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-10	SB26_6-8	10/1/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0068	19J0068-11	RITB03_100119	10/1/2019	VOCs, %S
19J0144	19J0144-01	SB19_0-2	10/2/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
19J0144	19J0144-02	SB19_8-9	10/2/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0144	19J0144-03	SB27_0-2	10/2/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0144	19J0144-04	SB27_6-8	10/2/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0144	19J0144-05	SB28_0-2	10/2/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0144	19J0144-06	SB28_5.5-7.5	10/2/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0144	19J0144-07	RITB04_100219	10/2/2019	VOCs, %S
19J0216	19J0216-01	SB20_0-2	10/3/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0216	19J0216-02	SB20_13-15	10/3/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0216	19J0216-03	SB30_0-2	10/3/2019	VOCs, SVOCs, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0216	19J0216-04	SB30_10-12	10/3/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0216	19J0216-05	RISODUP02_100319	10/3/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S
19J0216	19J0216-06	RITB05_100319	10/3/2019	VOCs, %S
19J0216	19J0216-07	RISOFB02_100319	10/3/2019	VOCs, SVOCs, 1,4-Dioxane, PFAS, Pesticides, PCBs, Herbicides, Metals, CrVI, CrIII, %S

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-17, "Validating Chlorinated Herbicides" (December 2010, Revision 3.1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) Aroclor

Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-36A, "Pesticide Data Validation" (October 2016, Revision 1), USEPA Region II SOP #HW-3a, "ICP-AES Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), the USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

EPA Method 537 was developed and validated for the analysis of finished drinking water from surface water and groundwater sources. Laboratories have modified Method 537 to enable the analysis of groundwater and soil, and to incorporate PFAS analytes not currently addressed by the promulgated method. NYSDOH offers certification for PFOA and PFOS in the drinking water category. Non-potable water and soil certification is not available; however, the method describes acceptable modifications. EPA recommends that modified methods be assessed relative to project goals and data quality objectives.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, sample extraction and digestion, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, isotope dilution recoveries, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, field blank, and trip blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

