438 UNION AVENUE

BROOKLYN, NEW YORK 11211

Remedial Investigation Report

OER Project Number: 19TMP0433K, 19EH-N131K

E-Designation No.: E-232

CEQR No.: 090DCP056K

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FEBRUARY 2019

REMEDIAL INVESTIGATION REPORT

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

CERTIFICATION

I, Mohamed Ahmed, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 438 Union Avenue, (19TMP0433K, 19EH-N131K). I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Mohahmed Ahmed	3/4/2019	mohamed ahmed
Qualified Environmental Professional	Date	Signature

EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

Site Location and Current Usage

The Site is located at 438 Union Avenue in the Williamsburg section of Brooklyn, New York and is identified as Block 2671 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 2,675-square feet and is bounded by a grocery store and delicatessen to the north, a residential use building to the south, a mixed use commercial and residential use building to the east, and Union Avenue bordering the Site to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is vacant, and contains a three-story mixed use commercial and residential building with an approximately 7-foot-deep cellar that covers the entire building's footprint and a rear yard.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a new 6-story residential building with penthouse and cellar. The cellar will consist of two apartment units, residential accessory space, and two utility rooms. The first through sixth floors will consist of apartment units. The roof will consist of the penthouse apartment and residential recreation area. The proposed building will have a total gross square footage of 9,216.02 of floor area and will cover 65% of the lot at approximately 1,750 square feet. The remaining 925 square feet of lot area will be a rear yard and will be covered with gravel or crushed stones. The buildings elevation will be 75 feet to the top of the bulkhead, and will contain a total of twelve dwelling units and a penthouse.

The proposed construction will require excavation to ten feet below grade surface (approximately 3 feet below the existing basement floor) to accommodate the cellar level. Excavation for the elevator pit will be completed to approximately 16 feet bgs. Approximately 17,500 cubic yards (24,500 tons) of soil/fill will be excavated for the building's foundation. The remaining 925 square feet of the rear yard will not be excavated. Groundwater is approximately 20 feet below grade surface (ft-bgs).

Layout of the proposed site development is presented in Figure 3.

The current zoning designation is R6B, a designation denoting a residential use. The proposed use is consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

Tenen Environmental, LLC (Tenen) prepared a Phase I Environmental Site Assessment (ESA), dated July 10, 2018. The Phase I ESA identified no recognized environmental conditions (RECs) at the Site.

The Site has been developed with a three-story mixed-use commercial and residential building with a one-story addition and a rear yard since 1887. No changes were shown through 2007, the most recent Sandborn map.

The AOCs identified for this site include:

1. Historic use of the north and west adjacent properties as filling stations and for underground gasoline storage;
2. Historic use of the east adjoining property for the manufacturing of horse blankets; and,
3. Historic use of the northwest adjacent property for auto wrecking.

Phase 1 Report is presented in Appendix A.

Summary of the Work Performed under the Remedial Investigation

Tenen performed the following scope of work during the RI:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed four soil borings across the entire project Site, and collected eight soil samples, plus a duplicate sample, for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three 1-inch temporary groundwater wells throughout the Site to establish groundwater flow and collected three groundwater samples, plus a duplicate sample, for chemical analysis to evaluate groundwater quality;

4. Installed four soil vapor probes around Site perimeter and collected four samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property is approximately 14 feet.
2. Depth to groundwater ranges from 10.31 feet below sidewalk grade to 3.75 feet below the existing onsite building basement.
3. Groundwater flow is southwest beneath the Site
4. Depth to bedrock is estimated to be between 100 and 150 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of approximately 2 feet of fill material (in the rear yard) underlain by approximately 13 feet of silt and medium grain sand.
6. Soil/fill samples collected during the RI were compared to the New York State Department of Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives and Restricted Residential Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Part 375-6.8 and CP51. Soil sampling results indicated:
    - VOCs were not detected above Unrestricted Use SCOs.
    - Five SVOCs, benzo(a)anthracene [max. of 1.9 mg/kg], benzo(a)pyrene [max. of 1.7 mg/kg], benzo(b)fluoranthene [max. of 2.3 mg/kg], chrysene [max. of 1.9 mg/kg], and indeno(1,2,3-cd)pyrene [max. of 1.2 mg/kg] exceeded Restricted Residential Use SCOs in one shallow sample.
    - Two pesticides, 4,4'-DDE [max. of 0.00725 mg/kg] and 4,4'-DDD [max. of 0.00682 mg/kg] exceeded Unrestricted Use SCOs in one shallow sample.
    - Polychlorinated biphenyls (PCBs) were not detected above Unrestricted Use SCOs.
    - Two metals, copper [max. of 53.4 mg/kg] and zinc [max. of 219 mg/kg] exceeded Unrestricted Use SCOs. Three metals, barium [max. of 558 mg/kg], lead [max. of

649 mg/kg], and mercury [max. of 2.85 mg/kg] exceeded Restricted-Residential Use SCOs in shallow samples.

- Overall, the soil chemistry is unremarkable and is consistent with data identified at sites with historic fill material in NYC.

7. Groundwater samples collected during the RI were compared to the NYSDEC Technical and Operational Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS). Sampling results indicated:

    - One VOC, tetrachlorethene (PCE) exceeded its AWQS at a max. of 12 µg/L.
    - The following SVOCs, benzo(a)anthracene [0.02 µg/L], benzo(a)pyrene [0.03 µg/L], benzo(b)fluoranthene [0.04 µg/L], benzo(k)fluoranthene [0.02 µg/L], chrysene [0.03 µg/L], and indeno(1,2,3-cd)pyrene [0.02 µg/L] exceeded the AWQS in one sample.
    - Two pesticides, dieldrin [0.012 µg/L] and chlordane [0.738 µg/L] exceeded the AWQS in one sample.
    - PCBs were not detected in any groundwater sample.
    - Three dissolved (filtered) metals including iron [max. of 308 µg/L], manganese [max. of 1393 µg/L], and sodium [max. of 52,300 µg/L] exceeded the AWQS.

8. Soil vapor samples collected during the Phase II Investigation were compared to the compounds listed in Table 3.1 Air Guideline Values derived by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006 and the revised NYSDOH Decision Matrices dated May 2017. Soil vapor samples collected showed low levels of both petroleum related and chlorinated VOCs:

    - The maximum total concentration of petroleum-related VOCs (BTEX) detected was 35.38 $\mu g/m^3$ in sample SV-4.
    - The chlorinated solvents detected included tetrachloroethene (PCE) (max. of 3.63 $\mu g/m^3$) and methylene chloride (max. of 2.41 $\mu g/m^3$).

- Trichloroethene (TCE), cis-1,2-dichloroethene, 1,1,1-trichloroethane (TCA), carbon tetrachloride, and vinyl chloride were not detected in any soil vapor sample.

Concentrations of the chlorinated VOCs PCE and methylene chloride were below the monitoring level ranges established within the NYSDOH soil vapor guidance matrix.

REMEDIAL INVESTIGATION REPORT

1.0 SITE BACKGROUND

Sunshine Construction has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 0.062-acre site located at 438 Union Avenue in the Williamsburg section of Brooklyn, New York. Residential use is proposed for the property. The RI work was performed between December 4 and December 5, 2018. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

1.1 Site Location and Current Usage

The Site is located at 438 Union Avenue in the Williamsburg section in Brookyln, New York and is identified as Block 2671 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 2,675-square feet and is bounded by a grocery store and delicatessen to the north, a residential use building to the south, a mixed use commercial and residential use building to the east, and Union Avenue bordering the Site to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is vacant, and contains a three-story mixed use commercial and residential building with an approximately 7-foot-deep cellar that covers the entire building's footprint and a rear yard.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of a new 6-story residential building with penthouse and cellar. The cellar will consist of two apartment units, residential accessory space, and two utility rooms. The first through sixth floors will consist of apartment units. The roof will consist of the penthouse apartment and residential recreation area. The proposed building will have a total gross square footage of 9,216.02 of floor area and will cover 65% of the lot at approximately 1,750 square feet. The remaining 925 square feet of lot area will be a rear yard and will be covered with gravel or crushed stones. The buildings elevation will be 75 feet to the top of the bulkhead, and will contain a total of twelve dwelling units and a penthouse.

The proposed construction will require excavation to ten feet below grade surface (approximately 3 feet below the existing basement floor) to accommodate the cellar level. Excavation for the elevator pit will be completed to approximately 16 feet bgs. Approximately 17,500 cubic yards (24,500 tons) of soil/fill will be excavated for the building's foundation. The remaining 925 square feet of the rear yard will not be excavated. Groundwater is approximately 20 feet below grade surface (ft-bgs).

Layout of the proposed site development is presented in Figure 3.

The current zoning designation is R6B, a designation denoting a residential use. The proposed use is consistent with existing zoning for the property.

1.3 Description of Surrounding Property

The north adjoining property is occupied by grocery store and delicatessen. The east adjoining property is occupied by a mixed-use commercial and residential building that is currently vacant. The south adjacent property is occupied by a mixed-use commercial and residential building. The north adjacent property is occupied by a residential building that is currently under construction.

There are no schools, hospitals or day care facilities are located within a 500 foot radius of the Site

Figure 4 shows the surrounding land usage.

2.0 SITE HISTORY

2.1 Past Uses and Ownership

Tenen Environmental, LLC (Tenen) prepared a Phase I Environmental Site Assessment (ESA), dated July 10, 2018. The Phase I ESA identified no recognized environmental conditions (RECs) at the Site. However, the Phase I ESA identified the following off-Site RECs:

- Historic use of the north and west adjacent properties as filling stations and for underground gasoline storage;
- Historic use of the east adjoining property for manufacturing; and,
- Historic use of the northwest adjacent property for auto wrecking.

The Site has been developed with a three-story mixed-use commercial and residential building with a one-story addition and a rear yard since 1887. No changes were shown through 2007, the most recent Sanborn map.

2.2 Previous Investigations

No previous environmental field investigations were conducted at the Site.

2.3 Site Inspection

On May 30, 2018, Sara Babyatsky of Tenen conducted a Site visit of the Site and adjoining properties. Ms. Babyatsky observed the Site is developed with a three-story mixed-use commercial and residential building with a cellar. A one-story addition to the rear of the building contained a residential unit.

The cellar level contained a boiler room with a natural gas boiler. A fill port and ventilation pipes were observed near the cellar entrance at the front of the building, however no storage tank was observed. No hazardous substances, drums, unidentified liquids or stained pavement was noted at the Site.

2.4 Areas of Concern

The AOCs identified for this site include:

1. Historic use of the north and west adjacent properties as filling stations and for underground gasoline storage;
2. Historic use of the east adjoining property for the manufacturing of horse blankets; and,
3. Historic use of the northwest adjacent property for auto wrecking.

Phase 1 Report is presented in Appendix A.

3.0 PROJECT MANAGEMENT

3.1 Project Organization

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Mohamed Ahmed.

3.2 Health and Safety

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

3.3 Materials Management

All material encountered during the RI was managed in accordance with applicable laws and regulations.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

Tenen performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed four soil borings across the entire project Site, and collected eight soil samples, plus a duplicate sample, for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three groundwater monitoring wells throughout the Site to establish groundwater flow and collected three groundwater samples, plus a duplicate sample, for chemical analysis to evaluate groundwater quality;
4. Installed four soil vapor probes around Site perimeter and collected four samples for chemical analysis.

4.1 Geophysical Investigation

No underground storage tanks (USTs) were expected at the Site. Therefore, a geophysical survey was not conducted during this investigation.

4.2 Borings and Monitoring Wells

Drilling and Soil Logging

On December 4, 2018, four soil borings (SB-1 through SB-4) were advanced at the Site. Two discrete soil samples were collected from each test boring. Additionally, one discrete duplicate sample was collected, for a total of nine samples. Soil samples collected from SB-1 and SB-2 on the 0-2 ft. interval were collected with respect to the existing basement grade, and samples collected on the 10-12 ft. interval were collected with respect to the sidewalk grade (equivalent to 2-4 ft. below the existing basement grade). A surface sample (from the 0-2 ft-bg interval) and subsurface soil from the two-foot interval beneath the proposed maximum depth of excavation (10-12 ft-bg beneath the proposed building foot print) were collected from SB-3. A surface sample (from the 0-2ft-bg interval) and a shallow sample (from the 2-4ft-bg interval) were collected in the rear yard from SB-4. No excavation is proposed for the rear yard, therefore samples were not collected from the interval of 10-12 ft-bg in the SB-4 location.

All soil was screened using a photoionization detector (PID). All PID readings were 0.0 parts per million (ppm).

Analytical data for all soil samples can be found in Section 5.2 of this report. Boring logs for all soil collected during the RI are attached in Appendix B. A map showing the location of soil borings and monitor wells is shown in Figure 2.

Groundwater Monitoring Well Construction

Three one-inch temporary wells were installed (MW-1 through MW-3) and constructed of one-inch-20-slot polyvinyl chloride (PVC). Groundwater wells were installed to a depth of approximately 9 ft-below existing basement grade (MW-1 and MW-2), and 15 ft-below sidewalk grade (MW-3). Temporary wells MW-1 and MW-2 were constructed with five feet of screen and riser to the surface. Temporary well MW-3 was constructed with ten feet of screen and riser to the surface. The wells were installed to evaluate the water quality underlying the Site and determine the groundwater flow direction.

Monitor well locations are shown in Figure 2.

Water Level Measurement

All three monitoring wells were gauged for a depth to water using a Solinist Model 101. Water level data is provided in the table below:

Monitoring Well ID	Depth to Water (ft-bg)
MW-1	10.31
MW-2	11.75*
MW-3	10.56*

Note: * denotes depth has been corrected from beneath the basement grade to beneath sidewalk grade.

4.3 Sample Collection and Chemical Analysis

Sampling performed as part of the field investigation was conducted for all Areas of Concern and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. All media including soil, groundwater and soil vapor have been sampled and evaluated in the RIR. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in this RIR provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

Soil Sampling

A direct-push Geoprobe® operated by Cascade was used to advance four soil borings (SB-1 through SB-4) . The full extent of each soil boring were screened with a photoionization device (PID) and visual and olfactory observations were recorded.

Samples were collected in laboratory-supplied glass jars and were sealed, labeled, and placed in a cooler containing ice (to maintain a temperature of approximately 4 degrees Celsius) for delivery to Alpha Analytical Laboratories, a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified analytical laboratory. Soil samples were analyzed for Part 375 SCOs.

Nine soil samples were collected for chemical analysis during this RI. Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Tables 1 through 4. Figure 2 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

Groundwater Sampling

All wells were developed following installation using dedicated polyethylene tubing. All wells were sampled one day after installation. All sampling equipment was decontaminated prior to use. Prior to sampling, water level measurements were recorded using an electronic water level indicator and recorded in the field logbook. Water quality measurements, including temperature, pH, oxidation-reduction potential (ORP), turbidity, dissolved oxygen (DO) and total

dissolved solids (TDS) were collected and recorded at approximate 10-minute intervals. Samples were collected only after temperature, pH and DO stabilized to within 10 percent of the previous reading and turbidity was below 50 Nephelometric Turbidity Units (NTUs). Sufficient sample volume was collected for ach analysis. All samples were collected in laboratory supplied containers. Water quality measurements are included in Appendix A.

Samples were collected using low-flow technique in accordance with the EPA Region 1Low-Stress (Low-Flow) "Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," (EQASOP-GW 001, Revision 3, dated July 30, 1996; Revised: January 19, 2010). All groundwater samples were analyzed for TCL VOCs, TCL SVOCs, pesticides, PCBs and TAL Metals (total and dissolved).

Four groundwater samples were collected for chemical analysis during this RI. Groundwater sample collection data is reported in Tables 5 through 8. Sampling logs with information on purging and sampling of groundwater monitor wells is included in Appendix 2. Figure 2 shows the location of groundwater sampling. Laboratories and analytical methods are shown below.

Soil Vapor Sampling

A direct-push Geoprobe®, operated by Cascade, was used to install soil vapor sampling probes. Access to the subsurface soil was gained by drilling through the soil surface using the Geoprobe®. Upon penetration through the surface material, a sampling probe, consisting of a 1.5-inch long hardened point and a six-inch long perforated vapor intake, was installed to the target depths. The screen was surrounded by #1-size quartzite sand to approximately one foot above the top of the screen. The screen and sand pack were isolated from ambient air by placing wetted bentonite pellets to grade. Soil vapor probes were installed to a depth of 10 ft-bg in the basement (SV-1 through SV-3) and to a depth of 4 ft-bg in the rear yard (SV-4).

The soil vapor sampling probe was connected to 3/8-inch diameter tubing to the surface. The borehole above the sampling probe to grade was sealed using a sand pack and an inert sealant to prevent ambient air mixing with the soil vapor. Ambient air was purged from the boring hole by attaching the surface end of the tubing to an air valve and then to a vacuum pump. The vacuum pump was removed one to three volumes of air prior to all soil vapor sample collection.

All soil vapor samples were screened for organic vapors using a PID. Samples were collected using a 2.7-liter Summa canisters with an eight-hour regulator. The flow rate of both purging and

sampling did not exceed 0.2 liters per minute (L/min). Sample logs were maintained summarizing sample identification, date and time of sample collection, vacuum of canisters before and after samples were collected, canister and flow regulator identification numbers and PID readings. Soil vapor sampling logs are included in Appendix A.

Helium tracer gas was used as a quality assurance/quality control (QA/QC) measure to verify the integrity of the soil vapor probe seal. A portable monitoring device was used to analyze a sample of soil vapor for the tracer gas prior to sampling. If this analysis showed a significant presence of the tracer gas, the probe seals were adjusted to prevent infiltration.

Four soil vapor probes were installed on December 4, 2018. Four soil vapor samples were collected for chemical analysis, on December 5, 2018, during this RI. Soil vapor sampling locations are shown in Figure 2. Soil vapor sample collection data is reported in Table 9. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

The summa canisters were transported to Alpha Analytical Laboratories, a New York State ELAP-certified laboratory, under chain of custody procedures and the samples analyzed for VOCs using EPA method TO-15.

Chemical Analysis

Chemical analytical work presented in this RIR has been performed in the following manner:

Factor	Description
Quality Assurance Officer	The chemical analytical quality assurance is directed by Mohamed Ahmed
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the RI is Alpha Analytical Laboratories, a New York State Department of Health (NYSDOH) Environmental Accreditation Program (ELAP)-certified analytical laboratory.
Chemical Analytical	Soil analytical methods:

Methods	• TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Groundwater analytical methods: • TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Soil vapor analytical methods: • VOCs by TO-15 VOC parameters.

Results of Chemical Analyses

Laboratory data for soil, groundwater and soil vapor are summarized in Tables 1 through 9, respectively. Laboratory data deliverables for all samples evaluated in this RIR are provided in digital form in Appendix D.

5.0 ENVIRONMENTAL EVALUATION

5.1 Geological and Hydrogeological Conditions

According to the Brooklyn Quadrangle United States Geological Survey (USGS) Topographic Map (2013), the property lies at an elevation of approximately 14 feet above the National Geodetic Vertical Datum of 1929 (an approximation of mean sea level). The surface topography at the Site is relatively flat.

Stratigraphy

The stratigraphy of the site, from the surface down, consists of approximately 2 feet of fill material (in the rear yard) underlain by approximately 13 feet of silt and medium grain sand.

Hydrogeology

Purge logs showing water level are included in Appendix B of this report. The depth of groundwater at the Site ranges from 3.75 ft-below the onsite building basement to 10.31 ft-below sidewalk grade. Groundwater flow is southwest. Figure 8 shows the groundwater flow direction.

5.2 Soil Chemistry

Soil samples were compared to the Part 375 Unrestricted Use, Restricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs).

No VOCs were detected in exceedance of the SCOs.

The following SVOCs were detected in one soil sample, SB-4(0-2), above the Unrestricted Use SCOs: benzo(a)anthracene [1.9 mg/kg above the Unrestricted Use SCO of 1 mg/kg], benzo(a)pyrene [1.7 mg/kg above the Unrestricted Use SCO of 1 mg/kg], benzo(b)fluoranthene [2.3 mg/kg above the Unrestricted Use SCO of 1 mg/kg], chrysene [1.9 mg/kg above the Unrestricted Use SCO of 1 mg/kg] and indeno(1,2,3-cd)pyrene [1.2 mg/kg above the Unrestricted Use SCO of 0.5 mg/kg].