NJ – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB16_0-2_092719	SW6010B	7439-92-1	Lead	J
SB16_0-2_092719	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.019)
SB16_0-2_092719	SW6010B	7440-22-4	Silver	UJ
SB16_0-2_092719	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB16_0-2_092719	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB16_0-2_092719	SW8260C	75-01-4	Vinyl Chloride	UJ
SB16_0-2_092719	SW6010B	7440-66-6	Zinc	J
SB16_2-4	SW6010B	7439-92-1	Lead	J
SB16_2-4	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.032)
SB16_2-4	SW6010B	7440-22-4	Silver	UJ
SB16_2-4	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB16_2-4	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB16_2-4	SW8260C	75-01-4	Vinyl Chloride	UJ
SB16_2-4	SW6010B	7440-66-6	Zinc	J
SB17_0-2	SW8081B	72-55-9	4,4'-DDE	J
SB17_0-2	SW6010B	7439-92-1	Lead	J
SB17_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.011)
SB17_0-2	E537M	754-91-6	Perfluorooctanesulfonamide	UJ
SB17_0-2	SW6010B	7440-22-4	Silver	J
SB17_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB17_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB17_0-2	SW8260C	75-01-4	Vinyl Chloride	UJ
SB17_0-2	SW6010B	7440-66-6	Zinc	J
SB17_5.5-7.5	SW6010B	7439-92-1	Lead	J
SB17_5.5-7.5	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0096)
SB17_5.5-7.5	SW8260C	91-20-3	Naphthalene	U (0.0096)
SB17_5.5-7.5	SW6010B	7440-22-4	Silver	J
SB17_5.5-7.5	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB17_5.5-7.5	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB17_5.5-7.5	SW8260C	75-01-4	Vinyl Chloride	UJ
SB17_5.5-7.5	SW6010B	7440-66-6	Zinc	J
SB31_0-2	SW6010B	7439-92-1	Lead	J
SB31_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	J
SB31_0-2	SW6010B	7440-22-4	Silver	UJ
SB31_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB31_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB31_0-2	SW8260C	75-01-4	Vinyl Chloride	UJ
SB31_0-2	SW6010B	7440-66-6	Zinc	J
SB31_6.5-8.5	SW6010B	7440-43-9	Cadmium	J
SB31_6.5-8.5	SW6010B	7440-50-8	Copper	J
SB31_6.5-8.5	SW6010B	7439-92-1	Lead	J
SB31_6.5-8.5	SW6010B	7439-96-5	Manganese	J
SB31_6.5-8.5	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.010)
SB31_6.5-8.5	SW6010B	7440-22-4	Silver	UJ
SB31_6.5-8.5	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB31_6.5-8.5	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB31_6.5-8.5	SW8260C	75-01-4	Vinyl Chloride	UJ
SB31_6.5-8.5	SW6010B	7440-66-6	Zinc	J
SB21_0-2	SW8260C	95-63-6	1,2,4-Trimethylbenzene	UJ
SB21_0-2	SW8260C	95-50-1	1,2-Dichlorobenzene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB21_0-2	SW8260C	108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	UJ
SB21_0-2	SW8260C	541-73-1	1,3-Dichlorobenzene	UJ
SB21_0-2	SW8260C	106-46-7	1,4-Dichlorobenzene	UJ
SB21_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB21_0-2	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB21_0-2	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	UJ
SB21_0-2	SW8260C	91-20-3	Naphthalene	UJ
SB21_0-2	SW8260C	104-51-8	n-Butylbenzene	UJ
SB21_0-2	SW8260C	103-65-1	n-Propylbenzene	UJ
SB21_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB21_0-2	SW8260C	135-98-8	Sec-Butylbenzene	UJ
SB21_0-2	SW8260C	98-06-6	T-Butylbenzene	UJ
SB21_5-7	SW6010B	7440-41-7	Beryllium	UJ
SB21_5-7	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB21_5-7	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	UJ
SB21_5-7	SW8082A	12674-11-2	PCB-1016 (Aroclor 1016)	UJ
SB21_5-7	SW8082A	11104-28-2	PCB-1221 (Aroclor 1221)	UJ
SB21_5-7	SW8082A	11141-16-5	PCB-1232 (Aroclor 1232)	UJ
SB21_5-7	SW8082A	53469-21-9	PCB-1242 (Aroclor 1242)	UJ
SB21_5-7	SW8082A	12672-29-6	PCB-1248 (Aroclor 1248)	UJ
SB21_5-7	SW8082A	11097-69-1	PCB-1254 (Aroclor 1254)	UJ
SB21_5-7	SW8082A	11096-82-5	PCB-1260 (Aroclor 1260)	UJ
SB21_5-7	SW8082A	37324-23-5	PCB-1262 (Aroclor 1262)	UJ
SB21_5-7	SW8082A	11100-14-4	PCB-1268 (Aroclor 1268)	UJ
SB21_5-7	SW8270D	87-86-5	Pentachlorophenol	UJ
SB21_5-7	SW8082A	1336-36-3	Total PCBs	UJ
SB22_0-2	SW8260C	67-64-1	Acetone	J
SB22_0-2	SW8260C	95-63-6	1,2,4-Trimethylbenzene	UJ
SB22_0-2	SW8260C	95-50-1	1,2-Dichlorobenzene	UJ
SB22_0-2	SW8260C	108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	UJ
SB22_0-2	SW8260C	541-73-1	1,3-Dichlorobenzene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB22_0-2	SW8260C	106-46-7	1,4-Dichlorobenzene	UJ
SB22_0-2	SW6010B	7440-39-3	Barium	J
SB22_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB22_0-2	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB22_0-2	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	J
SB22_0-2	SW8260C	91-20-3	Naphthalene	UJ
SB22_0-2	SW8260C	104-51-8	n-Butylbenzene	UJ
SB22_0-2	SW8260C	103-65-1	n-Propylbenzene	UJ
SB22_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB22_0-2	SW8260C	135-98-8	Sec-Butylbenzene	UJ
SB22_0-2	SW8260C	98-06-6	T-Butylbenzene	UJ
SB22_5-7	SW6010B	7440-41-7	Beryllium	UJ
SB22_5-7	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB22_5-7	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	UJ
SB22_5-7	SW8270D	87-86-5	Pentachlorophenol	UJ
SB23_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB23_0-2	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB23_0-2	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	J
SB23_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB23_5.5-7.5	SW6010B	7440-41-7	Beryllium	UJ
SB23_5.5-7.5	SW8270D	118-74-1	Hexachlorobenzene	UJ
SB23_5.5-7.5	SW8270D	193-39-5	Indeno(1,2,3-c,d)Pyrene	UJ
SB23_5.5-7.5	SW8270D	87-86-5	Pentachlorophenol	UJ
RISODUP01_093019	SW6010B	7440-39-3	Barium	J
RISODUP01_093019	SW6010B	7440-41-7	Beryllium	UJ
RISOFB01_093019	SW8260C	67-64-1	Acetone	UJ
RISOFB01_093019	SW8260C	91-20-3	Naphthalene	UJ
RISOFB01_093019	SW8260C	104-51-8	n-Butylbenzene	UJ
RISOFB01_093019	SW8270DSIM	87-86-5	Pentachlorophenol	UJ
RITB02_093019	SW8260C	67-64-1	Acetone	UJ
RITB02_093019	SW8260C	91-20-3	Naphthalene	UJ
RITB02_093019	SW8260C	104-51-8	n-Butylbenzene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB18_0-2	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB18_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB18_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB18_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB18_0-2	SW8260C	67-64-1	Acetone	J
SB18_0-2	SW6010B	7439-92-1	Lead	J
SB18_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.012)
SB18_0-2	SW6010B	7440-66-6	Zinc	J
SB18_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	J
SB18_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB18_10-12	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB18_10-12	SW6010B	7440-41-7	Beryllium	UJ
SB18_10-12	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB18_10-12	SW8270D	87-86-5	Pentachlorophenol	UJ
SB18_10-12	SW8260C	67-64-1	Acetone	UJ
SB18_10-12	SW6010B	7439-92-1	Lead	J
SB18_10-12	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0087)
SB18_10-12	SW6010B	7440-66-6	Zinc	J
SB18_10-12	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB18_10-12	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB24_0-2	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB24_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB24_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB24_0-2	SW8260C	67-64-1	Acetone	UJ
SB24_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB24_0-2	SW6010B	7439-92-1	Lead	J
SB24_0-2	E537M	754-91-6	Perfluorooctanesulfonamide	UJ
SB24_0-2	E537M	2706-90-3	Perfluoropentanoic Acid	J
SB24_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0084)
SB24_0-2	SW6010B	7440-66-6	Zinc	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB24_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB24_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB24_10-12	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB24_10-12	SW6010B	7440-41-7	Beryllium	UJ
SB24_10-12	SW8260C	67-64-1	Acetone	J
SB24_10-12	SW6010B	7440-50-8	Copper	U (12.3)
SB24_10-12	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB24_10-12	SW8270D	87-86-5	Pentachlorophenol	UJ
SB24_10-12	SW6010B	7439-92-1	Lead	J
SB24_10-12	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.011)
SB24_10-12	SW6010B	7440-66-6	Zinc	J
SB24_10-12	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB24_10-12	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB24_15-16	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB24_15-16	SW6010B	7440-41-7	Beryllium	UJ
SB24_15-16	SW8260C	67-64-1	Acetone	UJ
SB24_15-16	SW6010B	7440-50-8	Copper	U (12.4)
SB24_15-16	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB24_15-16	SW8270D	87-86-5	Pentachlorophenol	UJ
SB24_15-16	SW6010B	7439-92-1	Lead	J
SB24_15-16	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0092)
SB24_15-16	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB24_15-16	SW6010B	7440-66-6	Zinc	J
SB24_15-16	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB25_0-2	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB25_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB25_0-2	SW8260C	67-64-1	Acetone	J
SB25_0-2	SW8081B	5103-71-9	Alpha Chlordane	J
SB25_0-2	SW8081B	72-55-9	4,4'-DDE	J
SB25_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB25_0-2	SW6010B	7439-92-1	Lead	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB25_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.011)
SB25_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB25_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB25_0-2	SW6010B	7440-66-6	Zinc	J
SB25_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB25_6-8	SW6010B	7440-41-7	Beryllium	UJ
SB25_6-8	SW6010B	7439-92-1	Lead	J
SB25_6-8	SW8260C	91-20-3	Naphthalene	J
SB25_6-8	SW6010B	7440-50-8	Copper	U (14.3)
SB25_6-8	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB25_6-8	SW8081B	1031-07-8	Endosulfan Sulfate	UJ
SB25_6-8	SW8081B	309-00-2	Aldrin	UJ
SB25_6-8	SW8081B	319-84-6	Alpha BHC (Alpha Hexachlorocyclohexane)	UJ
SB25_6-8	SW8081B	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	UJ
SB25_6-8	SW8081B	319-86-8	Delta Bhc (Delta Hexachlorocyclohexane)	UJ
SB25_6-8	SW8081B	33213-65-9	Beta Endosulfan	UJ
SB25_6-8	SW8081B	50-29-3	4,4'-DDT	UJ
SB25_6-8	SW8081B	5103-71-9	Alpha Chlordane	UJ
SB25_6-8	SW8081B	58-89-9	Gamma Bhc (Lindane)	UJ
SB25_6-8	SW8081B	60-57-1	Dieldrin	UJ
SB25_6-8	SW8081B	72-20-8	Endrin	UJ
SB25_6-8	SW8081B	72-54-8	4,4'-DDD	UJ
SB25_6-8	SW8081B	72-55-9	4,4'-DDE	UJ
SB25_6-8	SW8081B	76-44-8	Heptachlor	UJ
SB25_6-8	SW8081B	959-98-8	Alpha Endosulfan	UJ
SB25_6-8	SW8260C	98-06-6	T-Butylbenzene	UJ
SB25_6-8	SW8270D	87-86-5	Pentachlorophenol	UJ
SB25_6-8	SW6010B	7440-66-6	Zinc	J
SB25_11-12	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB25_11-12	SW6010B	7440-41-7	Beryllium	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB25_11-12	SW8260C	67-64-1	Acetone	J
SB25_11-12	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0097)
SB25_11-12	SW6010B	7439-92-1	Lead	J
SB25_11-12	SW6010B	7440-50-8	Copper	U (16.4)
SB25_11-12	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB25_11-12	SW8270D	87-86-5	Pentachlorophenol	UJ
SB25_11-12	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB25_11-12	SW6010B	7440-66-6	Zinc	J
SB25_11-12	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB26_0-2	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB26_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB26_0-2	SW8260C	67-64-1	Acetone	UJ
SB26_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.01)
SB26_0-2	SW6010B	7439-92-1	Lead	J
SB26_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB26_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB26_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB26_0-2	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB26_0-2	SW6010B	7440-66-6	Zinc	J
SB26_6-8	SW8260C	71-55-6	1,1,1-Trichloroethane	UJ
SB26_6-8	SW8260C	67-64-1	Acetone	UJ
SB26_6-8	SW6010B	7440-41-7	Beryllium	UJ
SB26_6-8	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.011)
SB26_6-8	SW6010B	7439-92-1	Lead	J
SB26_6-8	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB26_6-8	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB26_6-8	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB26_6-8	SW8270D	87-86-5	Pentachlorophenol	UJ
SB26_6-8	SW6010B	7439-96-5	Manganese	J
SB26_6-8	SW6010B	7440-66-6	Zinc	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RITB03_100119	SW8260C	67-64-1	Acetone	UJ
RITB03_100119	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
RITB03_100119	SW8260C	91-20-3	Naphthalene	UJ
RITB03_100119	SW8260C	98-06-6	T-Butylbenzene	UJ
SB19_0-2	SW8260C	179601-23-1	M,P-Xylene	U (0.0092)
SB19_0-2	SW8260C	75-09-2	Methylene Chloride	J
SB19_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB19_0-2	SW8081B	50-29-3	4,4'-DDT	UJ
SB19_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB19_0-2	SW6010B	7440-47-3	Chromium, Total	J
SB19_0-2	SW6010B	7439-92-1	Lead	J
SB19_0-2	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB19_0-2	SW6010B	7440-22-4	Silver	UJ
SB19_8-9	SW8260C	75-35-4	1,1-Dichloroethene	UJ
SB19_8-9	SW6010B	7440-41-7	Beryllium	UJ
SB19_8-9	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB19_8-9	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	U (0.0093)
SB19_8-9	SW8081B	50-29-3	4,4'-DDT	UJ
SB19_8-9	SW8260C	67-64-1	Acetone	UJ
SB19_8-9	SW8260C	95-63-6	1,2,4-Trimethylbenzene	UJ
SB19_8-9	SW8270D	87-86-5	Pentachlorophenol	UJ
SB19_8-9	SW6010B	7440-47-3	Chromium, Total	J
SB19_8-9	SW8260C	108-90-7	Chlorobenzene	UJ
SB19_8-9	SW6010B	7439-92-1	Lead	J
SB19_8-9	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB19_8-9	SW8260C	79-01-6	Trichloroethene (TCE)	UJ
SB19_8-9	SW6010B	7440-22-4	Silver	UJ
SB19_8-9	SW8260C	75-01-4	Vinyl Chloride	UJ
SB27_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB27_0-2	SW6010B	7440-47-3	Chromium, Total	J
SB27_0-2	SW8081B	50-29-3	4,4'-DDT	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB27_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB27_0-2	SW6010B	7439-92-1	Lead	J
SB27_0-2	SW6010B	7440-22-4	Silver	UJ
SB27_6-8	SW6010B	7440-41-7	Beryllium	UJ
SB27_6-8	SW6010B	7440-47-3	Chromium, Total	J
SB27_6-8	SW6010B	7439-92-1	Lead	J
SB27_6-8	SW6010B	7440-22-4	Silver	UJ
SB28_0-2	SW6010B	7440-41-7	Beryllium	UJ
SB28_0-2	SW6010B	7440-47-3	Chromium, Total	J
SB28_0-2	SW6010B	7439-92-1	Lead	J
SB28_0-2	SW6010B	7440-22-4	Silver	UJ
SB28_5.5-7.5	SW6010B	7440-41-7	Beryllium	UJ
SB28_5.5-7.5	SW6010B	7440-47-3	Chromium, Total	J
SB28_5.5-7.5	SW8260C	127-18-4	Tetrachloroethene (PCE)	UJ
SB28_5.5-7.5	SW6010B	7439-92-1	Lead	J
SB28_5.5-7.5	SW8260C	179601-23-1	M,P-Xylene	U (0.0095)
SB28_5.5-7.5	SW8260C	75-09-2	Methylene Chloride	J
SB28_5.5-7.5	SW6010B	7440-22-4	Silver	UJ
SB20_0-2	SW6010B	7440-39-3	Barium	J
SB20_0-2	SW6010B	7440-43-9	Cadmium	J
SB20_0-2	SW6010B	7440-47-3	Chromium, Total	J
SB20_0-2	CALC_METALS	16065-83-1	Chromium, Trivalent	J
SB20_0-2	SW6010B	7439-92-1	Lead	J
SB20_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB20_0-2	SW6010B	7439-96-5	Manganese	J
SB20_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB20_0-2	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB20_0-2	SW7473	7439-97-6	Mercury	J
SB20_0-2	SW6010B	7440-50-8	Copper	J
SB20_0-2	SW6010B	7440-66-6	Zinc	J
SB20_13-15	SW6010B	7440-47-3	Chromium, Total	J
SB20_13-15	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB20_13-15	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB20_13-15	SW8270D	87-86-5	Pentachlorophenol	UJ
SB20_13-15	SW6010B	7440-50-8	Copper	J
SB30_0-2	SW6010B	7440-47-3	Chromium, Total	J
SB30_0-2	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB30_0-2	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB30_0-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB30_0-2	SW6010B	7440-50-8	Copper	J
SB30_10-12	SW6010B	7440-47-3	Chromium, Total	J
SB30_10-12	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB30_10-12	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
SB30_10-12	SW8270D	87-86-5	Pentachlorophenol	UJ
SB30_10-12	SW6010B	7440-50-8	Copper	J
RISODUP02_100319	SW6010B	7440-39-3	Barium	J
RISODUP02_100319	SW6010B	7440-43-9	Cadmium	J
RISODUP02_100319	SW6010B	7440-47-3	Chromium, Total	J
RISODUP02_100319	SW8151(S)	93-72-1	Silvex (2,4,5-Tp)	UJ
RISODUP02_100319	SW8270D	87-86-5	Pentachlorophenol	UJ
RISODUP02_100319	CALC_METALS	16065-83-1	Chromium, Trivalent	J
RISODUP02_100319	SW6010B	7439-92-1	Lead	J
RISODUP02_100319	SW6010B	7439-96-5	Manganese	J
RISODUP02_100319	SW7473	7439-97-6	Mercury	J
RISODUP02_100319	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
RISODUP02_100319	SW6010B	7440-50-8	Copper	J
RISODUP02_100319	SW6010B	7440-66-6	Zinc	J
RITB05_100319	SW8260C	95-63-6	1,2,4-Trimethylbenzene	UJ
RITB05_100319	SW8260C	108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	UJ
RITB05_100319	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
RITB05_100319	SW8260C	67-64-1	Acetone	UJ
RITB05_100319	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RISOFB02_100319	SW8260C	95-63-6	1,2,4-Trimethylbenzene	UJ
RISOFB02_100319	SW8260C	108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	UJ
RISOFB02_100319	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
RISOFB02_100319	SW8260C	67-64-1	Acetone	UJ
RISOFB02_100319	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
RISOFB02_100319	SW8270DSIM	87-86-5	Pentachlorophenol	UJ
SB06_1-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB06_1-2	SW8270D	88-75-5	2-Nitrophenol	UJ
SB06_1-2	SW8260C	67-64-1	Acetone	J
SB06_1-2	SW6010D	7440-38-2	Arsenic	J
SB06_1-2	SW6010D	7440-39-3	Barium	J
SB06_1-2	SW8260C	74-83-9	Bromomethane	UJ
SB06_1-2	SW6010D	7440-43-9	Cadmium	J
SB06_1-2	SW8260C	74-87-3	Chloromethane	UJ
SB06_1-2	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB06_1-2	SW6010D	7440-47-3	Chromium, Total	J
SB06_1-2	SW6010D	7440-48-4	Cobalt	J
SB06_1-2	SW6010D	7440-50-8	Copper	J
SB06_1-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB06_1-2	SW8081B	5103-74-2	Gamma Chlordane	J
SB06_1-2	SW8260C	87-68-3	Hexachlorobutadiene	UJ
SB06_1-2	SW6010D	7439-89-6	Iron	J
SB06_1-2	SW6010D	7439-92-1	Lead	J
SB06_1-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB06_1-2	SW8260C	91-20-3	Naphthalene	UJ
SB06_1-2	SW6010D	7440-28-0	Thallium	UJ
SB06_1-2	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB06_1-2	SW6010D	7440-62-2	Vanadium	J
SB06_1-2	SW8260C	108-05-4	Vinyl Acetate	UJ
SB06_1-2	SW6010D	7440-66-6	Zinc	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB06_7-8	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB06_7-8	SW8270D	100-02-7	4-Nitrophenol	UJ
SB06_7-8	SW8260C	67-64-1	Acetone	J
SB06_7-8	SW6010D	7440-39-3	Barium	J
SB06_7-8	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB06_7-8	SW8260C	74-83-9	Bromomethane	UJ
SB06_7-8	SW8260C	74-87-3	Chloromethane	UJ
SB06_7-8	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB06_7-8	SW6010D	7440-50-8	Copper	J
SB06_7-8	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB06_7-8	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB06_7-8	SW8260C	87-68-3	Hexachlorobutadiene	UJ
SB06_7-8	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB06_7-8	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	J
SB06_7-8	SW8260C	91-20-3	Naphthalene	J
SB06_7-8	SW8270D	87-86-5	Pentachlorophenol	UJ
SB06_7-8	SW6010D	7440-28-0	Thallium	UJ
SB06_7-8	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB06_7-8	SW8260C	108-05-4	Vinyl Acetate	UJ
SB07_2-3	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB07_2-3	SW8270D	100-02-7	4-Nitrophenol	UJ
SB07_2-3	SW8260C	67-64-1	Acetone	J
SB07_2-3	SW6010D	7440-39-3	Barium	J
SB07_2-3	SW8081B	33213-65-9	Beta Endosulfan	UJ
SB07_2-3	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB07_2-3	SW8260C	74-83-9	Bromomethane	UJ
SB07_2-3	SW8260C	74-87-3	Chloromethane	UJ
SB07_2-3	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB07_2-3	SW6010D	7440-50-8	Copper	J
SB07_2-3	SW8081B	319-86-8	Delta Bhc (Delta Hexachlorocyclohexane)	UJ
SB07_2-3	SW8260C	75-71-8	Dichlorodifluoromethane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB07_2-3	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB07_2-3	SW8081B	5103-74-2	Gamma Chlordane	J
SB07_2-3	SW8260C	87-68-3	Hexachlorobutadiene	UJ
SB07_2-3	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB07_2-3	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB07_2-3	SW8260C	91-20-3	Naphthalene	UJ
SB07_2-3	SW8270D	87-86-5	Pentachlorophenol	UJ
SB07_2-3	SW6010D	7440-28-0	Thallium	UJ
SB07_2-3	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB07_2-3	SW8260C	108-05-4	Vinyl Acetate	UJ
SB07_5-6	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB07_5-6	SW8270D	100-02-7	4-Nitrophenol	UJ
SB07_5-6	SW8260C	67-64-1	Acetone	J
SB07_5-6	SW6010D	7440-36-0	Antimony	U (4.37)
SB07_5-6	SW6010D	7440-39-3	Barium	J
SB07_5-6	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB07_5-6	SW8260C	74-83-9	Bromomethane	UJ
SB07_5-6	SW8260C	74-87-3	Chloromethane	UJ
SB07_5-6	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB07_5-6	SW6010D	7440-50-8	Copper	J
SB07_5-6	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB07_5-6	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB07_5-6	SW8260C	87-68-3	Hexachlorobutadiene	UJ
SB07_5-6	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB07_5-6	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB07_5-6	SW8260C	91-20-3	Naphthalene	UJ
SB07_5-6	SW8270D	87-86-5	Pentachlorophenol	UJ
SB07_5-6	SW6010D	7440-28-0	Thallium	UJ
SB07_5-6	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB07_5-6	SW8260C	108-05-4	Vinyl Acetate	UJ
SB08_1-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB08_1-2	SW8270D	100-02-7	4-Nitrophenol	UJ
SB08_1-2	SW8260C	67-64-1	Acetone	J
SB08_1-2	SW6010D	7440-39-3	Barium	J
SB08_1-2	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB08_1-2	SW8260C	74-83-9	Bromomethane	UJ
SB08_1-2	SW8260C	74-87-3	Chloromethane	UJ
SB08_1-2	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB08_1-2	SW6010D	7440-50-8	Copper	J
SB08_1-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB08_1-2	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB08_1-2	SW8260C	87-68-3	Hexachlorobutadiene	UJ
SB08_1-2	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB08_1-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB08_1-2	SW8260C	91-20-3	Naphthalene	UJ
SB08_1-2	SW8270D	87-86-5	Pentachlorophenol	UJ
SB08_1-2	SW6010D	7440-28-0	Thallium	UJ
SB08_1-2	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB08_1-2	SW8260C	108-05-4	Vinyl Acetate	UJ
SB08_5-6	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB08_5-6	SW8270D	100-02-7	4-Nitrophenol	UJ
SB08_5-6	SW6010D	7440-36-0	Antimony	U (4.85)
SB08_5-6	SW6010D	7440-39-3	Barium	J
SB08_5-6	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB08_5-6	SW8260C	74-83-9	Bromomethane	UJ
SB08_5-6	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB08_5-6	SW6010D	7440-50-8	Copper	J
SB08_5-6	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB08_5-6	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB08_5-6	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB08_5-6	SW8270D	87-86-5	Pentachlorophenol	UJ
SB08_5-6	SW8260C	100-42-5	Styrene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB08_5-6	SW6010D	7440-28-0	Thallium	UJ
SB08_5-6	SW8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB08_5-6	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB09_2-3	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB09_2-3	SW8270D	100-02-7	4-Nitrophenol	UJ
SB09_2-3	SW6010D	7440-39-3	Barium	J
SB09_2-3	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB09_2-3	SW8260C	74-83-9	Bromomethane	UJ
SB09_2-3	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB09_2-3	SW6010D	7440-50-8	Copper	J
SB09_2-3	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB09_2-3	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB09_2-3	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB09_2-3	SW8270D	87-86-5	Pentachlorophenol	UJ
SB09_2-3	SW8260C	100-42-5	Styrene	UJ
SB09_2-3	SW6010D	7440-28-0	Thallium	UJ
SB09_2-3	SW8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB09_2-3	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB09_5-6	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB09_5-6	SW8270D	100-02-7	4-Nitrophenol	UJ
SB09_5-6	SW6010D	7440-36-0	Antimony	U (4.87)
SB09_5-6	SW6010D	7440-39-3	Barium	J
SB09_5-6	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB09_5-6	SW8260C	74-83-9	Bromomethane	UJ
SB09_5-6	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB09_5-6	SW6010D	7440-50-8	Copper	J
SB09_5-6	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB09_5-6	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB09_5-6	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB09_5-6	SW8270D	87-86-5	Pentachlorophenol	UJ
SB09_5-6	SW8260C	100-42-5	Styrene	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB09_5-6	SW6010D	7440-28-0	Thallium	UJ
SB09_5-6	SW8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB09_5-6	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB12_3-4	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB12_3-4	SW8270D	100-02-7	4-Nitrophenol	UJ