The following pesticides were detected in one sample, SB-4(0-2), above the Unrestricted Use SCOs: 4,4'-DDE [0.00725 mg/kg above the Unrestricted Use SCO of 0.0033 mg/kg] and 4,4'-DDD [0.00682 mg/kg above the Unrestricted Use SCO of 0.0033 mg/kg].

The following metals were detected in samples in exceedance of the Restricted-Residential Use SCOs: barium [max: 558 mg/kg above the Restricted-Residential Use SCO of 400 mg/kg], lead [max: 649 mg/kg above the Restricted-Residential Use SCO of 400 mg/kg], and mercury [max: 2.85 mg/kg above the Restricted-Residential Use SCO of 0.81 mg/kg]. The following

metals were detected in exceedance of the Unrestricted Use SCOs: copper [max: 53.4 mg/kg above the Unrestricted Use SCO of 50 mg/kg] and zinc [max: 219 mg/kg above the Unrestricted Use SCO of 109 mg/kg].

The soil sampling results indicate evidence of SVOCs, pesticides and metals in exceedance of the Unrestricted Use SCOs which are indicative of historic urban fill.

Data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. A summary table of data for chemical analyses performed on soil samples is included in Tables 1 through 4. Figure 5 shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 Soil Cleanup Objectives.

5.3 Groundwater Chemistry

Groundwater samples were compared to the NYSDEC Technical and Operational Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS).

Tetrachloroethene was detected in sample MW-1 at a concentration of 12 micrograms per liter (ug/l) above the AWQS of 5 ug/l. No other VOCs were detected in exceedance of the AWQS.

The following SVOCs were detected in one sample, MW-3, in exceedance of the AWQS: benzo(a)anthracene [0.02 ug/l above the AWQS of 0.002 ug/l], benzo(a)pyrene [0.03 ug/l above the AWQS of 0.002 ug/l], benzo(b)fluoranthene [0.04 ug/l above the AWQS of 0.002 ug/l], benzo(k)fluoranthene [0.02 ug/l above the AWQS of 0.002 ug/l], chrysene [0.03 ug/l above the AWQS of 0.002 ug/l], and indeno(1,2,3-cd)pyrene [0.02 ug/l above the AWQS of 0.002 ug/l].

The following pesticides were detected in one sample, MW-1, above the AWQS: dieldrin [0.012 ug/l above the AWQS of 0.004 ug/l] and chlordane [0.738 ug/l above the AWQS of 0.05 ug/l].

The following dissolved metals were detected above the AWQS: iron [max: 308 ug/l above the AWQS of 300 ug/l], manganese [max: 1393 ug/l above the AWQS of 300 ug/l] and sodium [max: 52,300 ug/l above the AWQS of 20,000 ug/l]. The following total metals were detected above the AWQS: iron [28,800 ug/l above the AWQS of 300 ug/l], lead [max: 44.97 ug/l above the AWQS of 25 ug/l], manganese [max: 2,081 ug/l above the AWQS of 300 ug/l], selenium [max: 10.2 ug/l above the AWQS of 10 ug/l] and sodium [max: 52,100 ug/l above the AWQS of 20,000 ug/l].

The groundwater sampling results indicate evidence of SVOCs, pesticides and metals likely attributed to the fill material at the Site.

Data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site. A summary table of data for chemical analyses performed on groundwater samples is included in Tables 5 through 8. Exceedances of applicable groundwater standards are shown.

Figure 6 shows the location and posts the values for groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

5.4 Soil Vapor Chemistry

Soil vapor results were compared to the NYS DOH Air Guidance Values (AGVs), the EPA VISL Default Residential Target Sub-Slab & Exterior Soil Gas Concentrations Criteria (EPA-VISL-TSSGC) and the NYSDOH Soil Vapor/Intrusion Air Matrices.

No volatile organic compounds were detected above the NYSDOH AGVs or the EPA-VISL-TSSGC.

The NYSDOH Decision Matrices for all compounds suggest No Further Action.

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in Table 9.

5.5 Prior Activity

Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

5.6 Impediments to Remedial Action

There are no known impediments to remedial action at this property.

FIGURES



Basemap: USGS Brooklyn-NY Quadrangle, 2013
http://www.usgs.gov

Site Location

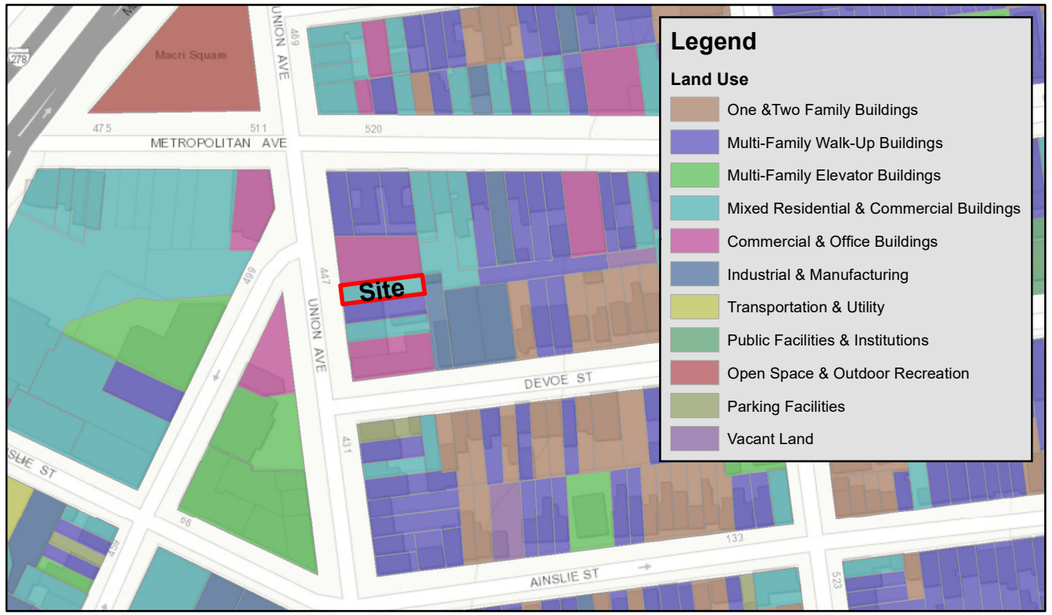
0 1,000 2,000 4,000 Feet



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

Department of Finance Digital Tax Map

0 100 200 400 Feet



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2017 v1

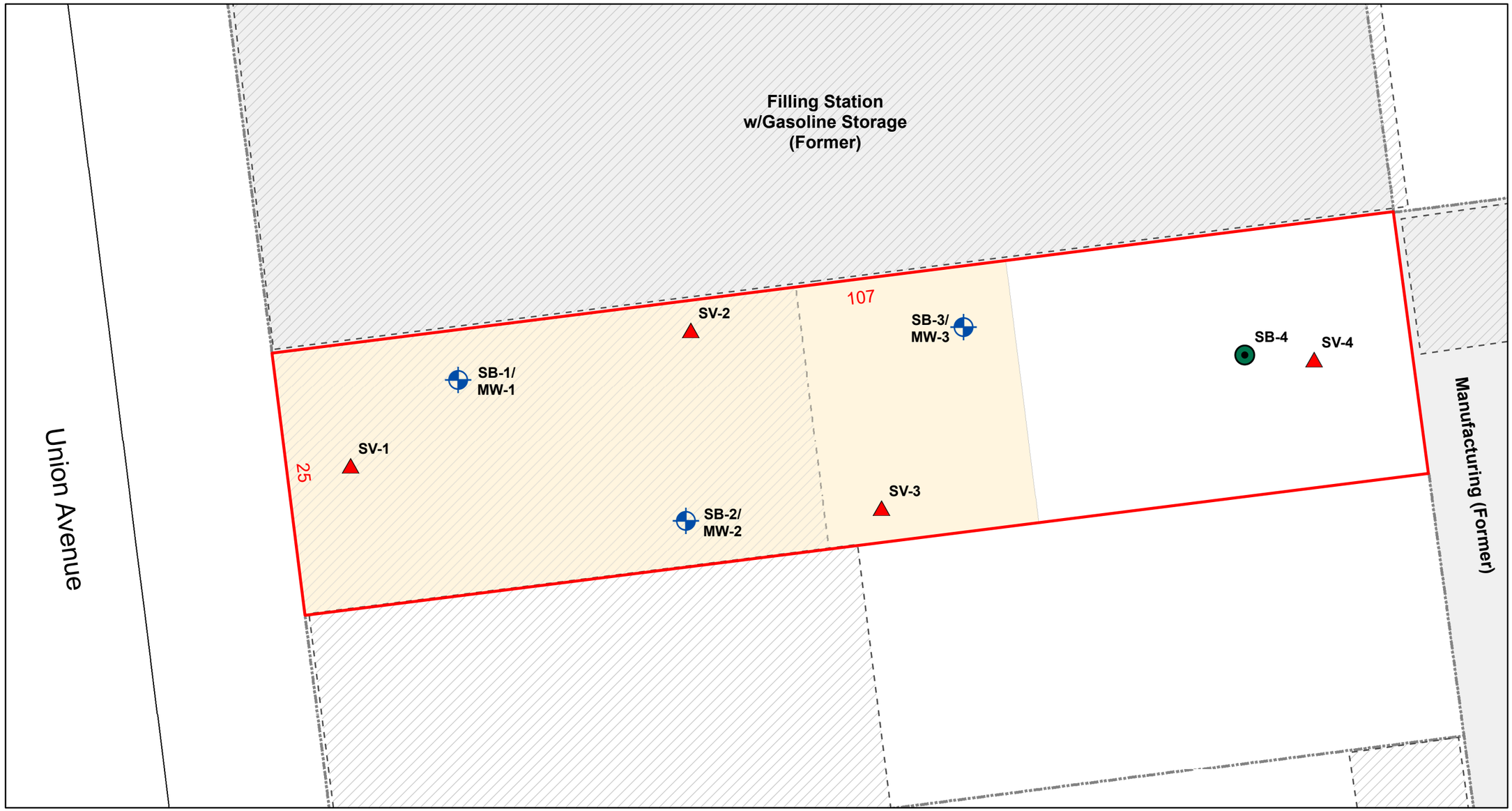
0 100 200 400 Feet

438 Union Avenue
Brooklyn, New York
Block 2761, Lot 5

Site

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Drawn By	LM
Checked By	SB
Date	June 2018
Scale	As Noted
Drawing Title	**Site Location Map**
Drawing No	**Figure 1**



Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial

Legend

- Soil Boring Location Collected (0-2) and (2-4) ft-bg
- Soil Boring/ Temporary Groundwater Well Location, Collected (0-2) and (10-12) ft-bg
- Soil Vapor Sample Location
- Project Site Boundary
- Existing Building
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

N W E S

0 5 10 20 Feet

438 Union Avenue
Brooklyn, New York
Block 2761, Lot 5

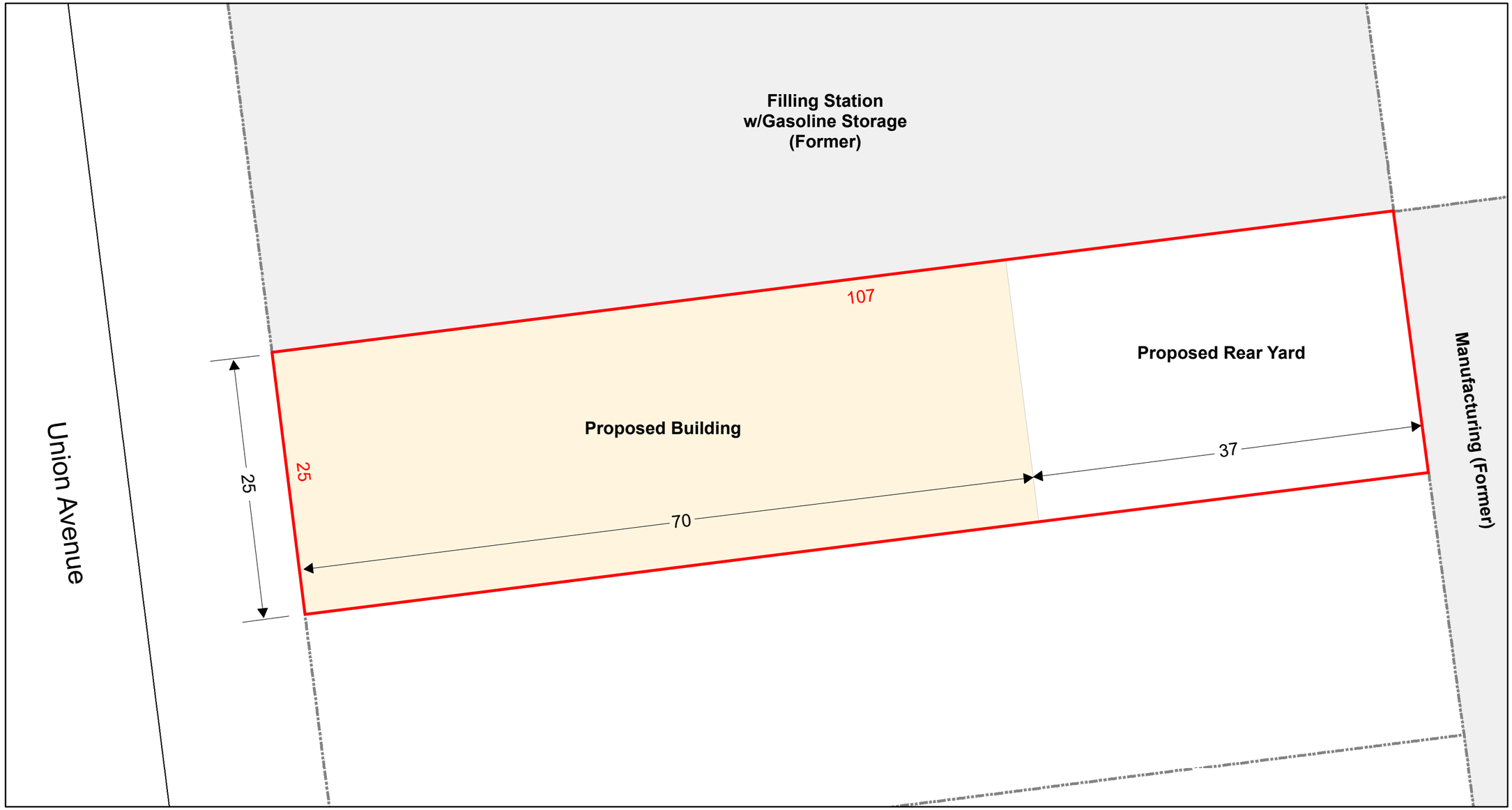
Site

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Drawn By	Checked By	Date	Scale
LM	MA	October 2018	As Noted

Drawing Title: **Sample Locations**

Drawing No: **Figure 2**



Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial

Legend

- Project Site Boundary
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

N
W E
S

0 5 10 20 Feet

Site

438 Union Avenue
Brooklyn, New York
Block 2761, Lot 5

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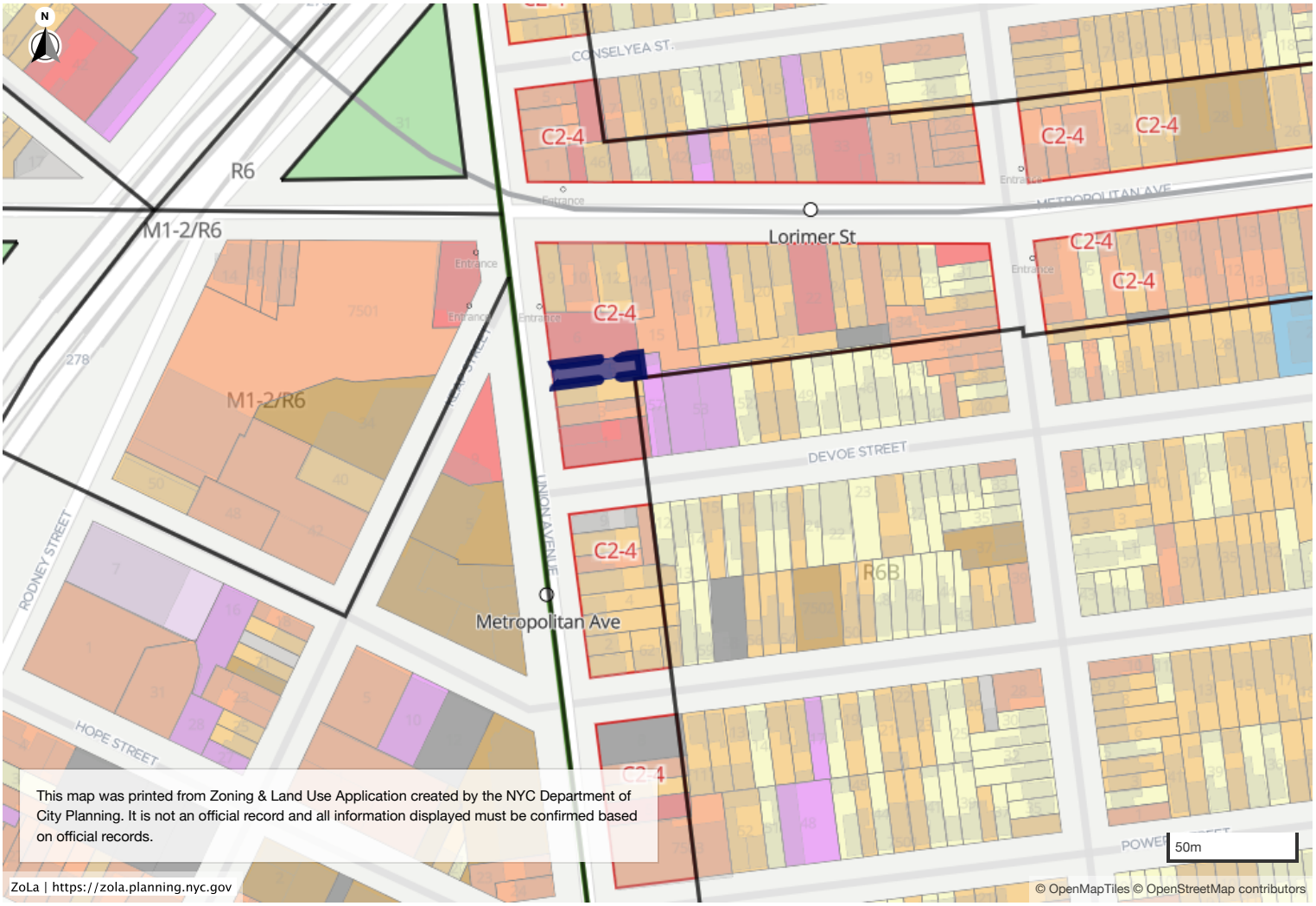
Drawn By	Checked By	Date	Scale
LM	MA	September 2018	As Noted