SB12_3-4	SW6010D	7440-39-3	Barium	J
SB12_3-4	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB12_3-4	SW8260C	74-83-9	Bromomethane	UJ
SB12_3-4	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB12_3-4	SW6010D	7440-50-8	Copper	J
SB12_3-4	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB12_3-4	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB12_3-4	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB12_3-4	SW8270D	87-86-5	Pentachlorophenol	UJ
SB12_3-4	SW8260C	100-42-5	Styrene	UJ
SB12_3-4	SW6010D	7440-28-0	Thallium	UJ
SB12_3-4	SW8260C	110-57-6	Trans-1,4-Dichloro-2-Butene	UJ
SB12_3-4	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB12_5-6	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB12_5-6	SW8260C	591-78-6	2-Hexanone	UJ
SB12_5-6	SW8270D	100-02-7	4-Nitrophenol	UJ
SB12_5-6	SW6010D	7440-39-3	Barium	J
SB12_5-6	SW8270D	108-60-1	Bis(2-Chloroisopropyl) Ether	UJ
SB12_5-6	SW8260C	75-15-0	Carbon Disulfide	UJ
SB12_5-6	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB12_5-6	SW6010D	7440-50-8	Copper	J
SB12_5-6	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB12_5-6	SW8270D	117-84-0	Di-N-Octylphthalate	UJ
SB12_5-6	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
SB12_5-6	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB12_5-6	SW8270D	87-86-5	Pentachlorophenol	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB12_5-6	SW6010D	7440-28-0	Thallium	UJ
SB10_1-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB10_1-2	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB10_1-2	SW8260C	591-78-6	2-Hexanone	UJ
SB10_1-2	SW8270D	88-75-5	2-Nitrophenol	UJ
SB10_1-2	SW8270D	99-09-2	3-Nitroaniline	UJ
SB10_1-2	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB10_1-2	SW8270D	100-01-6	4-Nitroaniline	UJ
SB10_1-2	SW8270D	65-85-0	Benzoic Acid	UJ
SB10_1-2	SW8260C	75-15-0	Carbon Disulfide	UJ
SB10_1-2	SW8260C	74-87-3	Chloromethane	UJ
SB10_1-2	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB10_1-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB10_1-2	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB10_1-2	SW8081B	72-43-5	Methoxychlor	UJ
SB10_1-2	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB10_1-2	SW8260C	1634-04-4	Tert-Butyl Methyl Ether	U (3.3)
SB10_1-2	SW8260C	75-01-4	Vinyl Chloride	UJ
SB10_7-8	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB10_7-8	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB10_7-8	SW8260C	591-78-6	2-Hexanone	UJ
SB10_7-8	SW8270D	88-75-5	2-Nitrophenol	UJ
SB10_7-8	SW8270D	99-09-2	3-Nitroaniline	UJ
SB10_7-8	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB10_7-8	SW8270D	100-01-6	4-Nitroaniline	UJ
SB10_7-8	SW8270D	65-85-0	Benzoic Acid	UJ
SB10_7-8	SW8260C	75-15-0	Carbon Disulfide	UJ
SB10_7-8	SW8260C	74-87-3	Chloromethane	UJ
SB10_7-8	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB10_7-8	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB10_7-8	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB10_7-8	SW8081B	5103-74-2	Gamma Chlordane	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB10_7-8	SW8081B	72-43-5	Methoxychlor	UJ
SB10_7-8	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB10_7-8	SW8260C	1634-04-4	Tert-Butyl Methyl Ether	U (2)
SB10_7-8	SW8260C	75-01-4	Vinyl Chloride	UJ
SB11_1-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB11_1-2	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB11_1-2	SW8260C	591-78-6	2-Hexanone	UJ
SB11_1-2	SW8270D	88-75-5	2-Nitrophenol	UJ
SB11_1-2	SW8270D	99-09-2	3-Nitroaniline	UJ
SB11_1-2	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB11_1-2	SW8270D	100-01-6	4-Nitroaniline	UJ
SB11_1-2	SW8270D	65-85-0	Benzoic Acid	UJ
SB11_1-2	SW8260C	75-15-0	Carbon Disulfide	UJ
SB11_1-2	SW8260C	74-87-3	Chloromethane	UJ
SB11_1-2	SW7196A	18540-29-9	Chromium, Hexavalent	J
SB11_1-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB11_1-2	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB11_1-2	SW8081B	5103-74-2	Gamma Chlordane	J
SB11_1-2	SW8081B	72-43-5	Methoxychlor	UJ
SB11_1-2	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB11_1-2	SW8260C	1634-04-4	Tert-Butyl Methyl Ether	U (3.6)
SB11_1-2	SW8260C	75-01-4	Vinyl Chloride	UJ
SB11_5-6	SW8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ
SB11_5-6	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB11_5-6	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB11_5-6	SW8260C	591-78-6	2-Hexanone	UJ
SB11_5-6	SW8270D	88-75-5	2-Nitrophenol	UJ
SB11_5-6	SW8270D	99-09-2	3-Nitroaniline	UJ
SB11_5-6	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB11_5-6	SW8270D	100-01-6	4-Nitroaniline	UJ
SB11_5-6	SW8270D	65-85-0	Benzoic Acid	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB11_5-6	SW8260C	75-15-0	Carbon Disulfide	UJ
SB11_5-6	SW7196A	18540-29-9	Chromium, Hexavalent	J
SB11_5-6	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB11_5-6	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB11_5-6	SW8081B	72-43-5	Methoxychlor	UJ
SB11_5-6	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB11_5-6	SW6010D	7440-23-5	Sodium	U (188)
SB11_5-6	SW8260C	75-01-4	Vinyl Chloride	UJ
SB13_3-4	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB13_3-4	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB13_3-4	SW8270D	88-75-5	2-Nitrophenol	UJ
SB13_3-4	SW8270D	99-09-2	3-Nitroaniline	UJ
SB13_3-4	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB13_3-4	SW8270D	100-01-6	4-Nitroaniline	UJ
SB13_3-4	SW8260C	107-13-1	Acrylonitrile	UJ
SB13_3-4	SW8270D	65-85-0	Benzoic Acid	UJ
SB13_3-4	SW8260C	74-83-9	Bromomethane	UJ
SB13_3-4	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB13_3-4	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB13_3-4	SW8081B	72-43-5	Methoxychlor	UJ
SB13_3-4	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB13_3-4	SW8260C	75-09-2	Methylene Chloride	UJ
SB13_3-4	SW8260C	100-42-5	Styrene	UJ
SB13_3-4	SW8260C	75-69-4	Trichlorofluoromethane	UJ
SB13_10-11	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB13_10-11	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB13_10-11	SW8260C	591-78-6	2-Hexanone	UJ
SB13_10-11	SW8270D	88-75-5	2-Nitrophenol	UJ
SB13_10-11	SW8270D	99-09-2	3-Nitroaniline	UJ
SB13_10-11	SW8081B	72-55-9	4,4'-DDE	J
SB13_10-11	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB13_10-11	SW8270D	100-01-6	4-Nitroaniline	UJ
SB13_10-11	SW8081B	5103-71-9	Alpha Chlordane	J
SB13_10-11	SW8270D	65-85-0	Benzoic Acid	UJ
SB13_10-11	SW8260C	75-15-0	Carbon Disulfide	UJ
SB13_10-11	SW8260C	74-87-3	Chloromethane	UJ
SB13_10-11	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB13_10-11	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB13_10-11	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB13_10-11	SW8081B	5103-74-2	Gamma Chlordane	UJ
SB13_10-11	SW8081B	72-43-5	Methoxychlor	UJ
SB13_10-11	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB13_10-11	SW8082A	11096-82-5	PCB-1260 (Aroclor 1260)	J
SB13_10-11	SW8260C	75-01-4	Vinyl Chloride	UJ
SB14_3-4	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB14_3-4	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB14_3-4	SW8260C	591-78-6	2-Hexanone	UJ
SB14_3-4	SW8270D	88-75-5	2-Nitrophenol	UJ
SB14_3-4	SW8270D	99-09-2	3-Nitroaniline	UJ
SB14_3-4	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB14_3-4	SW8270D	100-01-6	4-Nitroaniline	UJ
SB14_3-4	SW8270D	65-85-0	Benzoic Acid	UJ
SB14_3-4	SW8260C	75-15-0	Carbon Disulfide	UJ
SB14_3-4	SW8260C	74-87-3	Chloromethane	UJ
SB14_3-4	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB14_3-4	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB14_3-4	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB14_3-4	SW8081B	5103-74-2	Gamma Chlordane	J
SB14_3-4	SW8081B	72-43-5	Methoxychlor	UJ
SB14_3-4	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB14_3-4	SW8260C	75-01-4	Vinyl Chloride	UJ
SB15_3-4	SW8260C	96-12-8	1,2-Dibromo-3-Chloropropane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB15_3-4	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB15_3-4	SW8270D	51-28-5	2,4-Dinitrophenol	UJ
SB15_3-4	SW8260C	591-78-6	2-Hexanone	UJ
SB15_3-4	SW8270D	88-75-5	2-Nitrophenol	UJ
SB15_3-4	SW8270D	99-09-2	3-Nitroaniline	UJ
SB15_3-4	SW8270D	534-52-1	4,6-Dinitro-2-Methylphenol	UJ
SB15_3-4	SW8270D	100-01-6	4-Nitroaniline	UJ
SB15_3-4	SW8270D	65-85-0	Benzoic Acid	UJ
SB15_3-4	SW8260C	75-15-0	Carbon Disulfide	UJ
SB15_3-4	SW7196A	18540-29-9	Chromium, Hexavalent	UJ
SB15_3-4	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB15_3-4	SW8081B	7421-93-4	Endrin Aldehyde	UJ
SB15_3-4	SW8081B	5103-74-2	Gamma Chlordane	J
SB15_3-4	SW8081B	72-43-5	Methoxychlor	UJ
SB15_3-4	SW8260C	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UJ
SB15_3-4	SW8260C	75-01-4	Vinyl Chloride	UJ
TP01_2-2.5	SW8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP01_2-2.5	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP01_2-2.5	SW8260C	591-78-6	2-Hexanone	UJ
TP01_2-2.5	SW8081B	72-54-8	4,4'-DDD	UJ
TP01_2-2.5	SW8081B	72-55-9	4,4'-DDE	J
TP01_2-2.5	SW8260C	67-64-1	Acetone	UJ
TP01_2-2.5	SW6010D	7440-36-0	Antimony	J
TP01_2-2.5	SW6010D	7440-38-2	Arsenic	J
TP01_2-2.5	SW6010D	7440-39-3	Barium	J
TP01_2-2.5	SW6010D	7440-43-9	Cadmium	J
TP01_2-2.5	SW8260C	74-87-3	Chloromethane	UJ
TP01_2-2.5	SW6010D	7440-47-3	Chromium, Total	J
TP01_2-2.5	SW6010D	7440-48-4	Cobalt	J
TP01_2-2.5	SW6010D	7440-50-8	Copper	J
TP01_2-2.5	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
TP01_2-2.5	SW8081B	60-57-1	Dieldrin	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TP01_2-2.5	SW8081B	5103-74-2	Gamma Chlordane	J
TP01_2-2.5	SW8270D	77-47-4	Hexachlorocyclopentadiene	UJ
TP01_2-2.5	SW6010D	7439-89-6	Iron	J
TP01_2-2.5	SW6010D	7439-92-1	Lead	J
TP01_2-2.5	SW8081B	72-43-5	Methoxychlor	UJ
TP01_2-2.5	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP01_2-2.5	SW6010D	7440-02-0	Nickel	J
TP01_2-2.5	SW6010D	7440-09-7	Potassium	J
TP01_2-2.5	SW6010D	7440-22-4	Silver	J
TP01_2-2.5	SW6010D	7440-62-2	Vanadium	J
TP01_2-2.5	SW6010D	7440-66-6	Zinc	J
TP02_1.5-2	SW8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP02_1.5-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP02_1.5-2	SW8081B	72-54-8	4,4'-DDD	UJ
TP02_1.5-2	SW8260C	67-64-1	Acetone	UJ
TP02_1.5-2	SW8081B	5103-71-9	Alpha Chlordane	J
TP02_1.5-2	SW6010D	7440-39-3	Barium	J
TP02_1.5-2	SW8081B	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	UJ
TP02_1.5-2	SW6010D	7440-43-9	Cadmium	J
TP02_1.5-2	SW6010D	7440-47-3	Chromium, Total	J
TP02_1.5-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
TP02_1.5-2	SW8081B	60-57-1	Dieldrin	J
TP02_1.5-2	SW8081B	5103-74-2	Gamma Chlordane	J
TP02_1.5-2	SW8081B	72-43-5	Methoxychlor	UJ
TP02_1.5-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP02_1.5-2	SW6010D	7440-02-0	Nickel	J
TP03_1-1.5	SW8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
TP03_1-1.5	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
TP03_1-1.5	SW8081B	72-54-8	4,4'-DDD	UJ
TP03_1-1.5	SW8081B	50-29-3	4,4'-DDT	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TP03_1-1.5	SW8260C	67-64-1	Acetone	UJ
TP03_1-1.5	SW8081B	319-84-6	Alpha BHC (Alpha Hexachlorocyclohexane)	J
TP03_1-1.5	SW6010D	7440-39-3	Barium	J
TP03_1-1.5	SW6010D	7440-43-9	Cadmium	J
TP03_1-1.5	SW8081B	57-74-9	Chlordane (alpha and gamma)	J
TP03_1-1.5	SW6010D	7440-47-3	Chromium, Total	J
TP03_1-1.5	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
TP03_1-1.5	SW8081B	60-57-1	Dieldrin	J
TP03_1-1.5	SW8081B	5103-74-2	Gamma Chlordane	J
TP03_1-1.5	SW8081B	72-43-5	Methoxychlor	UJ
TP03_1-1.5	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
TP03_1-1.5	SW6010D	7440-02-0	Nickel	J
SB16_0-2	SW8260C	120-82-1	1,2,4-Trichlorobenzene	UJ
SB16_0-2	SW8260C	123-91-1	1,4-Dioxane (P-Dioxane)	UJ
SB16_0-2	SW8081B	72-54-8	4,4'-DDD	UJ
SB16_0-2	SW8260C	67-64-1	Acetone	UJ
SB16_0-2	SW6010D	7440-38-2	Arsenic	U (1)
SB16_0-2	SW6010D	7440-39-3	Barium	J
SB16_0-2	SW6010D	7440-39-3	Barium	J
SB16_0-2	SW8081B	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	UJ
SB16_0-2	SW6010D	7440-43-9	Cadmium	UJ
SB16_0-2	SW6010D	7440-43-9	Cadmium	J
SB16_0-2	SW8081B	57-74-9	Chlordane (alpha and gamma)	J
SB16_0-2	SW6010D	7440-47-3	Chromium, Total	J
SB16_0-2	SW6010D	7440-47-3	Chromium, Total	UJ
SB16_0-2	SW8260C	75-71-8	Dichlorodifluoromethane	UJ
SB16_0-2	SW8081B	5103-74-2	Gamma Chlordane	J
SB16_0-2	SW8081B	72-43-5	Methoxychlor	UJ
SB16_0-2	SW8260C	78-93-3	Methyl Ethyl Ketone (2-Butanone)	UJ
SB16_0-2	SW6010D	7440-02-0	Nickel	J