Drawing Title: **Proposed Building Layout**

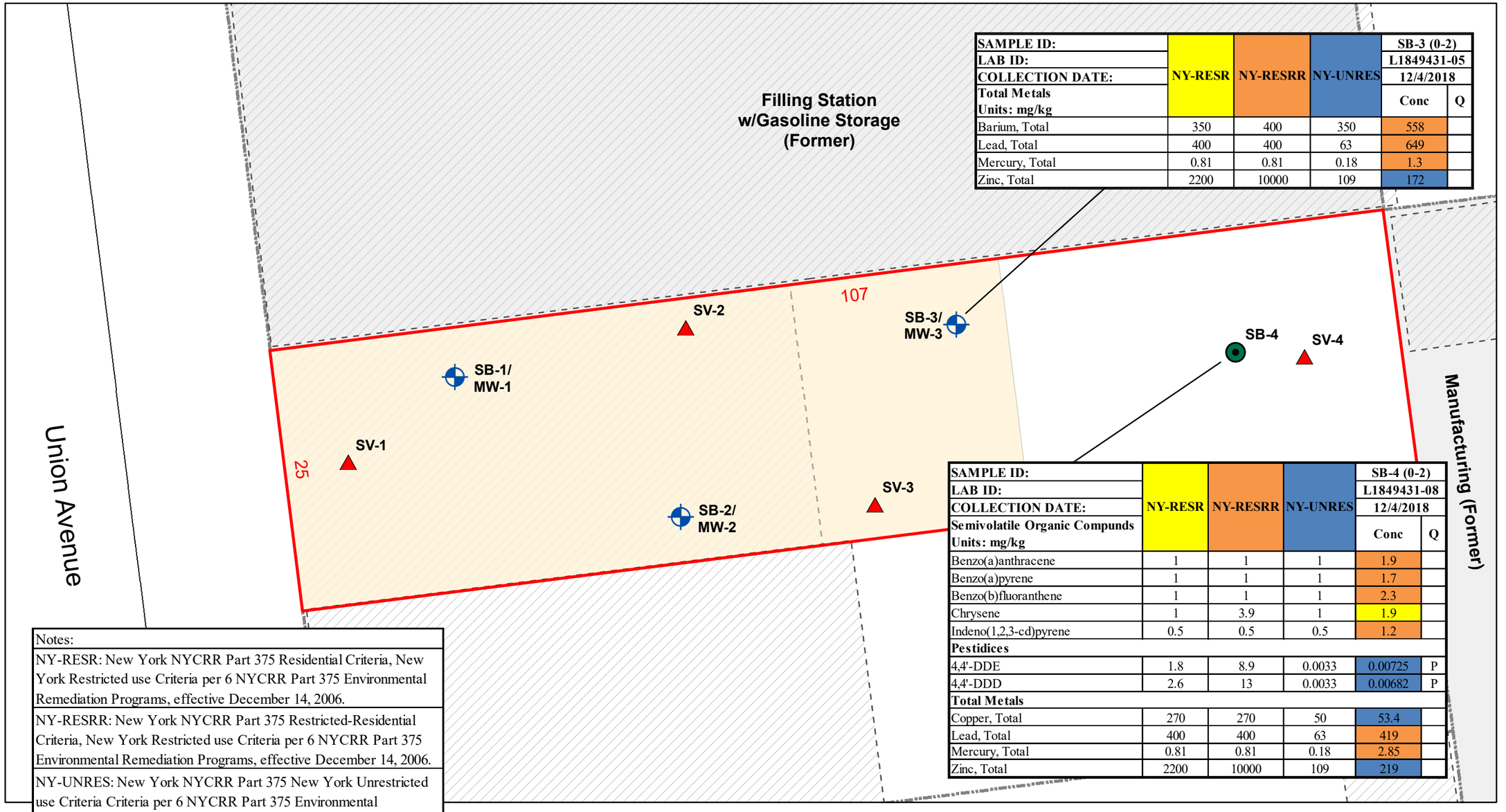
Drawing No: **Figure 3**

ZoLa

New York City's Zoning & Land Use Map




Zoning and Land Use
Tax Lots
Show Land Use Colors
One & Two Family Buildings
Multi-Family Walk-Up Buildings
Multi-Family Elevator Buildings
Mixed Residential & Commercial Buildings
Commercial & Office Buildings
Industrial & Manufacturing
Transportation & Utility
Public Facilities & Institutions
Open Space & Outdoor Recreation
Parking Facilities
Vacant Land
Other
Zoning Districts
Commercial Districts
Manufacturing Districts
Residential Districts
Parks
Battery Park City



SAMPLE ID:	NY-RESR	NY-RESRR	NY-UNRES	SB-3 (0-2)	
LAB ID:				L1849431-05	
COLLECTION DATE:				12/4/2018	
Total Metals Units: mg/kg				Conc	Q
Barium, Total	350	400	350	558	
Lead, Total	400	400	63	649	
Mercury, Total	0.81	0.81	0.18	1.3	
Zinc, Total	2200	10000	109	172	

SAMPLE ID:	NY-RESR	NY-RESRR	NY-UNRES	SB-4 (0-2)	
LAB ID:				L1849431-08	
COLLECTION DATE:				12/4/2018	
Semivolatile Organic Compunds Units: mg/kg				Conc	Q
Benzo(a)anthracene	1	1	1	1.9	
Benzo(a)pyrene	1	1	1	1.7	
Benzo(b)fluoranthene	1	1	1	2.3	
Chrysene	1	3.9	1	1.9	
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	1.2	
Pestidices					
4,4'-DDE	1.8	8.9	0.0033	0.00725	P
4,4'-DDD	2.6	13	0.0033	0.00682	P
Total Metals					
Copper, Total	270	270	50	53.4	
Lead, Total	400	400	63	419	
Mercury, Total	0.81	0.81	0.18	2.85	
Zinc, Total	2200	10000	109	219	

Notes:

NY-RESR: New York NYCRR Part 375 Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.

NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.

NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.

Cells highlighted in yellow indicate concentrations above the NY-RESR

Cells highlighted in orange indicate concentrations above the NY-RESRR

Cells highlighted in blue indicate concentrations above the NY-UNRES

Cells shaded in grey indicate MDL values above the NY-RESR, NY-RESRR or NY-UNRES

Qual = Laboratory Data Qualifier

P - The RPD between the results for the two columns exceeds the method-specified criteria

Legend

- Soil Boring Location Collected (0-2) and (2-4) ft-bg
- Soil Boring/ Temporary Groundwater Well Location, Collected (0-2) and (10-12) ft-bg
- Soil Vapor Sample Location
- Project Site Boundary
- Existing Building
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial

N W E S

0 5 10 20 Feet

Site

438 Union Avenue Brooklyn, New York Block 2761, Lot 5

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Drawn By: LM
Checked By: CZ
Date: February 2019
Scale: As Noted

Drawing Title: **Contaminant Distribution in Soil**

Drawing No: **Figure 5**

SAMPLE ID:	NY-AWQS	MW-1	
LAB ID:		L1849687-03	
COLLECTION DATE:		12/5/2018	
Volatile Organic Compounds Units: ug/l		Conc	Q
Tetrachloroethene	5	12	
Pesticides			
Dieldrin	0.004	0.012	J
Chlordane	0.05	0.738	
Dissolved Metals			
Sodium, Dissolved	20000	52300	
Total Metals			
Iron, Total	300	28800	
Lead, Total	25	44.07	
Manganese, Total	300	1292	
Sodium, Total	20000	52100	

SAMPLE ID:	NY-AWQS	MW-2	
LAB ID:		L1849687-02	
COLLECTION DATE:		12/5/2018	
Total Metals Units: ug/l		Conc	Q
Iron, Total	300	393	
Sodium, Total	20000	21300	

SAMPLE ID:	NY-AWQS	MW-3		MW-3 DUP	
LAB ID:		L1849687-01		L1849687-06	
COLLECTION DATE:		12/5/2018		12/5/2018	
Semivolatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q
Benzo(a)anthracene	0.002	0.02	J	0.02	U
Benzo(a)pyrene	0.002	0.03	J	0.02	U
Benzo(b)fluoranthene	0.002	0.04	J	0.01	U
Benzo(k)fluoranthene	0.002	0.02	J	0.01	U
Chrysene	0.002	0.03	J	0.01	U
Indeno(1,2,3-cd)pyrene	0.002	0.02	J	0.01	U
Dissolved Metals					
Iron, Dissolved	300	81.2		308	
Manganese, Dissolved	300	1360		1393	
Sodium, Dissolved	20000	20700		19900	
Total Metals					
Iron, Total	300	9120		25900	
Lead, Total	25	11		34.86	
Manganese, Total	300	1628		2081	
Selenium, Total	10	8.7		10.2	
Sodium, Total	20000	21000		22100	

Filling Station
w/Gasoline Storage
(Former)

Manufacturing (Former)

Union Avenue

107

25

SB-1/
MW-1

SB-2/
MW-2

SB-3/
MW-3

SB-4

SV-1

SV-2

SV-3

SV-4

Site

Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial

Notes:
NY-AWQS: New York TOGS 111 Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.
Cells highlighted in yellow indicate concentrations above the NY-AWQS
Cells shaded in grey indicate MDL values above the NY-AWQS
DUP = designation for duplicate sample
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
MDL = Maximum Detection Limit

Legend

- Soil Boring Location Collected (0-2) and (2-4) ft-bg
- Soil Boring/ Temporary Groundwater Well Location, Collected (0-2) and (10-12) ft-bg
- Soil Vapor Sample Location
- Project Site Boundary
- Existing Building
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

0 5 10 20 Feet

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Drawn By: LM
Checked By: CZ
Date: January 2019
Scale: As Noted

Drawing Title: Containment Distribution in Groundwater

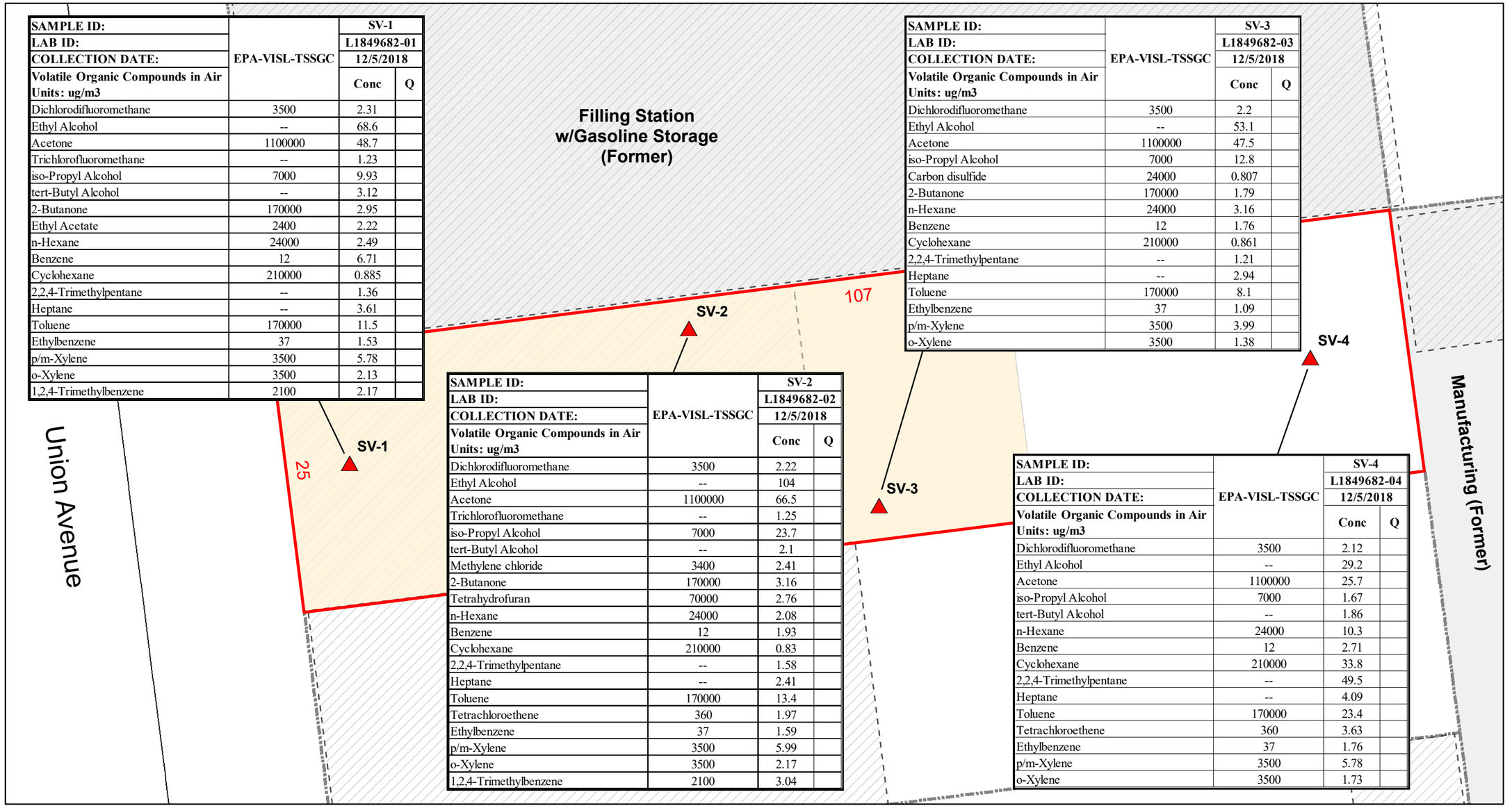
Drawing No: Figure 6

SAMPLE ID:	EPA-VISL-TSSGC	SV-1	
LAB ID:		L1849682-01	
COLLECTION DATE:		12/5/2018	
Volatile Organic Compounds in Air Units: ug/m3		Conc	Q
Dichlorodifluoromethane	3500	2.31	
Ethyl Alcohol	--	68.6	
Acetone	1100000	48.7	
Trichlorofluoromethane	--	1.23	
iso-Propyl Alcohol	7000	9.93	
tert-Butyl Alcohol	--	3.12	
2-Butanone	170000	2.95	
Ethyl Acetate	2400	2.22	
n-Hexane	24000	2.49	
Benzene	12	6.71	
Cyclohexane	210000	0.885	
2,2,4-Trimethylpentane	--	1.36	
Heptane	--	3.61	
Toluene	170000	11.5	
Ethylbenzene	37	1.53	
p/m-Xylene	3500	5.78	
o-Xylene	3500	2.13	
1,2,4-Trimethylbenzene	2100	2.17	

SAMPLE ID:	EPA-VISL-TSSGC	SV-3	
LAB ID:		L1849682-03	
COLLECTION DATE:		12/5/2018	
Volatile Organic Compounds in Air Units: ug/m3		Conc	Q
Dichlorodifluoromethane	3500	2.2	
Ethyl Alcohol	--	53.1	
Acetone	1100000	47.5	
iso-Propyl Alcohol	7000	12.8	
Carbon disulfide	24000	0.807	
2-Butanone	170000	1.79	
n-Hexane	24000	3.16	
Benzene	12	1.76	
Cyclohexane	210000	0.861	
2,2,4-Trimethylpentane	--	1.21	
Heptane	--	2.94	
Toluene	170000	8.1	
Ethylbenzene	37	1.09	
p/m-Xylene	3500	3.99	
o-Xylene	3500	1.38	

SAMPLE ID:	EPA-VISL-TSSGC	SV-2	
LAB ID:		L1849682-02	
COLLECTION DATE:		12/5/2018	
Volatile Organic Compounds in Air Units: ug/m3		Conc	Q
Dichlorodifluoromethane	3500	2.22	
Ethyl Alcohol	--	104	
Acetone	1100000	66.5	
Trichlorofluoromethane	--	1.25	
iso-Propyl Alcohol	7000	23.7	
tert-Butyl Alcohol	--	2.1	
Methylene chloride	3400	2.41	
2-Butanone	170000	3.16	
Tetrahydrofuran	70000	2.76	
n-Hexane	24000	2.08	
Benzene	12	1.93	
Cyclohexane	210000	0.83	
2,2,4-Trimethylpentane	--	1.58	
Heptane	--	2.41	
Toluene	170000	13.4	
Tetrachloroethene	360	1.97	
Ethylbenzene	37	1.59	
p/m-Xylene	3500	5.99	
o-Xylene	3500	2.17	
1,2,4-Trimethylbenzene	2100	3.04	

SAMPLE ID:	EPA-VISL-TSSGC	SV-4	
LAB ID:		L1849682-04	
COLLECTION DATE:		12/5/2018	
Volatile Organic Compounds in Air Units: ug/m3		Conc	Q
Dichlorodifluoromethane	3500	2.12	
Ethyl Alcohol	--	29.2	
Acetone	1100000	25.7	
iso-Propyl Alcohol	7000	1.67	
tert-Butyl Alcohol	--	1.86	
n-Hexane	24000	10.3	
Benzene	12	2.71	
Cyclohexane	210000	33.8	
2,2,4-Trimethylpentane	--	49.5	
Heptane	--	4.09	
Toluene	170000	23.4	
Tetrachloroethene	360	3.63	
Ethylbenzene	37	1.76	
p/m-Xylene	3500	5.78	
o-Xylene	3500	1.73	



Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial

Notes:
EPA-VISL-TSSGC: EPA VISL Default Residential Target Sub-Slab & Exterior Soil Gas Concentrations Criteria per VISL Calculator, Version 3.5, Updated October 2017 (June 2017 RSLs).
Cells shaded in gray indicate MDL values above the NYSDOH Matrix
Q = Laboratory Data Qualifier
-- = No Standard
Results are in micrograms per cubic meter (ug/m3)

Legend

- Soil Vapor Sample Location
- Project Site Boundary
- Existing Building
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

N W E S

0 5 10 20 Feet

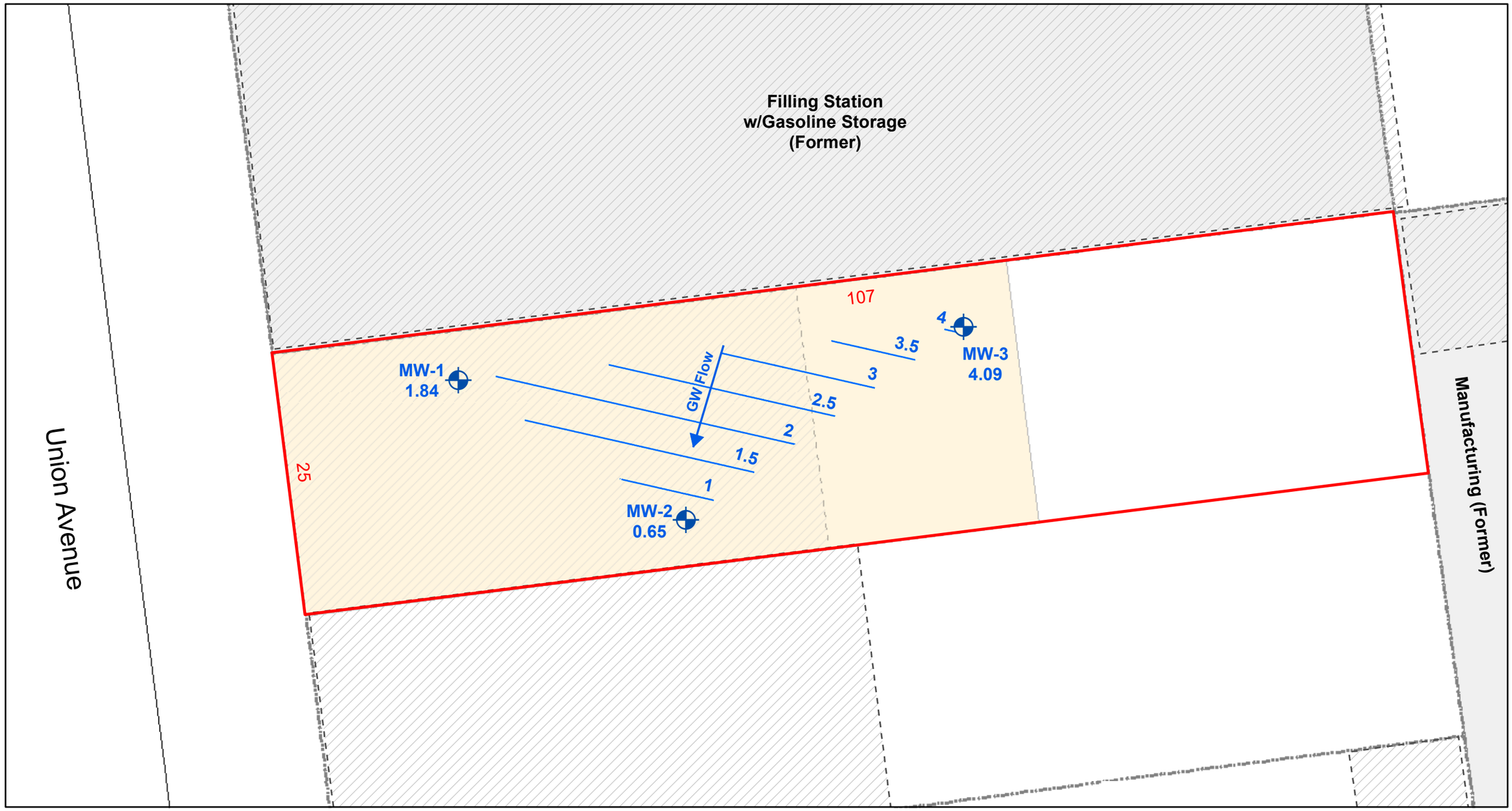
Site
438 Union Avenue
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Drawn By: LM
Checked By: CZ
Date: February 2019
Scale: As Noted

Drawing Title: Detections in Soil Vapor

Drawing No: Figure 7



Tax Lot Source: New York City Dept. of Finance Digital Tax Map
Former Use Areas Source: 2007 EDR Certified Sanborn Map
Bing Maps Aerial
NAVD88 Elevations based on NYC Topobathymetric 2017 Lidar

Legend

- Temporary Groundwater Well Location
- Groundwater Elevation Contour (12/5/2018)
- Project Site Boundary
- Groundwater Flow Direction
- Existing Building
- Proposed Building
- Neighboring Property Lines
- Neighboring Areas

Site
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Drawn By	Checked By	Date	Scale
LM	CZ	February 2019	As Noted

Drawing Title: **Groundwater Flow Direction**

Drawing No: **Figure 8**

TABLES

Table 1 - Volatile Organic Compounds in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-1 (0-2)		SB-1 (10-12)		SB-1 (10-12) DUP		SB-2 (0-2)	
LAB ID:				L1849431-01		L1849431-02		L1849431-07		L1849431-03	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Volatile Organic Compounds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	51	100	0.05	0.002	U	0.0027	U	0.0025	U	0.0024	U
1,1-Dichloroethane	19	26	0.27	0.00013	U	0.00017	U	0.00016	U	0.00015	U
Chloroform	10	49	0.37	0.00012	U	0.00016	U	0.00015	U	0.00015	U
Carbon tetrachloride	1.4	2.4	0.76	0.0002	U	0.00027	U	0.00025	U	0.00024	U
1,2-Dichloropropane	--	--	--	0.00011	U	0.00014	U	0.00014	U	0.00013	U
Dibromochloromethane	--	--	--	0.00012	U	0.00016	U	0.00015	U	0.00015	U
1,1,2-Trichloroethane	--	--	--	0.00023	U	0.00031	U	0.00029	U	0.00028	U
Tetrachloroethene	5.5	19	1.3	0.00017	U	0.00023	U	0.0072		0.00021	U
Chlorobenzene	100	100	1.1	0.00011	U	0.00015	U	0.00014	U	0.00013	U
Trichlorofluoromethane	--	--	--	0.0006	U	0.00081	U	0.00076	U	0.00073	U
1,2-Dichloroethane	2.3	3.1	0.02	0.00022	U	0.0003	U	0.00028	U	0.00027	U
1,1,1-Trichloroethane	100	100	0.68	0.00014	U	0.00019	U	0.00018	U	0.00018	U
Bromodichloromethane	--	--	--	0.0001	U	0.00013	U	0.00012	U	0.00011	U
trans-1,3-Dichloropropene	--	--	--	0.00024	U	0.00032	U	0.0003	U	0.00029	U
cis-1,3-Dichloropropene	--	--	--	0.00014	U	0.00018	U	0.00017	U	0.00017	U
1,3-Dichloropropene, Total	--	--	--	0.00014	U	0.00018	U	0.00017	U	0.00017	U
1,1-Dichloropropene	--	--	--	0.00014	U	0.00018	U	0.00017	U	0.00017	U
Bromoform	--	--	--	0.00021	U	0.00029	U	0.00027	U	0.00026	U
1,1,2,2-Tetrachloroethane	--	--	--	0.00014	U	0.00019	U	0.00018	U	0.00017	U
Benzene	2.9	4.8	0.06	0.00014	U	0.00019	U	0.00018	U	0.00017	U
Toluene	100	100	0.7	0.00047	U	0.00063	U	0.00059	U	0.00057	U
Ethylbenzene	30	41	1	0.00012	U	0.00016	U	0.00015	U	0.00015	U
Chloromethane	--	--	--	0.00081	U	0.0011	U	0.001	U	0.00098	U
Bromomethane	--	--	--	0.00051	U	0.00068	U	0.00063	U	0.00061	U
Vinyl chloride	0.21	0.9	0.02	0.00029	U	0.00039	U	0.00036	U	0.00035	U
Chloroethane	--	--	--	0.00039	U	0.00052	U	0.00049	U	0.00048	U
1,1-Dichloroethene	100	100	0.33	0.00021	U	0.00028	U	0.00026	U	0.00025	U
trans-1,2-Dichloroethene	100	100	0.19	0.00012	U	0.00016	U	0.00015	U	0.00014	U
Trichloroethene	10	21	0.47	0.00012	U	0.00016	U	0.00015	U	0.00014	U
1,2-Dichlorobenzene	100	100	1.1	0.00012	U	0.00017	U	0.00016	U	0.00015	U
1,3-Dichlorobenzene	17	49	2.4	0.00013	U	0.00017	U	0.00016	U	0.00016	U
1,4-Dichlorobenzene	9.8	13	1.8	0.00015	U	0.0002	U	0.00019	U	0.00018	U
Methyl tert butyl ether	62	100	0.93	0.00018	U	0.00023	U	0.00022	U	0.00021	U
p/m-Xylene	--	--	--	0.00049	U	0.00065	U	0.00061	U	0.00059	U
o-Xylene	--	--	--	0.00025	U	0.00034	U	0.00032	U	0.0003	U
Xylenes, Total	100	100	0.26	0.00025	U	0.00034	U	0.00032	U	0.0003	U
cis-1,2-Dichloroethene	59	100	0.25	0.00015	U	0.0002	U	0.00019	U	0.00018	U
1,2-Dichloroethene, Total	--	--	--	0.00012	U	0.00016	U	0.00015	U	0.00014	U
Dibromomethane	--	--	--	0.00021	U	0.00028	U	0.00026	U	0.00025	U
Styrene	--	--	--	0.00017	U	0.00023	U	0.00021	U	0.00021	U
Dichlorodifluoromethane	--	--	--	0.0008	U	0.0011	U	0.001	U	0.00096	U
Acetone	100	100	0.05	0.0042	U	0.0056	U	0.018		0.005	U
Carbon disulfide	--	--	--	0.004	U	0.0053	U	0.005	U	0.0048	U
2-Butanone	100	100	0.12	0.0019	U	0.0026	U	0.0024	U	0.0023	U
Vinyl acetate	--	--	--	0.0019	U	0.0025	U	0.0023	U	0.0023	U
4-Methyl-2-pentanone	--	--	--	0.0011	U	0.0015	U	0.0014	U	0.0013	U
1,2,3-Trichloropropane	--	--	--	0.00011	U	0.00015	U	0.00014	U	0.00013	U
2-Hexanone	--	--	--	0.001	U	0.0014	U	0.0013	U	0.0012	U
Bromochloromethane	--	--	--	0.00018	U	0.00024	U	0.00022	U	0.00022	U
2,2-Dichloropropane	--	--	--	0.00018	U	0.00023	U	0.00022	U	0.00021	U
1,2-Dibromoethane	--	--	--	0.00024	U	0.00032	U	0.0003	U	0.00029	U
1,3-Dichloropropane	--	--	--	0.00014	U	0.00019	U	0.00018	U	0.00018	U
1,1,1,2-Tetrachloroethane	--	--	--	0.00011	U	0.00015	U	0.00014	U	0.00014	U
Bromobenzene	--	--	--	0.00013	U	0.00017	U	0.00016	U	0.00015	U
n-Butylbenzene	100	100	12	0.00014	U	0.00019	U	0.00018	U	0.00018	U
sec-Butylbenzene	100	100	11	0.00013	U	0.00017	U	0.0005	J	0.00015	U
tert-Butylbenzene	100	100	5.9	0.0001	U	0.00014	U	0.00013	U	0.00012	U
o-Chlorotoluene	--	--	--	0.00017	U	0.00022	U	0.00021	U	0.0002	U
p-Chlorotoluene	--	--	--	0.00009	U	0.00012	U	0.00012	U	0.00011	U
1,2-Dibromo-3-chloropropane	--	--	--	0.00087	U	0.0012	U	0.0011	U	0.001	U
Hexachlorobutadiene	--	--	--	0.00015	U	0.0002	U	0.00018	U	0.00018	U
Isopropylbenzene	--	--	--	0.0001	U	0.00013	U	0.00012	U	0.00011	U
p-Isopropyltoluene	--	--	--	0.0001	U	0.00013	U	0.00012	U	0.00011	U
Naphthalene	100	100	12	0.00057	U	0.00076	U	0.00071	U	0.00068	U
Acrylonitrile	--	--	--	0.001	U	0.0013	U	0.0012	U	0.0012	U
n-Propylbenzene	100	100	3.9	0.00015	U	0.0002	U	0.00019	U	0.00018	U
1,2,3-Trichlorobenzene	--	--	--	0.00028	U	0.00037	U	0.00035	U	0.00034	U
1,2,4-Trichlorobenzene	--	--	--	0.00024	U	0.00032	U	0.0003	U	0.00028	U
1,3,5-Trimethylbenzene	47	52	8.4	0.00017	U	0.00022	U	0.00021	U	0.0002	U
1,2,4-Trimethylbenzene	47	52	3.6	0.00029	U	0.00039	U	0.00036	U	0.00035	U
1,4-Dioxane	9.8	13	0.1	0.03	U	0.041	U	0.038	U	0.037	U
p-Diethylbenzene	--	--	--	0.00015	U	0.0002	U	0.00019	U	0.00019	U
p-Ethyltoluene	--	--	--	0.00033	U	0.00045	U	0.00042	U	0.0004	U
1,2,4,5-Tetramethylbenzene	--	--	--	0.00017	U	0.00022	U	0.00021	U	0.0002	U
Ethyl ether	--	--	--	0.0003	U	0.0004	U	0.00037	U	0.00036	U
trans-1,4-Dichloro-2-butene	--	--	--	0.0012	U	0.0016	U	0.0015	U	0.0015	U
Total VOCs	--	--	--	-	-	-	-	0.0257	-	-	-

Notes:
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NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
Cells highlighted in orange indicate concentrations above the NY-RESRR
Cells highlighted in blue indicate concentrations above the NY-UNRES
Cells shaded in grey indicate MDL values above the NY-RESR, NY-RESRR or NY-UNRES
DUP = designation for duplicate sample
MDL = Maximum Detection Limit
RL = Reporting limit
NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
P - The RPD between the results for the two columns exceeds the method-specified criteria
I - The lower value for the two columns has been reported due to obvious interference
-- = No standard
Results and MDL values are in milligrams per killogram

Table 1 - Volatile Organic Compounds in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-2 (10-12)		SB-3 (0-2)		SB-3 (10-12)		SB-4 (0-2)		SB-4 (2-4)	
LAB ID:				L1849431-04		L1849431-05		L1849431-06		L1849431-08		L1849431-09	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Volatile Organic Compunds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	51	100	0.05	0.0022	U	0.0014	U	0.0021	U	0.0017	U	0.0027	U
1,1-Dichloroethane	19	26	0.27	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00017	U
Chloroform	10	49	0.37	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00016	U
Carbon tetrachloride	1.4	2.4	0.76	0.00022	U	0.00014	U	0.00021	U	0.00017	U	0.00027	U
1,2-Dichloropropane	--	--	--	0.00012	U	0.00008	U	0.00011	U	0.00009	U	0.00014	U
Dibromochloromethane	--	--	--	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00016	U
1,1,2-Trichloroethane	--	--	--	0.00026	U	0.00017	U	0.00024	U	0.00019	U	0.00031	U
Tetrachloroethene	5.5	19	1.3	0.00019	U	0.00012	U	0.00018	U	0.00014	U	0.00023	U
Chlorobenzene	100	100	1.1	0.00012	U	0.00008	U	0.00011	U	0.00009	U	0.00015	U
Trichlorofluoromethane	--	--	--	0.00067	U	0.00044	U	0.00063	U	0.00051	U	0.00081	U
1,2-Dichloroethane	2.3	3.1	0.02	0.00025	U	0.00016	U	0.00023	U	0.00019	U	0.0003	U
1,1,1-Trichloroethane	100	100	0.68	0.00016	U	0.0001	U	0.00015	U	0.00012	U	0.00019	U
Bromodichloromethane	--	--	--	0.0001	U	0.00007	U	0.0001	U	0.00008	U	0.00013	U
trans-1,3-Dichloropropene	--	--	--	0.00026	U	0.00017	U	0.00025	U	0.0002	U	0.00032	U
cis-1,3-Dichloropropene	--	--	--	0.00015	U	0.0001	U	0.00014	U	0.00012	U	0.00018	U
1,3-Dichloropropene, Total	--	--	--	0.00015	U	0.0001	U	0.00014	U	0.00012	U	0.00018	U
1,1-Dichloropropene	--	--	--	0.00015	U	0.0001	U	0.00014	U	0.00012	U	0.00018	U
Bromoform	--	--	--	0.00024	U	0.00016	U	0.00022	U	0.00018	U	0.00029	U
1,1,2,2-Tetrachloroethane	--	--	--	0.00016	U	0.0001	U	0.00015	U	0.00012	U	0.00019	U
Benzene	2.9	4.8	0.06	0.00016	U	0.0001	U	0.00015	U	0.00012	U	0.00019	U
Toluene	100	100	0.7	0.00052	U	0.00034	U	0.00049	U	0.0004	U	0.00063	U
Ethylbenzene	30	41	1	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00016	U
Chloromethane	--	--	--	0.0009	U	0.00059	U	0.00084	U	0.00068	U	0.0011	U
Bromomethane	--	--	--	0.00056	U	0.00037	U	0.00052	U	0.00042	U	0.00068	U
Vinyl chloride	0.21	0.9	0.02	0.00032	U	0.00021	U	0.0003	U	0.00024	U	0.00039	U
Chloroethane	--	--	--	0.00044	U	0.00028	U	0.00041	U	0.00033	U	0.00053	U
1,1-Dichloroethene	100	100	0.33	0.00023	U	0.00015	U	0.00022	U	0.00017	U	0.00028	U
trans-1,2-Dichloroethene	100	100	0.19	0.00013	U	0.00009	U	0.00012	U	0.0001	U	0.00016	U
Trichloroethene	10	21	0.47	0.00013	U	0.00009	U	0.00012	U	0.0001	U	0.00016	U
1,2-Dichlorobenzene	100	100	1.1	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00017	U
1,3-Dichlorobenzene	17	49	2.4	0.00014	U	0.00009	U	0.00013	U	0.00011	U	0.00017	U
1,4-Dichlorobenzene	9.8	13	1.8	0.00016	U	0.00011	U	0.00015	U	0.00012	U	0.0002	U
Methyl tert butyl ether	62	100	0.93	0.00019	U	0.00013	U	0.00018	U	0.00015	U	0.00023	U
p/m-Xylene	--	--	--	0.00054	U	0.00035	U	0.00051	U	0.00041	U	0.00065	U
o-Xylene	--	--	--	0.00028	U	0.00018	U	0.00026	U	0.00021	U	0.00034	U
Xylenes, Total	100	100	0.26	0.00028	U	0.00018	U	0.00026	U	0.00021	U	0.00034	U
cis-1,2-Dichloroethene	59	100	0.25	0.00017	U	0.00011	U	0.00016	U	0.00013	U	0.0002	U
1,2-Dichloroethene, Total	--	--	--	0.00013	U	0.00009	U	0.00012	U	0.0001	U	0.00016	U
Dibromomethane	--	--	--	0.00023	U	0.00015	U	0.00022	U	0.00017	U	0.00028	U
Styrene	--	--	--	0.00019	U	0.00012	U	0.00018	U	0.00014	U	0.00023	U
Dichlorodifluoromethane	--	--	--	0.00088	U	0.00058	U	0.00083	U	0.00067	U	0.0011	U
Acetone	100	100	0.05	0.0046	U	0.003	U	0.0043	U	0.0035	U	0.0056	U
Carbon disulfide	--	--	--	0.0044	U	0.0029	U	0.0041	U	0.0033	U	0.0053	U
2-Butanone	100	100	0.12	0.0021	U	0.0014	U	0.002	U	0.0016	U	0.0026	U
Vinyl acetate	--	--	--	0.0021	U	0.0014	U	0.0019	U	0.0016	U	0.0025	U
4-Methyl-2-pentanone	--	--	--	0.0012	U	0.00081	U	0.0012	U	0.00093	U	0.0015	U
1,2,3-Trichloropropane	--	--	--	0.00012	U	0.00008	U	0.00011	U	0.00009	U	0.00015	U
2-Hexanone	--	--	--	0.0011	U	0.00074	U	0.0011	U	0.00086	U	0.0014	U
Bromochloromethane	--	--	--	0.0002	U	0.00013	U	0.00018	U	0.00015	U	0.00024	U
2,2-Dichloropropane	--	--	--	0.0002	U	0.00013	U	0.00018	U	0.00015	U	0.00024	U
1,2-Dibromoethane	--	--	--	0.00027	U	0.00018	U	0.00025	U	0.0002	U	0.00032	U
1,3-Dichloropropane	--	--	--	0.00016	U	0.0001	U	0.00015	U	0.00012	U	0.00019	U
1,1,1,2-Tetrachloroethane	--	--	--	0.00013	U	0.00008	U	0.00012	U	0.0001	U	0.00015	U
Bromobenzene	--	--	--	0.00014	U	0.00009	U	0.00013	U	0.0001	U	0.00017	U
n-Butylbenzene	100	100	12	0.00016	U	0.0001	U	0.00015	U	0.00012	U	0.00019	U
sec-Butylbenzene	100	100	11	0.00014	U	0.00009	U	0.00013	U	0.00011	U	0.00017	U
tert-Butylbenzene	100	100	5.9	0.00011	U	0.00007	U	0.00011	U	0.00009	U	0.00014	U
o-Chlorotoluene	--	--	--	0.00018	U	0.00012	U	0.00017	U	0.00014	U	0.00022	U
p-Chlorotoluene	--	--	--	0.0001	U	0.00007	U	0.0001	U	0.00008	U	0.00013	U
1,2-Dibromo-3-chloropropane	--	--	--	0.00097	U	0.00063	U	0.0009	U	0.00073	U	0.0012	U
Hexachlorobutadiene	--	--	--	0.00016	U	0.00011	U	0.00015	U	0.00012	U	0.0002	U
Isopropylbenzene	--	--	--	0.0001	U	0.00007	U	0.0001	U	0.00008	U	0.00013	U
p-Isopropyltoluene	--	--	--	0.0001	U	0.00007	U	0.0001	U	0.00008	U	0.00013	U
Naphthalene	100	100	12	0.00063	U	0.00081	J	0.00059	U	0.00047	U	0.00076	U
Acrylonitrile	--	--	--	0.0011	U	0.00072	U	0.001	U	0.00084	U	0.0013	U
n-Propylbenzene	100	100	3.9	0.00016	U	0.00011	U	0.00015	U	0.00012	U	0.0002	U
1,2,3-Trichlorobenzene	--	--	--	0.00031	U	0.0002	U	0.00029	U	0.00023	U	0.00038	U
1,2,4-Trichlorobenzene	--	--	--	0.00026	U	0.00017	U	0.00024	U	0.0002	U	0.00032	U
1,3,5-Trimethylbenzene	47	52	8.4	0.00019	U	0.00012	U	0.00017	U	0.00014	U	0.00022	U
1,2,4-Trimethylbenzene	47	52	3.6	0.00032	U	0.00021	U	0.0003	U	0.00024	U	0.00039	U
1,4-Dioxane	9.8	13	0.1	0.034	U	0.022	U	0.032	U	0.026	U	0.041	U
p-Diethylbenzene	--	--	--	0.00017	U	0.00011	U	0.00016	U	0.00013	U	0.00021	U
p-Ethyltoluene	--	--	--	0.00037	U	0.00024	U	0.00035	U	0.00028	U	0.00045	U
1,2,4,5-Tetramethylbenzene	--	--	--	0.00018	U	0.00012	U	0.00017	U	0.00014	U	0.00022	U
Ethyl ether	--	--	--	0.00033	U	0.00021	U	0.00031	U	0.00025	U	0.0004	U
trans-1,4-Dichloro-2-butene	--	--	--	0.0014	U	0.0009	U	0.0013	U	0.001	U	0.0016	U
Total VOCs	--	--	--	-	-	0.00081	-	-	-	-	-	-	-

Notes:
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Cells highlighted in orange indicate concentrations above the NY-RESRR
Cells highlighted in blue indicate concentrations above the NY-UNRES
Cells shaded in grey indicate MDL values above the NY-RESR, NY-RESRR or NY-UNRES
DUP = designation for duplicate sample
MDL = Maximum Detection Limit
RL = Reporting limit
NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
P - The RPD between the results for the two columns exceeds the method-specified criteria
I - The lower value for the two columns has been reported due to obvious interference
-- = No standard
Results and MDL values are in milligrams per killogram