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C:

19I1299:

The method blank (MB) for batch BI91615 exhibited a detection of 2-butanone (0.0057 mg/kg). The associated results in sample SB16_0-2, SB16_2-4, SB17_0-2, SB17_5.5-7.5, SB31_0-2, and SB31_6.5-8.5 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The trip blank (RITB01_092719) exhibited a detection of naphthalene (3.19 ug/L). The associated results in sample SB17_5.5-7.5 are qualified as "U" at the reporting limit based on potential blank contamination.

The initial calibration (ICAL) for instrument QVOA4 exhibited response factors (RFs) below the control limit for tetrachloroethylene (0.198) and trichloroethylene (0.195). The associated results in sample SB16_0-2, SB16_2-4, SB17_0-2, SB17_5.5-7.5, SB31_0-2, and SB31_6.5-8.5 are qualified as "UJ" based on potential indeterminate bias.

The continuing calibration verification (CCV) analyzed on 10/1/2019 at 08:15 exhibited a percent difference (%D) above the control limit for 2-butanone (20.3%). The associated results in sample SB31_0-2 are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 10/1/2019 at 08:15 exhibited a %D above the control limit for vinyl chloride (-21.5%). The associated results in sample SB16_0-2, SB16_2-4, SB17_0-2, SB17_5.5-7.5, SB31_0-2, and SB31_6.5-8.5 are qualified as "UJ" based on potential indeterminate bias.

19I1369:

The laboratory control sample duplicate (LCSD) for batch BJ90097 exhibited a percent recovery below the lower control limit (LCL) for n-butylbenzene (78.7%). The associated results in sample RISOFB01_093019 and RITB02_093019 are qualified as "UJ" based on potential low bias.

The sample SB22_0-2 exhibited percent recoveries above the upper control limit (UCL) for the surrogates toluene-d8 (124%) and p-bromofluorobenzene (165%). The associated results are qualified as "J" based on potential high bias.

The CCV analyzed on 10/2/2019 at 09:04 exhibited %Ds above the control limit for acetone (34.9%) and naphthalene (-21.1%). The associated results in sample RISOFB01_093019 and RITB02_093019 are qualified as "UJ" based on potential indeterminate bias.

19J0068:

The MB for batch BJ90128 exhibited a detection of 2-butanone (0.0064 mg/kg). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The laboratory control sample (LCS) and LCSD for batch BJ90132 exhibited percent recoveries below the LCL for naphthalene (75.6%, 83.7%) and t-butylbenzene (75.8%). The associated results in sample SB25_6-8 are qualified as "J" or "UJ" based on potential low bias.

The LCSD for batch BJ90380 exhibited a percent recovery below the LCL for t-butylbenzene (76.6%). The associated results in sample RITB03_100119 are qualified as "UJ" based on potential low bias.

The sample SB24_10-12 exhibited a percent recovery above the UCL for the surrogate p-bromofluorobenzene (144%). The associated results are qualified as "J" based on potential high bias.

The ICAL for instrument QVOA4 exhibited RFs below the control limit for tetrachloroethylene (0.198) and trichloroethylene (0.195). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/3/2019 at 09:05 exhibited %Ds above the control limit for 1,1,1-trichloroethane (20.5%) and acetone (-34.2%). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/9/2019 at 10:45 exhibited %Ds above the control limit for 2-butanone (22.6%), acetone (30.2%), and naphthalene (87.0%). The associated results in sample RITB03_100119 are qualified as "UJ" based on potential indeterminate bias.

19J0144:

The MB for batch BJ90131 exhibited a detection of m,p-xylene (0.0052 mg/kg). The associated results in sample SB19_0-2 and SB28_5.5-7.5 are qualified as "U" at the reporting limit based on potential blank contamination.

The LCS/LCSD for batch BJ90131 exhibited a percent recovery above the UCL for methylene chloride (139%, 137%). The associated results in sample SB19_0-2 and SB28_5.5-7.5 are qualified as "J" based on potential high bias.

The MB for batch BJ90136 exhibited a detection of 2-butanone (0.0063 mg/kg). The associated results in sample SB19_8-9 are qualified as "U" at the reporting limit based on potential blank contamination.

The LCS for batch BJ90136 exhibited percent recoveries below the LCL for vinyl chloride (64.1%), 1,1-dichloroethene (66.6%), and 1,2,4-trimethylbenzene (82.9%). The associated results in sample SB19_8-9 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch BJ90136 exhibited a RPD above the control limit for 1,4-dioxane (45.9%). The associated results in sample SB19_8-9 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument QVOA4 exhibited RFs below the control limit for tetrachloroethylene (0.198) and trichloroethylene (0.195). The associated results in sample SB19_8-9 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/4/2019 at 10:06 exhibited a %D above the control limit for tetrachloroethylene (34.8%). The associated results in sample SB19_0-2 and SB28_5.5-7.5 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/7/2019 at 09:40 exhibited a %D above the control limit for acetone (-24.5%). The associated results in sample SB19_8-9 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/7/2019 at 09:40 exhibited a RF below the control limit for chlorobenzene (0.466). The associated results in sample SB19_8-9 are qualified as "UJ" based on potential indeterminate bias.

19J0216:

The LCSD for batch BJ90297 exhibited percent recoveries below the LCL for 1,3,5-trimethylbenzene (78.7%) and 1,2,4-trimethylbenzene (79.5%). The associated results in sample RITB05_100319 and RISOFB02_100319 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 10/4/2019 at 09:33 exhibited %Ds above the control limit for 1,4-dioxane (-25.3%), 2-butanone (31.0%), and acetone (37.7%). The associated results in sample RITB05_100319 and RISOFB02_100319 are qualified as "UJ" based on potential indeterminate bias.

L1924067:

The ICAL for instrument VOA110 exhibited a RF below the control limit for 1,4-dioxane (0.005). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, and SB08_1-2 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 3/27/2019 at 04:29 exhibited %Ds above the control limit for chloromethane (-20.1%) and bromomethane (-25.7%). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, and SB08_1-2 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA104 exhibited RFs below the control limit for 2-butanone (0.083) and 1,4-dioxane (0.002). The associated results in sample SB08_5-6, SB09_2-3, SB09_5-6, and SB12_3-4 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 5/7/2019 at 06:16 exhibited a %D above the control limit for styrene (-20.7%). The associated results in sample SB08_5-6, SB09_2-3, SB09_5-6, and SB12_3-4 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA117 exhibited RFs below the control limit for 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.063), and 2-hexanone (0.097). The associated results in sample SB12_5-6 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 6/2/2019 at 13:43 exhibited %Ds above the control limit for dichlorodifluoromethane (22.0%) and carbon disulfide (20.1%). The associated results in sample SB12_5-6 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/11/2019 at 10:39 exhibited %Ds above the control limit for dichlorodifluoromethane (26.1%), trichlorofluoromethane (27.9%), acetone (-38.5%), vinyl acetate (-36.2%), 2-butanone (-23.7%), hexachlorobutadiene (22.8%), and naphthalene (21.9%).

The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, and SB08_1-2 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/11/2019 at 17:07 exhibited %Ds above the control limit for bromomethane (-33.6%), trichlorofluoromethane (-22.0%), and trans-1,4-dichloro-2-butene (20.2%). The associated results in sample SB08_5-6, SB09_2-3, SB09_5-6, and SB12_3-4 are qualified as "UJ" based on potential indeterminate bias.

L1924383:

The MB for batch WG1248022 exhibited a detection of methyl tert butyl ether (0.21 ug/kg). The associated results in sample SB10_1-2, SB10_7-8, and SB11_1-2 are qualified as "U" at the reporting limit based on potential blank contamination.

The ICAL for instrument VOA104 exhibited RFs below the control limit for 2-butanone (0.083) and 1,4-dioxane (0.002). The associated results in sample SB13_3-4 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 5/7/2019 at 06:16 exhibited a %D above the control limit for styrene (-20.7%). The associated results in sample SB13_3-4 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA117 exhibited RFs below the control limit for 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.063), and 2-hexanone (0.097). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB13_10-11, SB14_3-4, and SB11_5-6 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 6/2/2019 at 13:43 exhibited %Ds above the control limit for dichlorodifluoromethane (22.0%) and carbon disulfide (20.1%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB13_10-11, SB14_3-4, and SB11_5-6 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/12/2019 at 18:06 exhibited %Ds above the control limit for chloromethane (-25.0%) and vinyl chloride (-26.0%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB13_10-11, and SB14_3-4 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/13/2019 at 07:13 exhibited %Ds above the control limit for vinyl chloride (-21.2%) and 1,2-dibromo-3-chloropropane (21.4%). The associated results in sample SB15_3-4 and SB11_5-6 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/13/2019 at 07:17 exhibited %Ds above the control limit for bromomethane (-33.6%), trichlorofluoromethane (-30.5%), methylene chloride (23.2%), and acrylonitrile (25.8%). The associated results in sample SB13_3-4 are qualified as "UJ" based on potential indeterminate bias.