Table 2 - Semivolatile Organic Compounds in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-1 (0-2)		SB-1 (10-12)		SB-1 (10-12) DUP		SB-2 (0-2)	
LAB ID:				L1849431-01		L1849431-02		L1849431-07		L1849431-03	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Semivolatile Organic Compunds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acenaphthene	100	100	20	0.02	U	0.02	U	0.021	U	0.021	U
1,2,4-Trichlorobenzene	--	--	--	0.022	U	0.022	U	0.023	U	0.023	U
Hexachlorobenzene	0.33	1.2	0.33	0.021	U	0.021	U	0.022	U	0.023	U
Bis(2-chloroethyl)ether	--	--	--	0.026	U	0.026	U	0.027	U	0.028	U
2-Chloronaphthalene	--	--	--	0.019	U	0.019	U	0.02	U	0.02	U
1,2-Dichlorobenzene	100	100	1.1	0.034	U	0.034	U	0.036	U	0.037	U
1,3-Dichlorobenzene	17	49	2.4	0.033	U	0.033	U	0.034	U	0.035	U
1,4-Dichlorobenzene	9.8	13	1.8	0.033	U	0.033	U	0.035	U	0.036	U
3,3'-Dichlorobenzidine	--	--	--	0.051	U	0.05	U	0.053	U	0.054	U
2,4-Dinitrotoluene	--	--	--	0.038	U	0.038	U	0.04	U	0.041	U
2,6-Dinitrotoluene	--	--	--	0.033	U	0.032	U	0.034	U	0.035	U
Fluoranthene	100	100	100	0.053	J	0.022	U	0.023	U	0.024	U
4-Chlorophenyl phenyl ether	--	--	--	0.02	U	0.02	U	0.021	U	0.022	U
4-Bromophenyl phenyl ether	--	--	--	0.029	U	0.029	U	0.03	U	0.031	U
Bis(2-chloroisopropyl)ether	--	--	--	0.033	U	0.032	U	0.034	U	0.035	U
Bis(2-chloroethoxy)methane	--	--	--	0.019	U	0.019	U	0.02	U	0.02	U
Hexachlorobutadiene	--	--	--	0.028	U	0.028	U	0.029	U	0.03	U
Hexachlorocyclopentadiene	--	--	--	0.17	U	0.17	U	0.18	U	0.18	U
Hexachloroethane	--	--	--	0.031	U	0.031	U	0.032	U	0.033	U
Isophorone	--	--	--	0.025	U	0.025	U	0.026	U	0.027	U
Naphthalene	100	100	12	0.023	U	0.023	U	0.024	U	0.025	U
Nitrobenzene	--	--	--	0.028	U	0.028	U	0.03	U	0.03	U
NDPA/DPA	--	--	--	0.022	U	0.022	U	0.023	U	0.023	U
n-Nitrosodi-n-propylamine	--	--	--	0.03	U	0.029	U	0.031	U	0.032	U
Bis(2-ethylhexyl)phthalate	--	--	--	0.066	U	0.066	U	0.069	U	0.071	U
Butyl benzyl phthalate	--	--	--	0.048	U	0.048	U	0.05	U	0.052	U
Di-n-butylphthalate	--	--	--	0.036	U	0.036	U	0.038	U	0.039	U
Di-n-octylphthalate	--	--	--	0.065	U	0.064	U	0.068	U	0.07	U
Diethyl phthalate	--	--	--	0.018	U	0.018	U	0.018	U	0.019	U
Dimethyl phthalate	--	--	--	0.04	U	0.04	U	0.042	U	0.043	U
Benzo(a)anthracene	1	1	1	0.063	J	0.021	U	0.022	U	0.023	U
Benzo(a)pyrene	1	1	1	0.075	J	0.046	U	0.049	U	0.05	U
Benzo(b)fluoranthene	1	1	1	0.09	J	0.032	U	0.034	U	0.034	U
Benzo(k)fluoranthene	1	3.9	0.8	0.038	J	0.03	U	0.032	U	0.033	U
Chrysene	1	3.9	1	0.063	J	0.02	U	0.021	U	0.021	U
Acenaphthylene	100	100	100	0.03	U	0.029	U	0.031	U	0.032	U
Anthracene	100	100	100	0.037	U	0.037	U	0.039	U	0.04	U
Benzo(ghi)perylene	100	100	100	0.052	J	0.022	U	0.023	U	0.024	U
Fluorene	100	100	30	0.019	U	0.018	U	0.019	U	0.02	U
Phenanthrene	100	100	100	0.023	U	0.023	U	0.024	U	0.025	U
Dibenzo(a,h)anthracene	0.33	0.33	0.33	0.022	U	0.022	U	0.023	U	0.024	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	0.056	J	0.026	U	0.028	U	0.028	U
Pyrene	100	100	100	0.053	J	0.019	U	0.092	J	0.02	U
Biphenyl	--	--	--	0.044	U	0.044	U	0.046	U	0.048	U
4-Chloroaniline	--	--	--	0.035	U	0.034	U	0.036	U	0.037	U
2-Nitroaniline	--	--	--	0.037	U	0.036	U	0.038	U	0.04	U
3-Nitroaniline	--	--	--	0.036	U	0.036	U	0.038	U	0.039	U
4-Nitroaniline	--	--	--	0.079	U	0.078	U	0.082	U	0.085	U
Dibenzofuran	14	59	7	0.018	U	0.018	U	0.019	U	0.019	U
2-Methylnaphthalene	--	--	--	0.023	U	0.023	U	0.024	U	0.025	U
1,2,4,5-Tetrachlorobenzene	--	--	--	0.02	U	0.02	U	0.021	U	0.021	U
Acetophenone	--	--	--	0.024	U	0.023	U	0.025	U	0.025	U
2,4,6-Trichlorophenol	--	--	--	0.036	U	0.036	U	0.038	U	0.039	U
p-Chloro-m-cresol	--	--	--	0.028	U	0.028	U	0.03	U	0.03	U
2-Chlorophenol	--	--	--	0.023	U	0.022	U	0.024	U	0.024	U
2,4-Dichlorophenol	--	--	--	0.031	U	0.03	U	0.032	U	0.033	U
2,4-Dimethylphenol	--	--	--	0.063	U	0.062	U	0.066	U	0.068	U
2-Nitrophenol	--	--	--	0.072	U	0.071	U	0.075	U	0.077	U
4-Nitrophenol	--	--	--	0.078	U	0.077	U	0.081	U	0.084	U
2,4-Dinitrophenol	--	--	--	0.089	U	0.088	U	0.093	U	0.096	U
4,6-Dinitro-o-cresol	--	--	--	0.092	U	0.091	U	0.096	U	0.098	U
Pentachlorophenol	2.4	6.7	0.8	0.042	U	0.042	U	0.044	U	0.045	U
Phenol	100	100	0.33	0.029	U	0.029	U	0.03	U	0.031	U
2-Methylphenol	100	100	0.33	0.03	U	0.029	U	0.031	U	0.032	U
3-Methylphenol/4-Methylphenol	34	100	0.33	0.03	U	0.03	U	0.031	U	0.032	U
2,4,5-Trichlorophenol	--	--	--	0.037	U	0.036	U	0.038	U	0.039	U
Benzoic Acid	--	--	--	0.19	U	0.19	U	0.2	U	0.21	U
Benzyl Alcohol	--	--	--	0.058	U	0.058	U	0.061	U	0.063	U
Carbazole	--	--	--	0.019	U	0.018	U	0.019	U	0.02	U
Total SVOCs	--	--	--	0.543	-	-	-	0.092	-	-	-

Notes:
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Cells highlighted in blue indicate concentrations above the NY-UNRES
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DUP = designation for duplicate sample
MDL = Maximum Detection Limit
RL = Reporting limit
NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
P - The RPD between the results for the two columns exceeds the method-specified criteria
I - The lower value for the two columns has been reported due to obvious interference
-- = No standard
Results and MDL values are in milligrams per killogram

Table 2 - Semivolatile Organic Compounds in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-2 (10-12)		SB-3 (0-2)		SB-3 (10-12)		SB-4 (0-2)		SB-4 (2-4)	
LAB ID:				L1849431-04		L1849431-05		L1849431-06		L1849431-08		L1849431-09	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Semivolatile Organic Compunds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acenaphthene	100	100	20	0.02	U	0.2		0.022	U	0.39		0.02	U
1,2,4-Trichlorobenzene	--	--	--	0.022	U	0.022	U	0.025	U	0.022	U	0.022	U
Hexachlorobenzene	0.33	1.2	0.33	0.022	U	0.022	U	0.024	U	0.022	U	0.022	U
Bis(2-chloroethyl)ether	--	--	--	0.026	U	0.026	U	0.029	U	0.026	U	0.026	U
2-Chloronaphthalene	--	--	--	0.019	U	0.019	U	0.021	U	0.019	U	0.019	U
1,2-Dichlorobenzene	100	100	1.1	0.035	U	0.035	U	0.039	U	0.035	U	0.035	U
1,3-Dichlorobenzene	17	49	2.4	0.034	U	0.033	U	0.037	U	0.033	U	0.034	U
1,4-Dichlorobenzene	9.8	13	1.8	0.034	U	0.034	U	0.038	U	0.034	U	0.034	U
3,3'-Dichlorobenzidine	--	--	--	0.052	U	0.052	U	0.058	U	0.052	U	0.052	U
2,4-Dinitrotoluene	--	--	--	0.039	U	0.039	U	0.043	U	0.039	U	0.039	U
2,6-Dinitrotoluene	--	--	--	0.034	U	0.033	U	0.037	U	0.033	U	0.033	U
Fluoranthene	100	100	100	0.022	U	1.8		0.025	U	3.8		0.96	
4-Chlorophenyl phenyl ether	--	--	--	0.021	U	0.021	U	0.023	U	0.021	U	0.021	U
4-Bromophenyl phenyl ether	--	--	--	0.03	U	0.03	U	0.033	U	0.03	U	0.03	U
Bis(2-chloroisopropyl)ether	--	--	--	0.033	U	0.033	U	0.037	U	0.033	U	0.033	U
Bis(2-chloroethoxy)methane	--	--	--	0.02	U	0.019	U	0.022	U	0.019	U	0.02	U
Hexachlorobutadiene	--	--	--	0.029	U	0.028	U	0.032	U	0.028	U	0.028	U
Hexachlorocyclopentadiene	--	--	--	0.18	U	0.18	U	0.2	U	0.18	U	0.18	U
Hexachloroethane	--	--	--	0.032	U	0.031	U	0.035	U	0.031	U	0.032	U
Isophorone	--	--	--	0.025	U	0.025	U	0.028	U	0.025	U	0.025	U
Naphthalene	100	100	12	0.024	U	0.51		0.026	U	0.56		0.036	J
Nitrobenzene	--	--	--	0.029	U	0.029	U	0.032	U	0.029	U	0.029	U
NDPA/DPA	--	--	--	0.022	U	0.022	U	0.025	U	0.022	U	0.022	U
n-Nitrosodi-n-propylamine	--	--	--	0.03	U	0.03	U	0.033	U	0.03	U	0.03	U
Bis(2-ethylhexyl)phthalate	--	--	--	0.068	U	0.067	U	0.075	U	0.32		0.067	U
Butyl benzyl phthalate	--	--	--	0.049	U	0.049	U	0.055	U	0.049	U	0.049	U
Di-n-butylphthalate	--	--	--	0.037	U	0.037	U	0.041	U	0.037	U	0.037	U
Di-n-octylphthalate	--	--	--	0.067	U	0.066	U	0.074	U	0.066	U	0.066	U
Diethyl phthalate	--	--	--	0.018	U	0.018	U	0.02	U	0.018	U	0.018	U
Dimethyl phthalate	--	--	--	0.041	U	0.041	U	0.046	U	0.041	U	0.041	U
Benzo(a)anthracene	1	1	1	0.022	U	0.89		0.024	U	1.9		0.51	
Benzo(a)pyrene	1	1	1	0.048	U	0.76		0.053	U	1.7		0.43	
Benzo(b)fluoranthene	1	1	1	0.033	U	0.97		0.036	U	2.3		0.59	
Benzo(k)fluoranthene	1	3.9	0.8	0.031	U	0.37		0.035	U	0.68		0.19	
Chrysene	1	3.9	1	0.02	U	0.97		0.022	U	1.9		0.53	
Acenaphthylene	100	100	100	0.03	U	0.11	J	0.033	U	0.17		0.1	J
Anthracene	100	100	100	0.038	U	0.42		0.042	U	0.69		0.095	J
Benzo(ghi)perylene	100	100	100	0.023	U	0.43		0.025	U	1.1		0.22	
Fluorene	100	100	30	0.019	U	0.2		0.021	U	0.34		0.029	J
Phenanthrene	100	100	100	0.024	U	2		0.026	U	3.4		0.55	
Dibenzo(a,h)anthracene	0.33	0.33	0.33	0.023	U	0.12		0.025	U	0.28		0.082	J
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	0.027	U	0.46		0.03	U	1.2		0.26	
Pyrene	100	100	100	0.019	U	1.6		0.022	U	3.7		0.8	
Biphenyl	--	--	--	0.045	U	0.054	J	0.05	U	0.066	J	0.045	U
4-Chloroaniline	--	--	--	0.036	U	0.035	U	0.039	U	0.035	U	0.035	U
2-Nitroaniline	--	--	--	0.038	U	0.038	U	0.042	U	0.038	U	0.038	U
3-Nitroaniline	--	--	--	0.037	U	0.037	U	0.041	U	0.037	U	0.037	U
4-Nitroaniline	--	--	--	0.081	U	0.08	U	0.09	U	0.08	U	0.081	U
Dibenzofuran	14	59	7	0.018	U	0.24		0.02	U	0.31		0.02	J
2-Methylnaphthalene	--	--	--	0.024	U	0.21	J	0.026	U	0.21	J	0.024	U
1,2,4,5-Tetrachlorobenzene	--	--	--	0.02	U	0.02	U	0.023	U	0.02	U	0.02	U
Acetophenone	--	--	--	0.024	U	0.024	U	0.027	U	0.024	U	0.024	U
2,4,6-Trichlorophenol	--	--	--	0.037	U	0.037	U	0.041	U	0.037	U	0.037	U
p-Chloro-m-cresol	--	--	--	0.029	U	0.029	U	0.032	U	0.029	U	0.029	U
2-Chlorophenol	--	--	--	0.023	U	0.023	U	0.026	U	0.023	U	0.023	U
2,4-Dichlorophenol	--	--	--	0.032	U	0.031	U	0.035	U	0.031	U	0.031	U
2,4-Dimethylphenol	--	--	--	0.065	U	0.064	U	0.072	U	0.064	U	0.064	U
2-Nitrophenol	--	--	--	0.074	U	0.073	U	0.081	U	0.073	U	0.073	U
4-Nitrophenol	--	--	--	0.08	U	0.079	U	0.088	U	0.079	U	0.08	U
2,4-Dinitrophenol	--	--	--	0.091	U	0.091	U	0.1	U	0.091	U	0.091	U
4,6-Dinitro-o-cresol	--	--	--	0.094	U	0.093	U	0.1	U	0.093	U	0.094	U
Pentachlorophenol	2.4	6.7	0.8	0.043	U	0.043	U	0.048	U	0.043	U	0.043	U
Phenol	100	100	0.33	0.03	U	0.029	U	0.033	U	0.029	U	0.029	U
2-Methylphenol	100	100	0.33	0.03	U	0.03	U	0.034	U	0.03	U	0.03	U
3-Methylphenol/4-Methylphenol	34	100	0.33	0.031	U	0.065	J	0.034	U	0.042	J	0.03	U
2,4,5-Trichlorophenol	--	--	--	0.038	U	0.037	U	0.042	U	0.037	U	0.037	U
Benzoic Acid	--	--	--	0.2	U	0.2	U	0.22	U	0.2	U	0.2	U
Benzyl Alcohol	--	--	--	0.06	U	0.06	U	0.066	U	0.06	U	0.06	U
Carbazole	--	--	--	0.019	U	0.26		0.021	U	0.37		0.079	J
Total SVOCs	--	--	--	-	-	12.639	-	-	-	25.428	-	5.481	-

Notes:
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-- = No standard
Results and MDL values are in milligrams per kilogram

Table 3 - Pesticides and Polychlorinated Biphenyls in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-1 (0-2)		SB-1 (10-12)		SB-1 (10-12) DUP		SB-2 (0-2)	
LAB ID:				L1849431-01		L1849431-02		L1849431-07		L1849431-03	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Pesticides Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q
Delta-BHC	100	100	0.04	0.000358	U	0.000352	U	0.000364	U	0.000375	U
Lindane	0.28	1.3	0.1	0.000341	U	0.000335	U	0.000346	U	0.000356	U
Alpha-BHC	0.097	0.48	0.02	0.000217	U	0.000213	U	0.00022	U	0.000226	U
Beta-BHC	0.072	0.36	0.036	0.000694	U	0.000683	U	0.000706	U	0.000726	U
Heptachlor	0.42	2.1	0.042	0.00041	U	0.000404	U	0.000417	U	0.000429	U
Aldrin	0.019	0.097	0.005	0.000644	U	0.000634	U	0.000655	U	0.000674	U
Heptachlor epoxide	--	--	--	0.00103	U	0.00101	U	0.00105	U	0.00108	U
Endrin	2.2	11	0.014	0.000313	U	0.000308	U	0.000318	U	0.000327	U
Endrin aldehyde	--	--	--	0.000801	U	0.000788	U	0.000814	U	0.000838	U
Endrin ketone	--	--	--	0.000471	U	0.000464	U	0.000479	U	0.000493	U
Dieldrin	0.039	0.2	0.005	0.000572	U	0.000563	U	0.000582	U	0.000598	U
4,4'-DDE	1.8	8.9	0.0033	0.000423	U	0.000416	U	0.00043	U	0.000443	U
4,4'-DDD	2.6	13	0.0033	0.000653	U	0.000642	U	0.000664	U	0.000683	U
4,4'-DDT	1.7	7.9	0.0033	0.00147	U	0.00145	U	0.0015	U	0.00154	U
Endosulfan I	4.8	24	2.4	0.000432	U	0.000425	U	0.00044	U	0.000452	U
Endosulfan II	4.8	24	2.4	0.000612	U	0.000602	U	0.000622	U	0.00064	U
Endosulfan sulfate	4.8	24	2.4	0.000363	U	0.000357	U	0.000369	U	0.00038	U
Methoxychlor	--	--	--	0.00107	U	0.00105	U	0.00108	U	0.00112	U
Toxaphene	--	--	--	0.00961	U	0.00945	U	0.00977	U	0.01	U
cis-Chlordane	0.91	4.2	0.094	0.000638	U	0.000627	U	0.000648	U	0.000667	U
trans-Chlordane	--	--	--	0.00146	JIP	0.000594	U	0.000614	U	0.000632	U
Chlordane	--	--	--	0.00606	U	0.00596	U	0.00616	U	0.00634	U
Polychlorinated Biphenyls											
Aroclor 1016	1	1	0.1	0.00343	U	0.00325	U	0.00344	U	0.00356	U
Aroclor 1221	1	1	0.1	0.00387	U	0.00367	U	0.00388	U	0.00401	U
Aroclor 1232	1	1	0.1	0.0082	U	0.00777	U	0.00822	U	0.00849	U
Aroclor 1242	1	1	0.1	0.00521	U	0.00494	U	0.00522	U	0.0054	U
Aroclor 1248	1	1	0.1	0.0058	U	0.0055	U	0.00582	U	0.006	U
Aroclor 1254	1	1	0.1	0.00423	U	0.00401	U	0.00424	U	0.00438	U
Aroclor 1260	1	1	0.1	0.00714	U	0.00677	U	0.00716	U	0.0074	U
Aroclor 1262	1	1	0.1	0.00491	U	0.00466	U	0.00492	U	0.00508	U
Aroclor 1268	1	1	0.1	0.004	U	0.0038	U	0.00402	U	0.00415	U
PCBs, Total	1	1	0.1	0.00343	U	0.00325	U	0.00344	U	0.00356	U

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J = estimated value, indicating the detected value is below the RL, but above the MDL
P - The RPD between the results for the two columns exceeds the method-specified criteria
I - The lower value for the two columns has been reported due to obvious interference
-- = No standard
Results and MDL values are in milligrams per killogram

Table 3 - Pesticides and Polychlorinated Biphenyls in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-2 (10-12)		SB-3 (0-2)		SB-3 (10-12)		SB-4 (0-2)		SB-4 (2-4)	
LAB ID:				L1849431-04		L1849431-05		L1849431-06		L1849431-08		L1849431-09	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Pesticides Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Delta-BHC	100	100	0.04	0.000375	U	0.000359	U	0.000403	U	0.000344	U	0.000362	U
Lindane	0.28	1.3	0.1	0.000357	U	0.000342	U	0.000383	U	0.000327	U	0.000344	U
Alpha-BHC	0.097	0.48	0.02	0.000227	U	0.000217	U	0.000244	U	0.000208	U	0.000219	U
Beta-BHC	0.072	0.36	0.036	0.000726	U	0.000695	U	0.00078	U	0.000665	U	0.000701	U
Heptachlor	0.42	2.1	0.042	0.00043	U	0.000411	U	0.000461	U	0.000393	U	0.000415	U
Aldrin	0.019	0.097	0.005	0.000674	U	0.000646	U	0.000725	U	0.000618	U	0.000651	U
Heptachlor epoxide	--	--	--	0.00108	U	0.00103	U	0.00116	U	0.000987	U	0.00104	U
Endrin	2.2	11	0.014	0.000327	U	0.000313	U	0.000352	U	0.0003	U	0.000316	U
Endrin aldehyde	--	--	--	0.000838	U	0.000802	U	0.000901	U	0.000768	U	0.000809	U
Endrin ketone	--	--	--	0.000493	U	0.000472	U	0.00053	U	0.000452	U	0.000476	U
Dieldrin	0.039	0.2	0.005	0.000599	U	0.000573	U	0.000643	U	0.000548	U	0.000578	U
4,4'-DDE	1.8	8.9	0.0033	0.000443	U	0.000424	U	0.000476	U	0.00725	P	0.000428	U
4,4'-DDD	2.6	13	0.0033	0.000683	U	0.000654	U	0.000734	U	0.00682	P	0.00066	U
4,4'-DDT	1.7	7.9	0.0033	0.00154	U	0.00147	U	0.00166	U	0.00141	U	0.00149	U
Endosulfan I	4.8	24	2.4	0.000453	U	0.000433	U	0.000486	U	0.000414	U	0.000437	U
Endosulfan II	4.8	24	2.4	0.00064	U	0.000613	U	0.000688	U	0.000586	U	0.000618	U
Endosulfan sulfate	4.8	24	2.4	0.00038	U	0.000364	U	0.000408	U	0.000348	U	0.000367	U
Methoxychlor	--	--	--	0.00112	U	0.00107	U	0.0012	U	0.00102	U	0.00108	U
Toxaphene	--	--	--	0.01	U	0.00963	U	0.0108	U	0.00921	U	0.00971	U
cis-Chlordane	0.91	4.2	0.094	0.000667	U	0.000639	U	0.000717	U	0.000611	U	0.000644	U
trans-Chlordane	--	--	--	0.000632	U	0.000605	U	0.000679	U	0.000579	U	0.00061	U
Chlordane	--	--	--	0.00635	U	0.00608	U	0.00682	U	0.00581	U	0.00613	U
Polychlorinated Biphenyls													
Aroclor 1016	1	1	0.1	0.0034	U	0.0033	U	0.00385	U	0.00337	U	0.00352	U
Aroclor 1221	1	1	0.1	0.00384	U	0.00373	U	0.00434	U	0.0038	U	0.00398	U
Aroclor 1232	1	1	0.1	0.00812	U	0.00789	U	0.00919	U	0.00805	U	0.00842	U
Aroclor 1242	1	1	0.1	0.00516	U	0.00502	U	0.00584	U	0.00512	U	0.00535	U
Aroclor 1248	1	1	0.1	0.00575	U	0.00558	U	0.0065	U	0.00569	U	0.00595	U
Aroclor 1254	1	1	0.1	0.00419	U	0.00407	U	0.00474	U	0.00415	U	0.00434	U
Aroclor 1260	1	1	0.1	0.00708	U	0.00688	U	0.00801	U	0.0164	J	0.00734	U
Aroclor 1262	1	1	0.1	0.00487	U	0.00473	U	0.0055	U	0.00482	U	0.00504	U
Aroclor 1268	1	1	0.1	0.00397	U	0.00386	U	0.00449	U	0.00393	U	0.00411	U
PCBs, Total	1	1	0.1	0.0034	U	0.0033	U	0.00385	U	0.0164	J	0.00352	U

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RL = Reporting limit
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Qual = Laboratory Data Qualifier
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P - The RPD between the results for the two columns exceeds the method-specified criteria
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Results and MDL values are in milligrams per killogram

Table 4 - Metals in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-1 (0-2)		SB-1 (10-12)		SB-1 (10-12) DUP		SB-2 (0-2)	
LAB ID:				L1849431-01		L1849431-02		L1849431-07		L1849431-03	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Total Metals Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q
Aluminum, Total	--	--	--	7820		5200		6310		9210	
Antimony, Total	--	--	--	0.814	J	0.54	J	0.656	J	0.933	J
Arsenic, Total	16	16	13	2.34		0.938		1.66		1.61	
Barium, Total	350	400	350	52.7		23.3		29.2		42.9	
Beryllium, Total	14	72	7.2	0.426	J	0.239	J	0.148	J	0.452	J
Cadmium, Total	2.5	4.3	2.5	0.426	J	0.283	J	0.296	J	0.424	J
Calcium, Total	--	--	--	3500		265		1060		1090	
Chromium, Total	--	--	--	15.9		11.8		12.2		20.5	
Cobalt, Total	--	--	--	8.06		3.71		3.58		8.14	
Copper, Total	270	270	50	17.2		10.8		8.51		16.1	
Iron, Total	--	--	--	19800		16400		17300		22200	
Lead, Total	400	400	63	25.4		13.8		8.8		5.04	
Magnesium, Total	--	--	--	1990		1270		1870		2740	
Manganese, Total	2000	2000	1600	570		86.8		90.4		324	
Mercury, Total	0.81	0.81	0.18	0.016	U	0.016	U	0.016	U	0.017	U
Nickel, Total	140	310	30	10.9		8.14		8.17		13.3	
Potassium, Total	--	--	--	735		540		680		1580	
Selenium, Total	36	180	3.9	0.361	J	0.228	U	0.238	U	0.243	U
Silver, Total	36	180	2	0.262	U	0.25	U	0.262	U	0.267	U
Sodium, Total	--	--	--	78.2	J	55.1	J	82.5	J	49.9	J
Thallium, Total	--	--	--	0.291	U	0.279	U	0.291	U	0.297	U
Vanadium, Total	--	--	--	25.6		19.5		24.6		32.7	
Zinc, Total	2200	10000	109	37.1		20.2		19.1		53.3	

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Table 4 - Metals in Soil
438 Union Avenue - Brooklyn, NY

SAMPLE ID:				SB-2 (10-12)		SB-3 (0-2)		SB-3 (10-12)		SB-4 (0-2)		SB-4 (2-4)	
LAB ID:				L1849431-04		L1849431-05		L1849431-06		L1849431-08		L1849431-09	
COLLECTION DATE:	NY-RESR	NY-RESRR	NY-UNRES	12/4/2018		12/4/2018		12/4/2018		12/4/2018		12/4/2018	
Total Metals Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Aluminum, Total	--	--	--	7290		7610		9000		8370		7610	
Antimony, Total	--	--	--	0.536	J	0.966	J	0.865	J	2.48	J	1.07	J
Arsenic, Total	16	16	13	1.37		5.91		1.48		9.59		2.87	
Barium, Total	350	400	350	25.2		558		42		168		49.3	
Beryllium, Total	14	72	7.2	0.357	J	0.42	J	0.387	J	0.45		0.503	
Cadmium, Total	2.5	4.3	2.5	0.282	J	0.447	J	0.366	J	0.584	J	0.27	J
Calcium, Total	--	--	--	503		2140		773		1520		1020	
Chromium, Total	--	--	--	14.3		16.6		20.3		15.9		11.8	
Cobalt, Total	--	--	--	5.71		6.01		6.68		7.3		4.82	
Copper, Total	270	270	50	11.3		25.5		15.4		53.4		12.4	
Iron, Total	--	--	--	15500		16200		20300		23200		13100	
Lead, Total	400	400	63	3.17	J	649		3.51	J	419		52.8	
Magnesium, Total	--	--	--	1630		1690		2510		1730		1460	
Manganese, Total	2000	2000	1600	198		353		285		366		505	
Mercury, Total	0.81	0.81	0.18	0.016	U	1.3		0.017	U	2.85		1.76	
Nickel, Total	140	310	30	10.1		10.6		11.1		11.9		9.35	
Potassium, Total	--	--	--	806		709		1140		667		399	
Selenium, Total	36	180	3.9	0.242	U	0.231	U	0.262	U	0.602	J	0.24	U
Silver, Total	36	180	2	0.266	U	0.268	J	0.288	U	0.254	U	0.264	U
Sodium, Total	--	--	--	49.8	J	55.5	J	47.3	J	64.7	J	43.6	J
Thallium, Total	--	--	--	0.296	U	0.282	U	0.32	U	0.283	U	0.293	U
Vanadium, Total	--	--	--	25.4		23.2		28.4		27.2		17.9	
Zinc, Total	2200	10000	109	23.9		172		43.3		219		105	

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Table 5 - Volatile Organic Compounds in Groundwater
438 Union Avenue - Brooklyn, NY

SAMPLE ID:		MW-1		MW-2		MW-3		MW-3 DUP		FIELD BLANK		TRIP BLANK	
LAB ID:	NY-AWQS	L1849687-03		L1849687-02		L1849687-01		L1849687-06		L1849687-04		L1849687-05	
COLLECTION DATE:		12/5/2018		12/5/2018		12/5/2018		12/5/2018		12/5/2018		12/5/2018	
Volatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1-Dichloroethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Chloroform	7	0.7	U	0.7	J	0.7	U	0.7	U	0.7	U	0.7	U
Carbon tetrachloride	5	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	1	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
Dibromochloromethane	50	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	5	12		0.29	J	0.66		0.29	J	0.18	U	0.18	U
Chlorobenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Trichlorofluoromethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dichloroethane	0.6	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,1,1-Trichloroethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromodichloromethane	50	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
trans-1,3-Dichloropropene	0.4	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.4	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
1,3-Dichloropropene, Total	--	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
1,1-Dichloropropene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromoform	50	0.65	U	0.65	U	0.65	U	0.65	U	0.65	U	0.65	U
1,1,2,2-Tetrachloroethane	5	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Benzene	1	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Toluene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Chloromethane	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromomethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Vinyl chloride	2	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U
Chloroethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1-Dichloroethene	5	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Trichloroethene	5	0.56		0.18	U	0.39	J	0.35	J	0.18	U	0.18	U
1,2-Dichlorobenzene	3	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,3-Dichlorobenzene	3	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,4-Dichlorobenzene	3	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Methyl tert butyl ether	10	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
p/m-Xylene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
o-Xylene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Xylenes, Total	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dichloroethene, Total	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dibromomethane	5	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	0.04	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Acrylonitrile	5	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Styrene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	1	U	1	U	1	U	1	U	1	U	1	U
Acetone	50	1.5	U	1.5	J	3.6	J	2.2	J	2.2	J	1.5	U
Carbon disulfide	60	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	50	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Vinyl acetate	--	1	U	1	U	1	U	1	U	1	U	1	U
4-Methyl-2-pentanone	--	1	U	1	U	1	U	1	U	1	U	1	U
2-Hexanone	50	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
2,2-Dichloropropane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dibromoethane	0.0006	0.65	U	0.65	U	0.65	U	0.65	U	0.65	U	0.65	U
1,3-Dichloropropane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1,1,2-Tetrachloroethane	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromobenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
n-Butylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
sec-Butylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
tert-Butylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
o-Chlorotoluene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Chlorotoluene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dibromo-3-chloropropane	0.04	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Hexachlorobutadiene	0.5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Isopropylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Isopropyltoluene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Naphthalene	10	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
n-Propylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,3-Trichlorobenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4-Trichlorobenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,3,5-Trimethylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4-Trimethylbenzene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,4-Dioxane	--	61	U	61	U	61	U	61	U	61	U	61	U
p-Diethylbenzene	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Ethyltoluene	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4,5-Tetramethylbenzene	5	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Ethyl ether	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
trans-1,4-Dichloro-2-butene	5	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Total VOCs	--	12.56	-	2.49	-	4.65	-	2.84	-	2.2	-	-	-

Notes:
NY-AWQS: New York TOGS 111 Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.
Cells highlighted in yellow indicate concentrations above the NY-AWQS
Cells shaded in grey indicate MDL values above the NY-AWQS
DUP = designation for duplicate sample
MDL = Maximum Detection Limit
RL = Reporting limit
NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard
Results and MDL values are in micrograms per liter (µg/L)

Table 6 - Semivolatile Organic Compounds in Groundwater
438 Union Avenue - Brooklyn, NY

SAMPLE ID:		MW-1		MW-2		MW-3		MW-3 DUP		FIELD BLANK	
LAB ID:		L1849687-03		L1849687-02		L1849687-01		L1849687-06		L1849687-04	
COLLECTION DATE:	NY-AWQS	12/5/2018		12/5/2018		12/5/2018		12/5/2018		12/5/2018	
Semivolatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bis(2-chloroethyl)ether	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	3	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
1,3-Dichlorobenzene	3	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,4-Dichlorobenzene	3	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
3,3'-Dichlorobenzidine	5	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
2,4-Dinitrotoluene	5	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
2,6-Dinitrotoluene	5	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U
4-Chlorophenyl phenyl ether	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
4-Bromophenyl phenyl ether	--	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U
Bis(2-chloroisopropyl)ether	5	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U
Bis(2-chloroethoxy)methane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorocyclopentadiene	5	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
Isophorone	50	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Nitrobenzene	0.4	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
NDPA/DPA	50	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
n-Nitrosodi-n-propylamine	--	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U
Bis(2-ethylhexyl)phthalate	5	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Butyl benzyl phthalate	50	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Di-n-butylphthalate	50	0.39	U	0.39	U	0.39	U	0.41	J	0.39	U
Di-n-octylphthalate	50	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Diethyl phthalate	50	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U
Dimethyl phthalate	50	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Biphenyl	--	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
4-Chloroaniline	5	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
2-Nitroaniline	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
3-Nitroaniline	5	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U
4-Nitroaniline	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U
Dibenzofuran	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4,5-Tetrachlorobenzene	5	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Acetophenone	--	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U
2,4,6-Trichlorophenol	--	0.61	U	0.61	U	0.61	U	0.61	U	0.61	U
p-Chloro-m-cresol	--	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
2-Chlorophenol	--	0.48	U	0.48	U	0.48	U	0.48	U	0.48	U
2,4-Dichlorophenol	1	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
2,4-Dimethylphenol	50	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
2-Nitrophenol	--	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
4-Nitrophenol	--	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
2,4-Dinitrophenol	10	6.6	U	6.6	U	6.6	U	6.6	U	6.6	U
4,6-Dinitro-o-cresol	--	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Phenol	1	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
2-Methylphenol	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
3-Methylphenol/4-Methylphenol	--	0.48	U	0.48	U	0.48	U	0.48	U	0.48	U
2,4,5-Trichlorophenol	--	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Benzoic Acid	--	2.6	U	7	J	2.6	U	6.4	J	2.6	U
Benzyl Alcohol	--	0.59	U	0.59	U	0.59	U	0.59	U	0.59	U
Carbazole	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Acenaphthene	20	0.1	J	0.01	U	0.01	U	0.01	U	0.01	U
2-Chloronaphthalene	10	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Fluoranthene	50	0.03	J	0.02	J	0.09	J	0.03	J	0.03	J
Hexachlorobutadiene	0.5	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Naphthalene	10	8.4		0.05	U	0.06	J	0.06	J	0.05	U
Benzo(a)anthracene	0.002	0.02	U	0.02	U	0.02	J	0.02	U	0.02	U
Benzo(a)pyrene	0.002	0.02	U	0.02	U	0.03	J	0.02	U	0.02	U
Benzo(b)fluoranthene	0.002	0.01	U	0.01	U	0.04	J	0.01	U	0.01	U
Benzo(k)fluoranthene	0.002	0.01	U	0.01	U	0.02	J	0.01	U	0.01	U
Chrysene	0.002	0.01	U	0.01	U	0.03	J	0.01	U	0.01	U
Acenaphthylene	--	0.02	J	0.01	U	0.01	U	0.01	U	0.01	U
Anthracene	50	0.02	J	0.02	J	0.02	J	0.01	U	0.01	U
Benzo(ghi)perylene	--	0.01	U	0.01	U	0.02	J	0.01	U	0.01	U
Fluorene	50	0.05	J	0.01	U	0.01	U	0.01	U	0.01	U
Phenanthrene	50	0.07	J	0.03	J	0.1		0.06	J	0.05	J
Dibenzo(a,h)anthracene	--	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Indeno(1,2,3-cd)pyrene	0.002	0.01	U	0.01	U	0.02	J	0.01	U	0.01	U
Pyrene	50	0.06	J	0.02	J	0.09	J	0.03	J	0.03	J
2-Methylnaphthalene	--	0.38		0.02	U	0.04	J	0.04	J	0.02	U
Pentachlorophenol	1	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Hexachlorobenzene	0.04	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Hexachloroethane	5	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Total SVOCs	--	9.13	-	7.09	-	0.58	-	0.22	-	0.11	-

Notes:
NY-AWQS: New York TOGS 111 Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.
Cells highlighted in yellow indicate concentrations above the NY-AWQS
Cells shaded in grey indicate MDL values above the NY-AWQS
DUP = designation for duplicate sample
MDL = Maximum Detection Limit
RL = Reporting limit
NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard
Results and MDL values are in micrograms per liter (µg/L)

Table 7 - Pesticides and Polychlorinated Biphenyls in Groundwater
438 Union Avenue - Brooklyn, NY

SAMPLE ID:		MW-1		MW-2		MW-3		MW-3 DUP		FIELD BLANK	
LAB ID:		L1849687-03		L1849687-02		L1849687-01		L1849687-06		L1849687-04	
COLLECTION DATE:	NY-AWQS	12/5/2018		12/5/2018		12/5/2018		12/5/2018		12/5/2018	
Pesticides Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Delta-BHC	0.04	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Lindane	0.05	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Alpha-BHC	0.01	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Beta-BHC	0.04	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Heptachlor	0.04	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Aldrin	0	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Heptachlor epoxide	0.03	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Endrin	0	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Endrin aldehyde	5	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Endrin ketone	5	0.045		0.003	U	0.003	U	0.003	U	0.003	U
Dieldrin	0.004	0.012	J	0.003	U	0.003	U	0.003	U	0.003	U
4,4'-DDE	0.2	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
4,4'-DDD	0.3	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
4,4'-DDT	0.2	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Endosulfan I	--	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Endosulfan II	--	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Endosulfan sulfate	--	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Methoxychlor	35	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Toxaphene	0.06	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U
cis-Chlordane	--	0.113	P	0.005	U	0.005	U	0.005	U	0.005	U
trans-Chlordane	--	0.021		0.004	U	0.004	U	0.004	U	0.004	U
Chlordane	0.05	0.738		0.033	U	0.033	U	0.033	U	0.033	U
Polychlorinated Biphenyls											
Aroclor 1016	0.09	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U
Aroclor 1221	0.09	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U
Aroclor 1232	0.09	0.046	U	0.046	U	0.046	U	0.046	U	0.046	U
Aroclor 1242	0.09	0.039	U	0.039	U	0.039	U	0.039	U	0.039	U
Aroclor 1248	0.09	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U
Aroclor 1254	0.09	0.039	U	0.039	U	0.039	U	0.039	U	0.039	U
Aroclor 1260	0.09	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U
Aroclor 1262	0.09	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
Aroclor 1268	0.09	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U
PCBs, Total	--	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U

Notes:
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Cells highlighted in yellow indicate concentrations above the NY-AWQS
Cells shaded in grey indicate MDL values above the NY-AWQS
DUP = designation for duplicate sample
MDL = Maximum Detection Limit
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NA - Not Analyzed
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard
Results and MDL values are in micrograms per liter (µg/L)

Table 8 - Total and Dissolved Metals in Groundwater
438 Union Avenue - Brooklyn, NY