L1927241:

The ICAL for instrument VOA100 exhibited RFs below the control limit for acetone (0.065), 2-butanone (0.093), and 1,4-dioxane (0.002). The associated results in sample TP01_2-2.5, TP02_1.5-2, TP03_1-1.5, and SB16_0-2 are qualified as "UJ" based on potential indeterminate bias.

The ICV analyzed on 6/17/2019 at 12:22 exhibited %Ds above the control limit for dichlorodifluoromethane (23.8%) and 1,2,4-trichlorobenzene (-20.6%). The associated results in sample TP01_2-2.5, TP02_1.5-2, TP03_1-1.5, and SB16_0-2 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/24/2019 at 05:05 exhibited %Ds above the control limit for chloromethane (23.5%) and 2-hexanone (23.3%). The associated results in sample TP01_2-2.5 are qualified as "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Method 8270D and 8270D SIM:

19I1369:

The CCV analyzed on 10/3/2019 at 15:08 exhibited a RF below the control limit for hexachlorobenzene (0.095). The associated results in sample SB21_0-2, SB21_5-7, SB22_0-2, SB22_5-7, SB23_0-2, and SB23_5.5-7.5 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/3/2019 at 15:08 exhibited %Ds above the control limit for indeno(1,2,3-cd)pyrene (24.9%) and pentachlorophenol (25.7%). The associated results in sample SB21_0-2, SB21_5-7, SB22_0-2, SB22_5-7, SB23_0-2, and SB23_5.5-7.5 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/2/2019 at 09:35 exhibited a %D above the control limit for pentachlorophenol (-43.0%). The associated results in sample RISOFB01_093019 are qualified as "UJ" based on potential indeterminate bias.

19J0068:

The CCV analyzed on 10/4/2019 at 14:47 exhibited a %D above the control limit for pentachlorophenol (28.9%). The associated results in sample SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/4/2019 at 09:02 exhibited a %D above the control limit for pentachlorophenol (22.6%). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, and SB25_6-8 are qualified as "UJ" based on potential indeterminate bias.

19J0144:

The CCV analyzed on 10/8/2019 at 08:57 exhibited a %D above the control limit for pentachlorophenol (26.8%). The associated results in sample SB19_0-2, SB19_8-9, and SB27_0-2 are qualified as "UJ" based on potential indeterminate bias.

19J0216:

The CCV analyzed on 10/9/2019 at 08:18 exhibited a %D above the control limit for pentachlorophenol (34.5%). The associated results in sample SB20_0-2, SB20_13-15, SB30_0-2, SB30_10-12, and RISODUP02_100319 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 10/4/2019 at 09:53 exhibited a %D above the control limit for pentachlorophenol (-43.3%). The associated results in sample RISOFB02_100319 are qualified as "UJ" based on potential indeterminate bias.

L1924067:

The CCV analyzed on 6/10/2019 at 01:14 exhibited %Ds above the control limit for bis(2-chloroisopropyl)ether (-66.0%), hexachlorocyclopentadiene (36.1%), 4-nitrophenol (-26.7%), pentachlorophenol (28.6%), and di-n-octylphthalate (-23.1%). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, SB08_1-2, SB08_5-6, SB09_2-3, SB09_5-6, SB12_3-4, and SB12_5-6 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/13/2019 at 09:04 exhibited a %D above the control limit for 2-nitrophenol (-20.4%). The associated results in sample SB06_1-2 are qualified as "UJ" based on potential indeterminate bias.

L1924383:

The ICV analyzed on 5/29/2019 at 10:53 exhibited a %D above the control limit for benzoic acid (21.1%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB11_5-6, SB13_3-4, SB13_10-11, SB14_3-4, and SB15_3-4 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/10/2019 at 23:33 exhibited %Ds above the control limit for 2-nitrophenol (-43.6%), 3-nitroaniline (-23.4%), 2,4-dinitrophenol (-54.2%), 4-nitroaniline (-25.2%), and 4,6-dinitro-o-cresol (-45.1%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB11_5-6, SB13_3-4, SB13_10-11, SB14_3-4, and SB15_3-4 are qualified as "UJ" based on potential indeterminate bias.

L1927241:

The CCV analyzed on 6/24/2019 at 08:50 exhibited a %D above the control limit for hexachlorocyclopentadiene (45.9%). The associated results in sample TP01_2-2.5 are qualified as "UJ" based on potential indeterminate bias.

PFAS by USEPA Method 537M:

19I1299:

The sample SB17_0-2 exhibited a percent recovery below the LCL for the standard isotope perfluoro-1-[13c8]octanesulfonamide (1.83%). The associated results are qualified as "UJ" based on potential low bias.

19J0068:

The sample SB24_0-2 exhibited a percent recovery below the LCL for the standard isotope perfluoro-1-[13c8]octanesulfonamide (0%). The associated results are qualified as "UJ" based on potential low bias.

The sample SB24_0-2 exhibited a percent recovery above the UCL for the standard isotope perfluoro-n-[13c5]pentanoic acid (153%). The associated results are qualified as "J" based on potential high bias.

Herbicides by SW-846 Method 8151A:

19J0068:

The CCV analyzed on 10/7/2019 at 09:01 exhibited a %D above the control limit for 2,4,5-TP (25.8%). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12,

SB24_15-16, SB25_0-2, SB25_6-8, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "UJ" based on potential indeterminate bias.

19J0216:

The CCV analyzed on 10/8/2019 at 19:00 exhibited a %D above the control limit for 2,4,5-TP (29.5%). The associated results in sample SB20_0-2, SB20_13-15, SB30_0-2, SB30_10-12, and RISODUP02_100319 are qualified as "UJ" based on potential indeterminate bias.

PCBs by SW-846 Method 8082A:

19I1369:

The sample SB21_5-7 exhibited a percent recovery below the LCL for the surrogate decachlorobiphenyl (28.0%, 25.5%). The associated results are qualified as "UJ" based on potential low bias.

L1924383:

The sample SB13_10-11 exhibited a RPD above the control limit between the primary and secondary GC columns for PCB 1260 (44%). The associated results are qualified as "J" based on potential indeterminate bias.

Pesticides by SW-846 Method 8081B:

19I1299:

The sample SB17_0-2 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE (71%). The associated results are qualified as "J" based on potential indeterminate bias.

19J0068:

The sample SB25_6-8 exhibited a percent recovery below the LCL for the surrogate decachlorobiphenyl (0%). The associated results are qualified as "UJ" based on potential low bias.

The sample SB25_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDE (68%) and alpha-chlordane (49%). The associated results are qualified as "J" based on potential indeterminate bias.

19J0144:

The CCV analyzed on 10/9/2019 at 16:51 exhibited a %D above the control limit for 4,4'-DDT (46.5%, 64.1%). The associated results in sample SB19_0-2, SB19_8-9, and SB27_0-2 are qualified as "UJ" based on potential indeterminate bias.

L1924067:

The sample SB06_1-2 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (186%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample SB07_2-3 exhibited RPDs above the control limit between the primary and secondary GC columns for trans-chlordane (183%), endosulfan II (162%), and delta BHC (127%). The associated results are qualified as "UJ" based on potential indeterminate bias.

L1924383:

The sample SB13_10-11 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (267%). The associated results are qualified as "J" based on potential high bias.

The sample SB10_7-8 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (199%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample SB11_1-2 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (199%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample SB13_10-11 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (182). The associated results are qualified as "UJ" based on potential indeterminate bias.

The sample SB14_3-4 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (200%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample SB15_3-4 exhibited a RPD above the control limit between the primary and secondary GC columns for trans-chlordane (76%). The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 6/13/2019 at 08:36 exhibited %Ds above the control limit for endrin aldehyde (20.5%) and methoxychlor (28.1%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB11_5-6, SB13_3-4, SB13_10-11, SB14_3-4, and SB15_3-4 are qualified as "UJ" based on potential indeterminate bias.

L1927241:

The sample TP01_2-2.5 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDE (113%), dieldrin (86%), and trans-chlordane (96%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample TP02_1.5-2 exhibited RPDs above the control limit between the primary and secondary GC columns for dieldrin (143%), cis-chlordane (43%), and trans-chlordane (198%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample TP03_1-1.5 exhibited RPDs above the control limit between the primary and secondary GC columns for 4,4'-DDT (55%), alpha-BHC (50%), chlordane (119%), dieldrin (79%), and trans-chlordane (154%). The associated results are qualified as "J" based on potential indeterminate bias.

The sample SB16_0-2 exhibited RPDs above the control limit between the primary and secondary GC columns for chlordane (184%) and trans-chlordane (196%). The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 6/23/2019 at 17:04 exhibited a %D above the control limit for beta BHC (20.5%). The associated results in sample TP02_1.5-2 and SB16_0-2 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 6/23/2019 at 17:04 exhibited %Ds above the control limit for 4,4'-DDD (20.7%) and methoxychlor (29.4%). The associated results in sample TP01_2-2.5, TP02_1.5-2, TP03_1-1.5, and SB16_0-2 are qualified as "UJ" based on potential indeterminate bias.

Metals by SW-846 Method 6010D and 6020B:

19I1299:

The laboratory duplicate and parent sample (SB31_6.5-8.5) exhibited RPDs above the control limit for manganese (66.7%), cadmium (87.3%), and copper (51.7%). The associated results are qualified as "J" based on potential indeterminate bias.

The matrix spike (MS) for batch BI91617 exhibited percent recoveries below the LCL for lead (-8.94%) and zinc (26.7%). The associated results in sample SB16_0-2, SB16_2-4, SB17_0-2, SB17_5.5-7.5, SB31_0-2, and SB31_6.5-8.5 are qualified as "J" based on potential low bias.

The LCS for batch BI91617 exhibited a percent recovery below the LCL for silver (57.2%). The associated results in sample SB16_0-2, SB16_2-4, SB17_0-2, SB17_5.5-7.5, SB31_0-2, and SB31_6.5-8.5 are qualified as "J" or "UJ" based on potential low bias.

19I1369:

The MS for batch BJ90042 exhibited a percent recovery below the LCL for beryllium (68.6%). The associated results in sample SB21_0-2, SB21_5-7, SB22_0-2, SB22_5-7, SB23_0-2, SB23_5.5-7.5, and RISODUP01_093019 are qualified as "UJ" based on potential low bias.

The field duplicate and parent sample (RISODUP01_093019 and SB22_0-2) exhibited a RPD above the control limit for barium (80%). The associated results are qualified as "J" based on potential indeterminate bias.

19J0068:

The MB for batch BJ90119 exhibited a detection of copper (2.68 mg/kg). The associated results in sample SB24_10-12, SB24_15-16, SB25_6-8, and SB25_11-12 are qualified as "U" at the sample concentration based on potential blank contamination.

The laboratory duplicate and parent sample (SB26_6-8) exhibited a RPD above the control limit for manganese (60.9%). The associated results are qualified as "J" based on potential indeterminate bias.

The MS for batch BJ90119 exhibited percent recoveries above the UCL for lead (191%) and zinc (136%). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, SB25_6-8, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "J" based on potential high bias.

The MS for batch BJ90119 exhibited a percent recovery below the LCL for beryllium (63.7%). The associated results in sample SB18_0-2, SB18_10-12, SB24_0-2, SB24_10-12, SB24_15-16, SB25_0-2, SB25_6-8, SB25_11-12, SB26_0-2, and SB26_6-8 are qualified as "UJ" based on potential low bias.

19J0144:

The MS for batch BJ90216 exhibited a percent recovery above the UCL for lead (170%). The associated results in sample SB19_0-2, SB19_8-9, SB27_0-2, SB27_6-8, SB28_0-2, and SB28_5.5-7.5 are qualified as "J" based on potential high bias.

The MS for batch BJ90216 exhibited percent recoveries below the LCL for silver (48.4%), beryllium (14.9%), and chromium (52.3%). The associated results in sample SB19_0-2, SB19_8-9, SB27_0-2, SB27_6-8, SB28_0-2, and SB28_5.5-7.5 are qualified as "J" or "UJ" based on potential low bias.

19J0216:

The MS for batch BJ90306 exhibited percent recoveries below the LCL for copper (74.9%) and chromium (54%). The associated results in sample SB20_0-2, SB20_13-15, SB30_0-2, SB30_10-12, and RISODUP02_100319 are qualified as "J" based on potential low bias.

The field duplicate and parent sample (RISODUP02_100319 and SB20_0-2) exhibited RPDs above the control limit for barium (131%), lead (181%), manganese (60%), and zinc (137%). The associated results are qualified as "J" based on potential indeterminate bias.

The field duplicate and parent sample (RISODUP02_100319 and SB20_0-2) exhibited an absolute difference above the RL for cadmium (1.372 mg/kg). The associated results are qualified as "J" based on potential indeterminate bias.

L1924067:

The MB for batch WG1247080 exhibited a detection of antimony (0.156 mg/kg). The associated results in sample SB07_5-6, SB08_5-6, and SB09_5-6 are qualified as "U" at the reporting limit based on potential blank contamination.

The MS for batch WG1247080 exhibited percent recoveries above the UCL for barium (139%) and copper (283%). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, SB08_1-2, SB08_5-6, SB09_2-3, SB09_5-6, SB12_3-4, and SB12_5-6 are qualified as "J" based on potential high bias.

The MS for batch WG1247080 exhibited a percent recovery below the LCL for thallium (73%). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, SB08_1-2, SB08_5-6, SB09_2-3, SB09_5-6, SB12_3-4, and SB12_5-6 are qualified as "UJ" based on potential low bias.

The laboratory duplicate and parent sample (SB06_1-2) exhibited RPDs above the control limit for arsenic (27%), cadmium (23%), chromium (22%), cobalt (39%), iron (34%), lead (83%), vanadium (24%), and zinc (46%). The associated results are qualified as "J" based on potential indeterminate bias.

L1924383:

The MB for batch WG1247619 exhibited a detection of sodium (4.72 mg/kg). The associated results in sample SB11_5-6 are qualified as "U" at the reporting limit based on potential blank contamination.

L1927241:

The MS for batch WG1252228 exhibited percent recoveries below the LCL for barium (67%), cadmium (74%), chromium (43%), and nickel (63%). The associated results in sample TP01_2-2.5, TP02_1.5-2, TP03_1-1.5, and SB16_0-2 are qualified as "J" or "UJ" based on potential low bias.

The laboratory duplicate and parent sample (TP01_2-2.5) exhibited RPDs above the control limit for antimony (52%), arsenic (44%), cobalt (30%), copper (33%), iron (40%), lead (49%), potassium (32%), silver (101%), vanadium (27%), and zinc (28%). The associated results are qualified as "J" based on potential indeterminate bias.

The MB for batch WG1252235 exhibited a detection of TCLP arsenic (0.033 mg/l). The associated results in sample SB16_0-2 are qualified as "U" at the reporting limit based on potential blank contamination.

Mercury by SW-846 Method 7470A and 7473:

19J0216:

The field duplicate and parent sample (RISODUP02_100319 and SB20_0-2) exhibited a RPD above the control limit for mercury (133%). The associated results are qualified as "J" based on potential indeterminate bias.

Hexavalent Chromium by SW-846 Method 7196A:

19J0216:

The MS for batch BJ90629 exhibited a percent recovery below the LCL for hexavalent chromium (15%). The associated results in sample SB20_0-2, SB20_13-15, SB30_0-2, SB30_10-12, and RISODUP02_100319 are qualified as "UJ" based on potential low bias.

L1924067:

The MS for batch WG1247173 exhibited a percent recovery below the LCL for hexavalent chromium (0%). The associated results in sample SB06_1-2, SB06_7-8, SB07_2-3, SB07_5-6, SB08_1-2, SB08_5-6, SB09_2-3, SB09_5-6, SB12_3-4, and SB12_5-6 are qualified as "UJ" based on potential low bias.

L1924383:

The MS for batch WG1247175 exhibited a percent recovery below the LCL for hexavalent chromium (22%). The associated results in sample SB10_1-2, SB10_7-8, SB11_1-2, SB11_5-6,

SB13_3-4, SB13_10-11, SB14_3-4, and SB15_3-4 are qualified as "J" or "UJ" based on potential low bias.

Trivalent Chromium (calculated):

19J0216:

The field duplicate and parent sample (RISODUP02_100319 and SB20_0-2) exhibited a RPD above the control limit for trivalent chromium (69%). The associated results are qualified as "J" based on potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C:

19I1299:

The MB for batch BI91609 exhibited a detection of 2-butanone (0.43 ug/L). The associated results are non-detections. No qualification is necessary.

The trip blank (RITB01_092719) exhibited a detection of 1,2,4-trimethylbenzene (0.4 ug/L). The associated results are non-detections. No qualification is necessary.

19I1369:

The sample SB21_0-2 exhibited a percent recovery below the LCL for the internal standard 1,2-dichlorobenzene-d4 (39%). The associated results are qualified as "UJ" based on potential loss of instrument sensitivity.

The sample SB22_0-2 exhibited a percent recovery below the LCL for the internal standard 1,2-dichlorobenzene-d4 (24%). The associated results are qualified as "UJ" based on potential loss of instrument sensitivity.

19J0068:

The MB for batch BJ90132 exhibited a detection of m,p-xylene (0.0053 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

19J0144:

The LCS/LCSD for batch BJ90131 exhibited a percent recovery above the UCL for sec-butylbenzene (128%, 129%). The associated results are non-detections. No qualification is necessary.

L1924067:

The LCS/LCSD for batch WG1246984 exhibited percent recoveries above the UCL for acrylonitrile (132%), chloromethane (141%, 139%), and vinyl acetate (136%, 138%). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1246984 exhibited a detection of methylene chloride (2.9 ug/kg). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1247394 exhibited a detection of methyl tert-butyl ether (11 ug/kg). The associated results are non-detections. No qualification is necessary.

The CCV analyzed on 6/11/2019 at 10:39 exhibited a %D above the control limit for chloromethane (-40.6%). The associated results were previously qualified. No further action is necessary.

The CCV analyzed on 6/11/2019 at 17:07 exhibited a %D above the control limit for 2-butanone (22.9%). The associated results were previously qualified. No further action is necessary.

L1924383:

The CCV analyzed on 6/13/2019 at 07:17 exhibited a %D above the control limit for 2-butanone (22.9%). The associated results were previously qualified. No further action is necessary.

L1927241:

The CCV analyzed on 6/24/2019 at 05:05 exhibited a %D above the control limit for acetone (26.2%). The associated results were previously qualified. No further action is necessary.

SVOCs by SW-846 Method 8270D and 8270D SIM:

19I1299:

The sample SB17_5.5-7.5 (reanalysis 2) exhibited a percent recovery below the LCL for the surrogate 2,4,6-tribromophenol (15%). The other two acid extractable surrogates were recovered within the control limits. No qualification is necessary.

The sample SB17_5.5-7.5 (reanalysis 2) exhibited a percent recovery below the LCL for the surrogate terphenyl-d14 (0%). The other two base neutral extractable surrogates were recovered within the control limits. No qualification is necessary.

19J0068:

The sample SB25_6-8 exhibited a percent recovery below the LCL for the surrogate 2-fluorobiphenyl (3.20%). The other two base neutral extractable surrogates were recovered within the control limits. No qualification is necessary.

19J0216:

The MS and matrix spike duplicate (MSD) for batch BJ90496 exhibited percent recoveries below the LCL for anthracene (-177%, -90.7%), acenaphthene (-71.7%), fluorene (-53.7%, 2.39%), pyrene (-428%, -156%), fluoranthene (-451%, -138%), benzo(k)fluoranthene (-108%, 8.46%), phenanthrene (-584%, -276%), and pentachlorophenol (9.36%, 9.76%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

The MS/MSD for batch BJ90496 exhibited RPDs above the control limit for dibenzofuran (33.2%), dibenz(a,h)anthracene (33.3%), acenaphthene (36.1%), naphthalene (42.1%), 2-methylphenol (30.3%), benzo(g,h,i)perylene (30%), indeno(1,2,3-c,d)pyrene (35.6%), benzo(b)fluoranthene (36%), chrysene (32.8%), benzo(a)pyrene (34.4%), and benzo(a)anthracene (33.2%). Organic results are not qualified on the basis of MS/MSD RPDs alone. No qualification is necessary.

L1924067:

The LCS/LCSD for batch WG1245970 exhibited percent recoveries above the UCL for 4-nitrophenol (115%, 119%) and phenol (94%, 97%). The associated results are non-detections. No qualification is necessary.

L1924383:

The LCS for batch WG1246368 exhibited a percent recovery above the UCL for 4,6-dinitro-o-cresol (132%). The associated results are non-detections. No qualification is necessary.

PFAS by USEPA Method 537M:

19I1299:

The sample SB16_0-2 exhibited a percent recovery above the UCL for the standard isotope sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (196%). The associated results are non-detections. No qualification is necessary.

The sample SB17_0-2 exhibited percent recoveries above the UCL for the standard isotopes sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (316%) and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (515%). The associated results are non-detections. No qualification is necessary.

The sample SB31_0-2 exhibited percent recoveries above the UCL for the standard isotopes sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (159%) and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (264%). The associated results are non-detections. No qualification is necessary.

19I1369:

The sample SB21_0-2 exhibited percent recoveries above the UCL for the standard isotopes sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (177%) and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (437%). The associated results are non-detections. No qualification is necessary.