SAMPLE ID:		MW-1		MW-2		MW-3		MW-3 DUP		FIELD BLANK	
LAB ID:		L1849687-03		L1849687-02		L1849687-01		L1849687-06		L1849687-04	
COLLECTION DATE:	NY-AWQS	12/5/2018		12/5/2018		12/5/2018		12/5/2018		12/5/2018	
Dissolved Metals Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Aluminum, Dissolved		53.6		8.43	J	25.6		192		3.27	U
Antimony, Dissolved	3	0.59	J	0.42	U	1.51	J	0.71	J	1.01	J
Arsenic, Dissolved	25	0.16	U	0.16	U	0.2	J	0.21	J	0.16	U
Barium, Dissolved	1000	32.39		32.96		36.41		44.23		1.13	
Beryllium, Dissolved	3	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Cadmium, Dissolved	5	0.05	U	0.05	U	0.11	J	0.07	J	0.05	U
Calcium, Dissolved		43300		32400		43700		42200		168	
Chromium, Dissolved	50	0.27	J	1.02		0.25	J	0.52	J	0.17	U
Cobalt, Dissolved		0.63		0.39	J	10.09		11.16		0.16	U
Copper, Dissolved	200	0.8	J	0.51	J	1.46		1.11		1.08	
Iron, Dissolved	300	102		19.1	U	81.2		308		33.5	J
Lead, Dissolved	25	0.34	U	0.34	U	0.34	U	0.45	J	0.34	U
Magnesium, Dissolved	35000	12200		4630		4060		3880		24.2	U
Manganese, Dissolved	300	142.1		129.3		1360		1393		0.44	U
Mercury, Dissolved	0.7	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Nickel, Dissolved	100	1.64	J	0.76	J	6.99		7.62		0.55	U
Potassium, Dissolved		4560		8630		9840		9100		491	
Selenium, Dissolved	10	3.42	J	1.98	J	8.25		8.41		1.73	U
Silver, Dissolved	50	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Sodium, Dissolved	20000	52300		19300		20700		19900		242	
Thallium, Dissolved	0.5	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
Vanadium, Dissolved		1.57	U	1.57	U	1.57	U	1.57	U	1.57	U
Zinc, Dissolved	2000	3.41	U	3.41	U	9.96	J	6.85	J	3.41	U
Total Metals											
Aluminum, Total		13400		286		4540		12900		9.94	J
Antimony, Total	3	0.59	J	0.42	U	0.75	J	0.42	U	0.54	J
Arsenic, Total	25	3.97		0.2	J	1.6		3.84		0.16	U
Barium, Total	1000	188.6		37.18		71.46		143.6		1.53	
Beryllium, Total	3	1.09		0.1	U	0.3	J	0.8		0.1	U
Cadmium, Total	5	0.23		0.05	U	0.1	J	0.16	J	0.05	U
Calcium, Total		46000		33500		42100		44700		151	
Chromium, Total	50	31.64		1.55		12.92		38.16		0.31	J
Cobalt, Total		14.53		0.62		14.44		23.67		0.16	U
Copper, Total	200	36.82		0.82	J	11.17		31.06		1.5	
Iron, Total	300	28800		393		9120		25900		32.3	J
Lead, Total	25	44.07		0.68	J	11		34.86		0.34	U
Magnesium, Total	35000	16700		5080		5120		7600		24.2	U
Manganese, Total	300	1292		150.7		1628		2081		1.38	
Mercury, Total	0.7	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Nickel, Total	100	28.48		1.05	J	14.19		26.63		0.55	U
Potassium, Total		6460		9220		9610		12000		202	
Selenium, Total	10	5.02		2.17	J	8.7		10.2		1.73	U
Silver, Total	50	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Sodium, Total	20000	52100		21300		21000		22100		225	
Thallium, Total	0.5	0.23	J	0.14	U	0.2	J	0.28	J	0.14	U
Vanadium, Total		42.74		1.57	U	12.87		34.28		1.57	U
Zinc, Total	2000	58.53		3.41	U	26.42		67.22		3.41	U

Notes:
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U = not detected at or above the MDL
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J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard
Results and MDL values are in micrograms per liter (µg/L)

Table 9 - Volatile Organic Compounds in Soil Vapor
438 Union Avenue - Brooklyn, NY

SAMPLE ID:	EPA-VISL-TSSGC	NYSDOH AGVs	SV-1		SV-2		SV-3		SV-4	
LAB ID:			L1849682-01		L1849682-02		L1849682-03		L1849682-04	
COLLECTION DATE:			12/5/2018		12/5/2018		12/5/2018		12/5/2018	
Volatile Organic Compounds in Air Units: ug/m3			Conc	Q	Conc	Q	Conc	Q	Conc	Q
Dichlorodifluoromethane	3500	--	2.31		2.22		2.2		2.12	
Chloromethane	3100	--	0.413	U	0.413	U	0.413	U	0.413	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	--	1.4	U	1.4	U	1.4	U	1.4	U
Vinyl chloride	5.6	--	0.511	U	0.511	U	0.511	U	0.511	U
1,3-Butadiene	3.1	--	0.442	U	0.442	U	0.442	U	0.442	U
Bromomethane	170	--	0.777	U	0.777	U	0.777	U	0.777	U
Chloroethane	350000	--	0.528	U	0.528	U	0.528	U	0.528	U
Ethyl Alcohol	--	--	68.6		104		53.1		29.2	
Vinyl bromide	2.9	--	0.874	U	0.874	U	0.874	U	0.874	U
Acetone	1100000	--	48.7		66.5		47.5		25.7	
Trichlorofluoromethane	--	--	1.23		1.25		1.12	U	1.12	U
iso-Propyl Alcohol	7000	--	9.93		23.7		12.8		1.67	
1,1-Dichloroethene	7000	--	0.793	U	0.793	U	0.793	U	0.793	U
tert-Butyl Alcohol	--	--	3.12		2.1		1.52	U	1.86	
Methylene chloride	3400	60	1.74	U	2.41		1.74	U	1.74	U
3-Chloropropene	16	--	0.626	U	0.626	U	0.626	U	0.626	U
Carbon disulfide	24000	--	0.623	U	0.623	U	0.807		0.623	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	170000	--	1.53	U	1.53	U	1.53	U	1.53	U
trans-1,2-Dichloroethene	--	--	0.793	U	0.793	U	0.793	U	0.793	U
1,1-Dichloroethane	58	--	0.809	U	0.809	U	0.809	U	0.809	U
Methyl tert butyl ether	360	--	0.721	U	0.721	U	0.721	U	0.721	U
2-Butanone	170000	--	2.95		3.16		1.79		1.47	U
cis-1,2-Dichloroethene	--	--	0.793	U	0.793	U	0.793	U	0.793	U
Ethyl Acetate	2400	--	2.22		1.8	U	1.8	U	1.8	U
Chloroform	4.1	--	0.977	U	0.977	U	0.977	U	0.977	U
Tetrahydrofuran	70000	--	1.47	U	2.76		1.47	U	1.47	U
1,2-Dichloroethane	3.6	--	0.809	U	0.809	U	0.809	U	0.809	U
n-Hexane	24000	--	2.49		2.08		3.16		10.3	
1,1,1-Trichloroethane	170000	--	1.09	U	1.09	U	1.09	U	1.09	U
Benzene	12	--	6.71		1.93		1.76		2.71	
Carbon tetrachloride	16	--	1.26	U	1.26	U	1.26	U	1.26	U
Cyclohexane	210000	--	0.885		0.83		0.861		33.8	
1,2-Dichloropropane	25	--	0.924	U	0.924	U	0.924	U	0.924	U
Bromodichloromethane	2.5	--	1.34	U	1.34	U	1.34	U	1.34	U
1,4-Dioxane	19	--	0.721	U	0.721	U	0.721	U	0.721	U
Trichloroethene	16	2	1.07	U	1.07	U	1.07	U	1.07	U
2,2,4-Trimethylpentane	--	--	1.36		1.58		1.21		49.5	
Heptane	--	--	3.61		2.41		2.94		4.09	
cis-1,3-Dichloropropene	23	--	0.908	U	0.908	U	0.908	U	0.908	U
4-Methyl-2-pentanone	100000	--	2.05	U	2.05	U	2.05	U	2.05	U
trans-1,3-Dichloropropene	23	--	0.908	U	0.908	U	0.908	U	0.908	U
1,1,2-Trichloroethane	5.8	--	1.09	U	1.09	U	1.09	U	1.09	U
Toluene	170000	--	11.5		13.4		8.1		23.4	
2-Hexanone	1000	--	0.82	U	0.82	U	0.82	U	0.82	U
Dibromochloromethane	--	--	1.7	U	1.7	U	1.7	U	1.7	U
1,2-Dibromoethane	0.16	--	1.54	U	1.54	U	1.54	U	1.54	U
Tetrachloroethene	360	30	1.36	U	1.97		1.36	U	3.63	
Chlorobenzene	1700	--	0.921	U	0.921	U	0.921	U	0.921	U
Ethylbenzene	37	--	1.53		1.59		1.09		1.76	
p/m-Xylene	3500	--	5.78		5.99		3.99		5.78	
Bromoform	85	--	2.07	U	2.07	U	2.07	U	2.07	U
Styrene	35000	--	0.852	U	0.852	U	0.852	U	0.852	U
1,1,2,2-Tetrachloroethane	1.6	--	1.37	U	1.37	U	1.37	U	1.37	U
o-Xylene	3500	--	2.13		2.17		1.38		1.73	
4-Ethyltoluene	--	--	0.983	U	0.983	U	0.983	U	0.983	U
1,3,5-Trimethylbenzene	2100	--	0.983	U	0.983	U	0.983	U	0.983	U
1,2,4-Trimethylbenzene	2100	--	2.17		3.04		0.983	U	0.983	U
Benzyl chloride	1.9	--	1.04	U	1.04	U	1.04	U	1.04	U
1,3-Dichlorobenzene	--	--	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dichlorobenzene	8.5	--	1.2	U	1.2	U	1.2	U	1.2	U
1,2-Dichlorobenzene	7000	--	1.2	U	1.2	U	1.2	U	1.2	U
1,2,4-Trichlorobenzene	70	--	1.48	U	1.48	U	1.48	U	1.48	U
Hexachlorobutadiene	4.3	--	2.13	U	2.13	U	2.13	U	2.13	U

Notes:
EPA-VISL-TSSGC: EPA VISL Default Residential Target Sub-Slab & Exterior Soil Gas Concentrations Criteria per VISL Calculator, Version 3.5, Updated October 2017 (June 2017 RSLs).
NYSDOH Air Guidance Value = New York State Department of Health Air Guidance Values (AGV)
Cells highlighted in yellow indicate concentrations above the NYSDOH Matrix
Cells shaded in gray indicate MDL values above the NYSDOH Matrix
MDL = Method Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the RL is shown
U = not detected at or above the RL
-- = No Standard
Results and RL values are in micrograms per cubic meter (ug/m3)

APPENDIX A –
PHASE I ESA
(previously submitted)

APPENDIX B –
LITHOLOGIC LOGS, PURGE LOGS AND SOIL VAPOR SAMPLING LOGS

Appendix B - Lithologic Logs
438 Union Avenue - Brooklyn, NY

TENEN ENVIRONMENTAL			
		Boring No.	**SB-1/MW-1**
		Sheet	**1 of 1**
Site:	**438 Union Ave - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**12/4/18**	**Soil Sampling Method:**	Acetate liners
Weather:	**Sunny, 45 def F**		
Observer:	**C. Zaccheo**	**Driller :**	Cascade Drilling

Depth (feet)	PID Reading (ppm)	Soil Samples	Well Construction	Soil Description
1	0.0	SB-1 (0-2)	Screen (0-10')	0-3: Brown silt, pebbles
2				
3		SB-1 (10-12)		3-5: Medium grain sand, wet
4	0.0			
5				
6	0.0			5-9: SAA
7				
8				EOB at 9 ft. bg*
9				
10				

Notes: Samples collected on the 0-2ft interval are with respect to the basement grade
Samples taken on the 10-12ft interval are with respect to sidewalk grade.
Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix B - Lithologic Logs
438 Union Avenue - Brooklyn, NY

TENEN ENVIRONMENTAL			
		Boring No.	**SB-2/MW-2**
		Sheet	**1 of 1**
Site:	**438 Union Ave - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**12/4/18**	**Soil Sampling Method:**	Acetate liners
Weather:	**Sunny, 45 def F**		
Observer:	**C. Zaccheo**	**Driller :**	Cascade Drilling

Depth (feet)	PID Reading (ppm)	Soil Samples	Well Construction	Soil Description
1	0.0	SB-2 (0-2)	Screen (0-10')	0-3: 2 inches of concrete; brown sandy silt, wet at 2.4 ft.
2				
3		SB-2 (10-12)		3-5: SAA
4	0.0			
5				
6	0.0			5-6: SAA
7				6-9: Medium grain sand
8				
9				EOB at 9 ft-bg*
10				

Notes: Samples collected on the 0-2ft interval are with respect to the basement grade
Samples taken on the 10-12ft interval are with respect to sidewalk grade.
Legend:

DTW - Depth to Water
EOB - End of Boring
ft-bg - Feet Below Grade
PID - Photoionization Detector
SAA - Same as Above
NR - not recorded

Appendix B - Lithologic Logs
438 Union Avenue - Brooklyn, NY

TENEN ENVIRONMENTAL			
		Boring No.	**SB-3/MW-3**
		Sheet	**1 of 1**
Site:	**438 Union Ave - Brooklyn, NY**	**Drilling Method:**	Geoprobe
Date:	**12/4/18**	**Soil Sampling Method:**	Acetate liners
Weather:	**Sunny, 45 def F**		
Observer:	**C. Zaccheo**	**Driller :**	Cascade Drilling

Depth (feet)	PID Reading (ppm)	Soil Samples	Well Construction	Soil Description
1 2 3 4 5	0.0	SB-3 (0-2)	Riser (0-5')	0-2: FILL (medium to coarse grain sand, ash, pebbles, some silt) 2-4: Brown silt 4-5: Brown clayey silt
6 7 8 9 10	0.0		Screen (5-15')	5-8: SAA 8-9: Medium grain sand 9-10: Fine to medium grain silty sand
11 12 13 14 15	0.0	SB-3 (10-12)		10-12: SAA 12-15: Medium grain sand, some silt, wet EOB at 15 ft. bg

Notes:
***Grade is sidewalk grade**
Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix B - Lithologic Logs
438 Union Avenue - Brooklyn, NY

TENEN ENVIRONMENTAL		Boring No.	SB-4
		Sheet	1 of 1
Site:	438 Union Ave - Brooklyn, NY	Drilling Method:	Geoprobe
Date:	12/4/18	Soil Sampling Method:	Acetate liners
Weather:	Sunny, 45 def F		
Observer:	C. Zaccheo	Driller :	Cascade Drilling

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1 2 3 4 5	0.0	SB-4 (0-2) SB-4 (2-4)	0-2: Dark brown silt 2-4: Clayey silt to medium grain sand

Notes:
***Grade is sidewalk grade**
Legend:

DTW - Depth to Water	PID - Photoionization Detector
EOB - End of Boring	SAA - Same as Above
ft-bg - Feet Below Grade	NR - not recorded

Appendix B - Purge Logs
438 Union Avenue - Brooklyn, NY

GROUNDWATER SAMPLING LOG

Site Name	438 Union Avenue	Date	12/5/18
Well No.	MW-2	Sample ID	MW-2

Well Diameter	1 inches	Depth to Water	3.75	ft-bg
Well Screen Interval	10 ft-bg	TOC Elevation	NR	ft-bg
Headspace PID	NR ppm	GW Elevation	NR	
Weather	Sunny, 35 deg. F			

Pump	Peristaltic
Water Quality Meter	Horiba U52
Total Volume Purged	4 gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm
1155	11.70	6.65	50	0.356	0.0	6.76	0.231
1205	13.57	6.56	36	0.339	152	4.52	0.220
1215	13.90	6.49	42	0.333	8.8	3.51	0.216
1225	13.98	6.47	43	0.332	6.2	3.50	0.216

Notes:
***Depth to water recorded below existing basement grade**

Appendix B - Purge Logs
438 Union Avenue - Brooklyn, NY

GROUNDWATER SAMPLING LOG

Site Name	438 Union Avenue	Date	12/5/18
Well No.	MW-3	Sample ID	MW-3

Well Diameter	1 inches	Depth to Water	10.31	ft-bg
Well Screen Interval	10 ft-bg	TOC Elevation	NR	ft-bg
Headspace PID	NR ppm	GW Elevation	NR	
Weather	Sunny, 35 deg. F			

Pump	Peristaltic
Water Quality Meter	Horiba U52
Total Volume Purged	NR gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm
850	12.43	6.30	-103	0.299	0.0	4.55	0.193
0900	12.81	6.02	-112	0.357	815	0.77	0.232
Well dry							
0925	11.54	5.84	-68	0.367	610	1.16	0.239
0935	13.00	5.74	-72	0.379	910	0.00	0.260

Notes:
Well dry at 0935, sample at 1000

Appendix B - Purge Logs
438 Union Avenue - Brooklyn, NY

GROUNDWATER SAMPLING LOG

Site Name	438 Union Avenue	Date	12/5/18
Well No.	MW-1	Sample ID	MW-1

Well Diameter	1 inches	Depth to Water	2.56	ft-bg
Well Screen Interval	10 ft-bg	TOC Elevation	NR	ft-bg
Headspace PID	NR ppm	GW Elevation	NR	
Weather	Sunny, 35 deg. F			

Pump	Peristaltic
Water Quality Meter	Horiba U52
Total Volume Purged	3 gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm
1250	16.03	6.29	164	0.583	0.0	7.04	0.373
1300	16.04	6.78	163	0.587	1000	5.34	0.375
1310	16.10	6.26	173	0.590	440	5.22	0.377
1320	16.21	6.22	180	0.583	620	5.33	0.373

Notes:
***Depth to water recorded below existing basement grade**

Appendix B - Soil Vapor Sampling Logs
2135 Westchester Avenue - Bronx, NY

Soil Vapor Sampling Logs							
Sample ID	**Canister**	**Regulator ID**	**PID (ppm)**	**Start Time**	**Start Pressure (in-Hg)**	**End Time**	**End Pressure (in-Hg)**
SV-1	194	0014	0.0	12/5/18 11:45	29.15	12/5/18 13:44	2.52
SV-2	2339	0273	0.8	12/5/18 11:50	30.24	12/5/18 13:50	5.24
SV-3	2521	0745	0.8	12/5/18 7:55	30.65	12/5/18 9:53	0.26
SV-4	368	01086	1.6	12/5/18 8:03	30.33	12/5/18 10:05	6.25

APPENDIX C –
CONSTRUCTION HEALTH AND SAFETY PLAN

Appendix C
Construction Health and Safety Plan

For
438 Union Avenue
Remedial Investigation

438 Union Avenue
Brooklyn, New York
Block 2671, Lot 5
CEQR #090DCP056K
E-Designation E-232

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

Prepared for:
Sunshine Construction
42 Skillman Street
Brooklyn, NY 11205

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

January 2019

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1.0 INTRODUCTION

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

The Site is located at 438 Union Avenue in the Williamsburg section in Brookyln, New York and is identified as Block 2671 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 2,675-square feet and is bounded by a grocery store and delicatessen to the north, a residential use building to the south, a mixed use commercial and residential use building to the east, and Union Avenue bordering the Site to the west. Currently, the Site is vacant, and contains a three-story mixed use commercial and residential building with a cellar and a rear yard. The water table is approximately 10 feet below grade surface (bgs).

1.1 Scope of CHASP

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

- Implementation of remedial oversight and air monitoring activities; and,
- Collection of soil and groundwater samples, from grab samples and monitoring wells, respectively.

Contractors performing remedial construction work will ensure that performance of the work is in compliance with this CHASP and applicable laws and regulations. The CHASP pertains to remedial and invasive work performed at the Site.

2.0 PROJECT SAFETY AUTHORITY

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

- Project Manager – Mohamed Ahmed
- Health and Safety Officer (HSO) – Claire Zaccheo

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

2.1 Designated Personnel

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

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

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

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

The Site has been developed with a three-story commercial building with a one-story addition and a rear yard sine 1887. No changes were shown through 2007, the most recent Sanborn map.