The sample SB22_0-2 exhibited percent recoveries above the UCL for the standard isotopes sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (152%) and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (378%). The associated results are non-detections. No qualification is necessary.

The sample SB23_0-2 exhibited a percent recovery above the UCL for the standard isotope sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (183%). The associated results are non-detections. No qualification is necessary.

19J0068:

The sample SB18_0-2 exhibited a percent recovery above the UCL for the standard isotope sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (172%). The associated results are non-detections. No qualification is necessary.

The sample SB25_0-2 exhibited percent recoveries above the UCL for the standard isotopes sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (231%) and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (551%). The associated results are non-detections. No qualification is necessary.

The sample SB24_0-2 exhibited percent recoveries above the UCL for the standard isotopes 13c3-perfluorobutane sulfonate (151%), 13c4-perfluoroheptanoic acid (170%), perfluoro-n-[13c8]octanoic acid (162%), perfluoro-n-[13c4]butanoic acid (155%), sodium 1h,1h,2h,2h-

perfluoro-1-[1,2-13c2]-octane sulfonate (248%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (291%), and 13c9-perfluorononanoic acid (159%). The associated results are non-detections. No qualification is necessary.

The sample SB26_0-2 exhibited percent recoveries above the UCL for the standard isotopes 13c4-perfluoroheptanoic acid (157%), n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (158%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (180%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (225%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (348%), and 13c9-perfluorononanoic acid (156%). The associated results are non-detections. No qualification is necessary.

19J0216:

The sample SB20_0-2 exhibited percent recoveries above the UCL for the standard isotopes 13c3-perfluorobutane sulfonate (176%), 13c5-perfluorohexanoic acid (166%), 13c4-perfluoroheptanoic acid (165%), 13c3-perfluorohexanesulfonic acid (174%), perfluoro-n-[13c8]octanoic acid (155%), perfluoro-n-[13c4]butanoic acid (172%), perfluoro-1-[13c8]octanesulfonic acid (158%), perfluoro-n-[13c5]pentanoic acid (174%), n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (164%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (169%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (418%), and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (637%). The associated results are non-detections. No qualification is necessary.

The sample SB30_10-12 exhibited percent recoveries above the UCL for the standard isotopes 13c4-perfluoroheptanoic acid (152%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (185%), and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (245%). The associated results are non-detections. No qualification is necessary.

The sample RISODUP02_100319 exhibited percent recoveries above the UCL for the standard isotopes 13c3-perfluorobutane sulfonate (155%), 13c4-perfluoroheptanoic acid (153%), 13c3-perfluorohexanesulfonic acid (156%), perfluoro-n-[13c8]octanoic acid (157%), n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (158%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (168%), sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-octane sulfonate (180%), and sodium 1h,1h,2h,2h-perfluoro-1-[1,2-13c2]-decane sulfonate (275%). The associated results are non-detections. No qualification is necessary.

Herbicides by SW-846 Method 8151A:

19I1369:

The MS/MSD for batch BJ90185 exhibited a RPD above the control limit for 2,4,5-TP (35.1%). Organic results are not qualified on the basis of MS/MSD RPDs alone. No qualification is necessary.

PCBs by SW-846 Method 8082A:

19I1369:

The MS/MSD for batch BJ90089 exhibited a percent recovery below the LCL for PCB-1260 (26.4%, 34.5%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

The MS/MSD for batch BJ90089 exhibited a RPD above the control limit for PCB-1016 (54%). Organic results are not qualified on the basis of MS/MSD RPDs alone. No qualification is necessary.

L1924067:

The sample SB06_1-2 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%). The sample was diluted >10X. No qualification is necessary.

The sample SB06_7-8 exhibited percent recoveries below the LCL for the surrogates 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%). The sample was diluted >10X. No qualification is necessary.

Pesticides by SW-846 Method 8081B:

19I1369:

The MS/MSD for batch BJ90089 exhibited percent recoveries below the LCL for endosulfan sulfate (25.9%, 28.2%), delta BHC (25.7%), beta endosulfan (25%), alpha chlordane (27.5%), dieldrin (27.3%), 4,4'-DDD (23.6%, 28.2%), 4,4'-DDE (26%, 29.9%), 4,4'-DDT (23.8%, 29.9%), and endrin (28.9%). Organic results are not qualified on the basis of MS/MSD recoveries alone. No qualification is necessary.

L1924383:

The sample SB13_10-11 exhibited a RPD above the control limit between the primary and secondary GC columns for 4,4'-DDE (48%). The associated results were previously qualified. No further action is necessary.

Metals by SW-846 Method 6010D and 6020B:

19I1299:

The laboratory duplicate and parent sample (SB31_6.5-8.5) exhibited RPDs above the control limit for lead (65.2%) and zinc (41.5%). The associated results were previously qualified. No further action is necessary.

The MS/MSD for batch BI91617 exhibited percent recoveries below the LCL for manganese (-252%) and copper (-24.4%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

19I1369:

The MS/MSD for batch BJ90042 exhibited a percent recovery above the UCL for manganese (182%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MB for batch BJ90027 exhibited a detection of zinc (0.00172 mg/L). The associated results are >10X the contamination. No qualification is necessary.

The field blank (RISOFB01_093019) exhibited a detection of zinc (0.0771 mg/L). The associated results are >10X the contamination. No qualification is necessary.

19J0068:

The MS/MSD for batch BJ90119 exhibited a percent recovery below the LCL for manganese (-170%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

19J0216:

The MB for batch BJ90306 exhibited detections of copper (2.31 mg/kg) and zinc (2.68 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The laboratory duplicate and parent sample (SB20_0-2) exhibited RPDs above the control limit for lead (48.1%) and chromium (82.7%). The associated results were previously qualified. No further action is necessary.

The MS/MSD for batch BJ90306 exhibited percent recoveries below the LCL for lead (-166%) and manganese (-31.1%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch BJ90306 exhibited a percent recovery above the UCL for zinc (129%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The field duplicate and parent sample (RISODUP02_100319 and SB20_0-2) exhibited a RPD above the control limit for chromium (69%). The associated results were previously qualified. No further action is necessary.

The field blank (RISOFB02_100319) exhibited a detection of zinc (0.0287 mg/L). The associated results are >10X the contamination. No qualification is necessary.

L1924067:

The MB for batch WG1247080 exhibited detections of chromium (0.06 mg/kg), iron (2.01 mg/kg), silver (0.56 mg/kg), and sodium (7.48 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS/MSD for batch WG1247080 exhibited percent recoveries above the UCL for aluminum (574%), calcium (271%), and zinc (307%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1247080 exhibited percent recoveries below the LCL for iron (0%), magnesium (60%), and manganese (15%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The laboratory duplicate and parent sample (SB06_1-2) exhibited a RPD above the control limit for copper (192%). The associated results were previously qualified. No further action is necessary.

L1927241:

The MB for batch WG1252228 exhibited detections of copper (0.316 mg/kg), iron (0.78 mg/kg), sodium (1.43 mg/kg), and zinc (0.156 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS/MSD for batch WG1252228 exhibited percent recoveries above the UCL for aluminum (381%), calcium (1790%), copper (2900%), magnesium (1000%), and zinc (134%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1252228 exhibited percent recoveries below the LCL for iron (0%), lead (0%), and manganese (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The laboratory duplicate and parent sample (TP01_2-2.5) exhibited RPDs above the control limit for cadmium (45%), chromium (42%), and nickel (53%). The associated results were previously qualified. No further action is necessary.

COMMENTS:

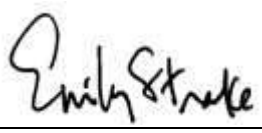
Two field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±2X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 50%. The following field duplicate and parent sample pairs were compared to the precision criteria:

- RISODUP01_093019 and SB22_0-2: criteria met for all analytes
- RISODUP02_100319 and SB20_0-2: criteria met for all analytes

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified, with the exception of the rejected results. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

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Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Sherief Saleh, Langan Senior Staff Scientist

From: Emily Strake, Langan Senior Project Chemist

Date: November 27, 2019

Re: Data Usability Summary Report
For 2413 Third Avenue
June and October 2019 Soil Vapor Samples
Langan Project No.: 170396002

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil vapor samples collected in June and October 2019 by Langan Engineering and Environmental Services ("Langan") at the 2413 Third Avenue site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAP registration # 11148) and York Analytical Laboratories, Inc. (NYSDOH NELAP registration # 10854) for volatile organic compounds (VOCs) by the methods specified below.

- VOCs by USEPA Method TO-15 and TO-15 SIM

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1924604	L1924604-01	SV06_060719	6/7/2019	VOCs
L1924604	L1924604-02	SV12_060719	6/7/2019	VOCs
L1924604	L1924604-03	SV10_060719	6/7/2019	VOCs
L1924604	L1924604-04	SV11_060719	6/7/2019	VOCs
19J0219	19J0219-01	SV16_100319	10/3/2019	VOCs
19J0219	19J0219-02	SV22_100319	10/3/2019	VOCs
19J0219	19J0219-03	SV24_100319	10/3/2019	VOCs
19J0219	19J0219-04	AA01_100319	10/3/2019	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-31, "Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15" (September 2016, Revision 6), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, target compound identification and quantification, chromatograms, and overall system performance.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
AA01_100319	TO15	115-07-1	Propylene	UJ
SV16_100319	TO15	115-07-1	Propylene	UJ
SV22_100319	TO15	115-07-1	Propylene	UJ
SV24_100319	TO15	115-07-1	Propylene	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by USEPA Method TO-15 and TO-15 SIM:

The initial calibration for instrument 5975C exhibited a relative standard deviation (RSD) above the control limit for propylene (40.4%). The associated results in sample SV16_100319, SV22_100319, SV24_100319, and AA01_100319 are qualified as "UJ" based on potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by USEPA Method TO-15 and TO-15 SIM:

The continuing calibration verification analyzed on 10/10/2019 at 10:48 exhibited an RSD above the control limit for propylene (-36.9%). The associated results were previously qualified. No further action is necessary.

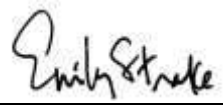
COMMENTS:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above,

that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified, with the exception of the rejected results. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



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APPENDIX I
Laboratory Data Reports

APPENDIX J
Completed FWRIA Decision Key

Appendix 3C Fish and Wildlife Resources Impact Analysis Decision Key	If YES Go to:	If NO Go to:
1. Is the site or area of concern a discharge or spill event?	13	2
2. Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3. Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4. Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5. Has the contamination gone off-site?	6	14
6. Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7. Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8. Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9. Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10. Is the lack of resources due to the contamination?	3.10.1	14
11. Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12. Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13. Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.)	Section 3.10.1	14
14. No Fish and Wildlife Resources Impact Analysis needed.		

APPENDIX K
NYSDEC Correspondence