Tenen Environmental, LLC (Tenen) prepared a Phase I Environmental Site Assessment (ESA), dated July 10, 2018. The Phase I ESA identified no recognized environmental conditions (RECs) at the Site. However, the Phase I ESA identified the following off-Site RECs: historic use of the north and west adjacent properties as filling stations and for underground gasoline storage; historic use of the east adjoining property for manufacturing; and, historic use of the northwest adjacent property for auto wrecking.

Tenen conducted a Remedial Investigation (RI) at the Site on December 4 and December 5, 2018.

Soil samples collected during the RI were compared to the Part 375 Unrestricted Use, Restricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs). No VOCs were detected in exceedance of the SCOs. The following SVOCs were detected in one soil sample, SB-4(0-2), above the Unrestricted Use SCOs: benzo(a)anthracene [1.9 mg/kg above the Unrestricted Use SCO of 1 mg/kg], benzo(a)pyrene [1.7 mg/kg above the Unrestricted Use SCO of 1 mg/kg], benzo(b)fluoranthene [2.3 mg/kg above the Unrestricted Use SCO of 1 mg/kg], chrysene [1.9 mg/kg above the Unrestricted Use SCO of 1 mg/kg] and indeno(1,2,3-cd)pyrene [1.2 mg/kg above the Unrestricted Use SCO of 0.5 mg/kg]. The following pesticides were detected in one sample, SB-4(0-2), above the Unrestricted Use SCOs: 4,4'-DDE [0.00725 mg/kg above the Unrestricted Use SCO of 0.0033 mg/kg] and 4,4'-DDD [0.00682 mg/kg above the Unrestricted Use SCO of 0.0033 mg/kg]. The following metals were detected in samples in exceedance of the Restricted-Residential Use SCOs: barium [max: 558 mg/kg above the Restricted-Residential Use SCO of 400 mg/kg], lead [max: 649 mg/kg above the Restricted-Residential Use SCO of 400 mg/kg], and mercury [max: 2.85 mg/kg above the Restricted-Residential Use SCO of 0.81 mg/kg]. The following metals were detected in exceedance of the Unrestricted Use SCOs: copper [max: 53.4 mg/kg above the Unrestricted Use SCO of 50 mg/kg] and zinc [max: 219 mg/kg above the Unrestricted Use SCO of 109 mg/kg].

Groundwater samples collected during the RI were compared to the NYSDEC Technical and Operational Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS). Tetrachloroethene was detected in sample MW-1 at a concentration of 12 micrograms per liter (ug/l) above the AWQS of 5 ug/l. No other VOCs were detected in exceedance of the AWQS. The following SVOCs were detected in one sample, MW-3, in exceedance of the AWQS: benzo(a)anthracene [0.02 ug/l above the AWQS of 0.002 ug/l], benzo(a)pyrene [0.03 ug/l above the AWQS of 0.002 ug/l], benzo(b)fluoranthene [0.04 ug/l above the AWQS of 0.002 ug/l], benzo(k)fluoranthene [0.02 ug/l above the AWQS of 0.002 ug/l], chrysene [0.03 ug/l above the AWQS of 0.002 ug/l], and indeno(1,2,3-cd)pyrene [0.02 ug/l above the AWQS of 0.002 ug/l]. The following pesticides were detected in one sample, MW-1, above the AWQS: dieldrin [0.012 ug/l above the AWQS of 0.004 ug/l] and chlordane [0.738 ug/l above the AWQS of 0.05 ug/l]. The following dissolved metals were detected above the AWQS: iron [max: 308 ug/l above the AWQS of 300 ug/l],

manganese [max: 1393 ug/l above the AWQS of 300 ug/l] and sodium [max: 52,300 ug/l above the AWQS of 20,000 ug/l]. The following total metals were detected above the AWQS: iron [28,800 ug/l above the AWQS of 300 ug/l], lead [max: 44.97 ug/l above the AWQS of 25 ug/l], manganese [max: 2,081 ug/l above the AWQS of 300 ug/l], selenium [max: 10.2 ug/l above the AWQS of 10 ug/l] and sodium [max: 52,100 ug/l above the AWQS of 20,000 ug/l].

Soil vapor samples collected during the RI showed no exceedances of the NYSDOH AGVs or the EPA-VISL-TSSGC.

No wetlands or surface water bodies are present at the Site. The nearest surface water body is the East River, located approximately 1 mile to the west.

3.1 Human Exposure Pathways

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

3.2 Chemical Hazards

Based on historic research and sampling data, the following contaminants of concern are present at the Site:

Chlorinated Solvents
- Tetrachloroethene (PCE)

Metals
- Lead
- Mercury
- Barium
- Copper
- Iron
- Manganese
- Sodium

Semivolatile Organic Compounds
- Polyaromatic Hydrocarbons (PAHs)

Pesticides
- 4-4’-DDD

- 4-4'-DDE
- Dieldrin

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

3.3 Physical Hazards

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

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

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

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

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

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

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

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.
The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

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

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

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

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

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

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

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

Biological Hazards

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

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

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

4.0 AIR MONITORING

The NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix 1A of DER-10, will be implemented during all ground-intrusive sampling and remedial activities. Continuous monitoring will be implemented during all soil handling activities, boring installation (soil borings, monitoring wells and soil vapor points) and periodic monitoring will be implemented during sampling (groundwater and soil vapor samples).

VOC Monitoring, Response Levels, and Actions

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

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

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The

equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

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

5.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear."

Tenen field personnel and other site personnel will wear Level D personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, modified Level D equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A description of the personnel protective equipment for Levels D and C is provided below.

Level D
Respiratory Protection: None
Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D
Respiratory Protection: None
Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

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

6.0 EXPOSURE MONITORING

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO and, if workers are wearing respiratory protective equipment, outside the face-piece.

7.0 SITE ACCESS

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

8.0 WORK AREAS

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

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

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

9.0 DECONTAMINATION PROCEDURES

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

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

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan. Because site soil is considered essentially non-hazardous, there is no need to decontaminate vehicles used for transporting equipment and personnel over the Site.

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

GENERAL SAFE WORK PRACTICES

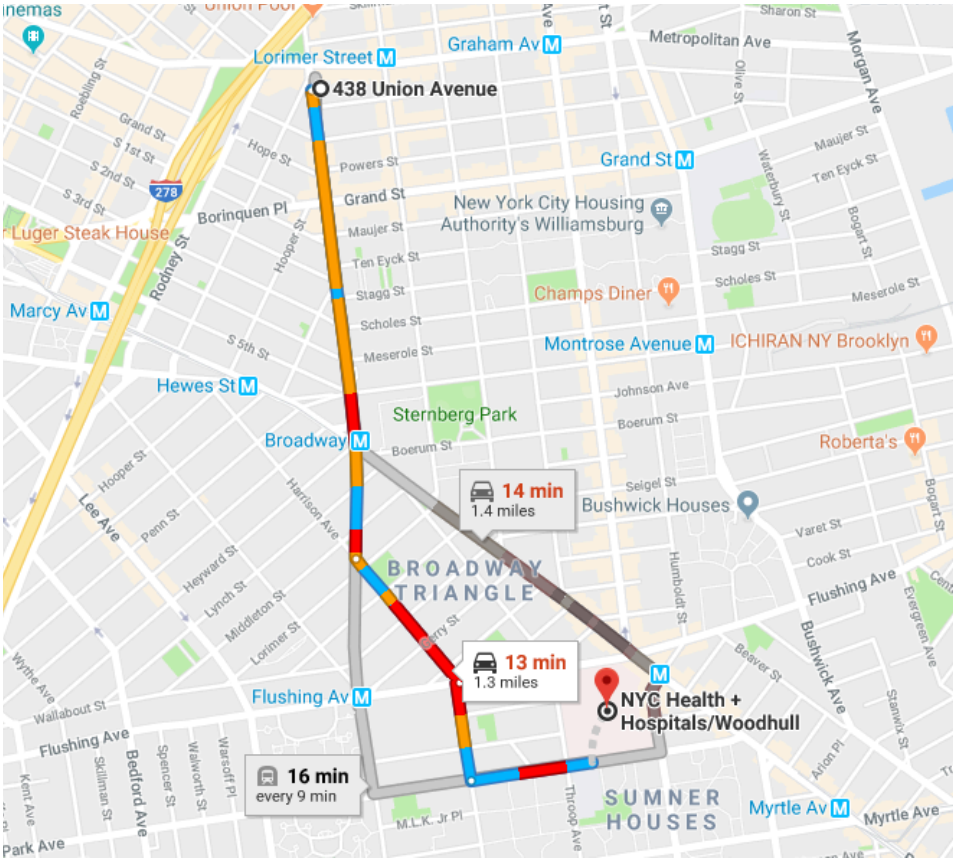
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

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

10.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—on-site personnel should drive him to a hospital. **The nearest emergency room is at Woodhull Hospital Medical Center, located at 760 Broadway, Brooklyn, NY.** The route to the hospital is shown and detailed on the next page.

10.1 Route to Hospital



1. Head south on Union Avenue
2. Turn left onto Harrison Avenue
3. Continue onto Tompkins Avenue
4. Turn left onto Park Avenue

Emergency Room: (718) 963-8000

10.2 Emergency Contacts

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

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 963-8000
NYSDEC Spill Hotline	(800) 457-7362
Tenen QEP, Mohamed Ahmed	(917) 612-6018
On-site Field Phone, Claire Zaccheo	(917) 744-5421
Client, Yochanan Tennenhaus	(718) 222-3822

11.0 TRAINING

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

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

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

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

12.0 MEDICAL SURVEILLANCE

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

Appendix A

Acknowledgement of CHASP

ACKNOWLEDGMENT OF CHASP

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

AFFIDAVIT

I have read the Construction Health and Safety Plan (CHASP) for the 21-25 31st Street site. I agree to conduct all on-site work in accordance with the requirements set forth in this CHASP and understand that failure to comply with this CHASP could lead to my removal from the site.

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

Appendix B

Injury Reporting Form (OSHA Form 300)

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

Log of Work-Related Injuries and Illnesses

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

Year 20__ __

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

Form approved OMB no. 1218-0176

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

Establishment name _____

City _____ State _____

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

Appendix C

Material Safety Data Sheets (MSDS)

Safety Data Sheet

Revision Date: 06/14/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32201 / 4,4'-DDD Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
4,4'-DDD	72-54-8	200-783-0	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

Storage Technical Measures and Conditions:	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 53 [1991] (listed under DDT and associated compounds)	72-54-8	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
DDD	72-54-8	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
4,4'-DDD	72-54-8	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 12/21/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 03/23/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32202 / 4,4'-DDE Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	10
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
4,4'-DDE	72-55-9	200-784-6	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	Contains a known human reproductive and/or developmental hazard.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 53 [1991] (listed under DDT and associated compounds)	72-55-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
DDE	72-55-9	Prop 65 Cancer
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethylene	72-55-9	Prop 65 Devolop Tox
Methanol	67-56-1	Prop 65 Devolop Tox
1,1-Dichloro-2,2-bis(p-chlorophenyl)ethylene	72-55-9	Prop 65 Rep Male

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
4,4'-DDE	72-55-9	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 12/23/16

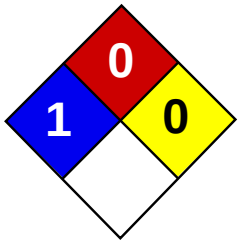
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

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Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Barium sulfate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Barium sulfate

Catalog Codes: SLB3148, SLB4648

CAS#: 7727-43-7

RTECS: CR0600000

TSCA: TSCA 8(b) inventory: Barium sulfate

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: BaSO4

Contact Information:

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

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

Order Online: ScienceLab.com

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

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Barium sulfate	7727-43-7	100

Toxicological Data on Ingredients: Barium sulfate LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

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

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

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

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

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

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

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

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: No specific safety phrase has been found applicable for this product.

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

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

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

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

Exposure Limits:
TWA: 10 from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 233.39 g/mole

Color: Not available.

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

Boiling Point: Decomposes.

Melting Point: 1580°C (2876°F)

Critical Temperature: Not available.

Specific Gravity: 4.5 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Not available.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Causes damage to the following organs: lungs, mucous membranes.

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

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

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Barium sulfate Massachusetts RTK: Barium sulfate TSCA 8(b) inventory: Barium sulfate

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
This product is not classified according to the EU regulations.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

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

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

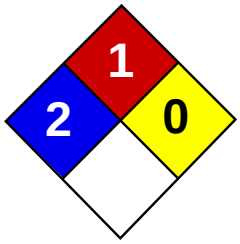
Other Special Considerations: Not available.

Created: 10/10/2005 08:14 PM

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

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Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Copper MSDS

Section 1: Chemical Product and Company Identification

Product Name: Copper

Catalog Codes: SLC4939, SLC2152, SLC3943, SLC1150, SLC2941, SLC4729, SLC1936, SLC3727, SLC5515

CAS#: 7440-50-8

RTECS: GL5325000

TSCA: TSCA 8(b) inventory: Copper

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: Cu

Contact Information:

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

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

Order Online: ScienceLab.com

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

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Copper	7440-50-8	100

Toxicological Data on Ingredients: Copper LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

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

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Not available.

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

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

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

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH [1990] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 63.54 g/mole

Color: Not available.

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

Boiling Point: 2595°C (4703°F)

Melting Point: 1083°C (1981.4°F)

Critical Temperature: Not available.

Specific Gravity: 8.94 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

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

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

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

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Copper Massachusetts RTK: Copper TSCA 8(b) inventory: Copper CERCLA: Hazardous substances.: Copper

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36- Irritating to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

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

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

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

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 04:58 PM

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

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Safety Data Sheet

Revision Date: 09/13/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32218 / Dieldrin Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:



GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Carcinogenicity Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Suspected of causing cancer. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4.

Rinse mouth.
Take off immediately all contaminated clothing and wash it before reuse.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure)

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
dieldrin	60-57-1	200-484-5	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay.

Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.

Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.

Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.

Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 117 [in preparation]; Supplement 7 [1987]; Monograph 5 [1974]	60-57-1	Group 2A

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.

Mobility: No data

Persistence: No data

Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Dieldrin	60-57-1	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

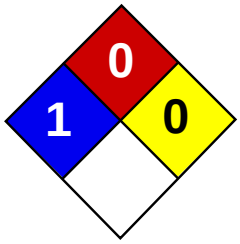
Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
dieldrin	60-57-1	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 12/23/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
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Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

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

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

Order Online: ScienceLab.com

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

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

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

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

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

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

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

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

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

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

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

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

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

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

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

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

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

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

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

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

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

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

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

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

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

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

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

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

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

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

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SAFETY DATA SHEET

Creation Date 24-Nov-2010 **Revision Date** 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Manganese, powder, -325 mesh**

Cat No. : **AC317440000; AC317440010; AC317442500**

CAS-No 7439-96-5
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Serious Eye Damage/Eye Irritation	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Flammable solid
Causes serious eye irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Wear protective gloves/protective clothing/eye protection/face protection
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Manganese	7439-96-5	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Dry chemical.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Combustible material.

Hazardous Combustion Products
None known

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	2	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Use explosion-proof equipment. Use only non-sparking tools.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Keep under nitrogen.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Manganese	TWA: 0.02 mg/m³ TWA: 0.1 mg/m³	(Vacated) TWA: 1 mg/m³ Ceiling: 5 mg/m³ (Vacated) STEL: 3 mg/m³ (Vacated) Ceiling: 5 mg/m³	IDLH: 500 mg/m³ TWA: 1 mg/m³ STEL: 3 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³ STEL: 3 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark brown
Odor	No information available
Odor Threshold	No information available
pH	No information available

Melting Point/Range	1260 °C / 2300 °F
Boiling Point/Range	1900 °C / 3452 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Mn
Molecular Weight	54.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Moisture sensitive.

Conditions to Avoid Incompatible products. Exposure to moisture.

Incompatible Materials Acids, Bases, Halogens

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese	LD50 = 9 g/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Manganese	7439-96-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3089
- **Hazard Class** 4.1
- **Packing Group** III

TDG
- **UN-No** UN3089
- **Hazard Class** 4.1
- **Packing Group** III

IATA
- **UN-No** 3089
- **Proper Shipping Name** METAL POWDER, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** III

IMDG/IMO
- **UN-No** 3089
- **Proper Shipping Name** METAL POWDER, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Manganese	X	X	-	231-105-1	-		X	-	X	X	X

Legend:
X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Manganese	7439-96-5	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Manganese	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Manganese	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

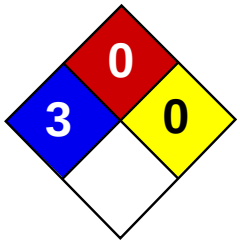
Creation Date	24-Nov-2010
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS







Material Safety Data Sheet
Mercury MSDS

Section 1: Chemical Product and Company Identification

Product Name: Mercury

Catalog Codes: SLM3505, SLM1363

CAS#: 7439-97-6

RTECS: OV4550000

TSCA: TSCA 8(b) inventory: Mercury

CI#: Not applicable.

Synonym: Quick Silver; Colloidal Mercury; Metallic Mercury; Liquid Silver; Hydragyrum

Chemical Name: Mercury

Chemical Formula: Hg

Contact Information:

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

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

Order Online: ScienceLab.com

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

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Mercury	7439-97-6	100

Toxicological Data on Ingredients: Mercury LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation.

Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

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

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

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

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

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
When thrown into mercury vapor, boron phosphodiiodide ignites at once. Flame forms with chlorine jet over mercury surface at 200 deg to 300 deg C. Mercury undergoes hazardous reactions in the presence of heat and sparks or ignition.

Special Remarks on Explosion Hazards:
A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. CHLORINE DIOXIDE & LIQUID HG, WHEN MIXED, EXPLODE VIOLENTLY. Mercury and Ammonia can produce an

explosive compound. A mixture of the dry carbonyl and oxygen will explode on vigorous shaking with mercury. Methyl azide in the presence of mercury was shown to be potentially explosive.

Section 6: Accidental Release Measures

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

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

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

Exposure Limits:
TWA: 0.025 from ACGIH (TLV) [United States] SKIN TWA: 0.05 CEIL: 0.1 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 0.025 (mg/m3) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Heavy liquid)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 200.59 g/mole

Color: Silver-white

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

Boiling Point: 356.73°C (674.1°F)

Melting Point: -38.87°C (-38°F)

Critical Temperature: 1462°C (2663.6°F)

Specific Gravity: 13.55 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 6.93 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

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

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Ground mixtures of sodium carbide and mercury, aluminum, lead, or iron can react vigorously. A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. Incompatible with boron diiodophosphide; ethylene oxide; metal oxides, metals(aluminum, potassium, lithium, sodium, rubidium); methyl azide; methylsilane, oxygen; oxidants(bromine, peroxyformic acid, chlorine dioxide, nitric acid, tetracarbonynickel, nitromethane, silver perchlorate, chlorates, sulfuric acid, nitrates,); tetracarbonylnickel, oxygen, acetylinic compounds, ammonia, ethylene oxide, methylsiliane, calcium,

Special Remarks on Corrosivity:
The high mobility and tendency to dispersion exhibited by mercury, and the ease with which it forms alloys (amalga) with many laboratory and electrical contact metals, can cause severe corrosion problems in laboratories. Special precautions: Mercury can attack copper and copper alloy materials.

Polymerization: Will not occur.

Section 11: Toxicological Information

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

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS).

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material. May cause cancer based on animal data. Passes through the placental barrier in animal. May cause adverse reproductive effects(paternal effects- spermatogenesis; effects on fertility - fetotoxicity, post-implantation mortality), and birth defects.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

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

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

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

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Mercury UNNA: 2809 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Mercury California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Mercury Connecticut hazardous material survey.: Mercury Illinois toxic substances disclosure to employee act: Mercury Illinois chemical safety act: Mercury New York acutely hazardous substances: Mercury Rhode Island RTK hazardous substances: Mercury Pennsylvania RTK: Mercury Minnesota: Mercury Massachusetts RTK: Mercury New Jersey: Mercury New Jersey spill list: Mercury Louisiana spill reporting: Mercury California Director's List of Hazardous Substances.: Mercury TSCA 8(b) inventory: Mercury SARA 313 toxic chemical notification and release reporting: Mercury CERCLA: Hazardous substances.: Mercury: 1 lbs. (0.4536 kg)

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

Other Classifications:

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

DSCL (EEC):
R23- Toxic by inhalation. R33- Danger of cumulative effects. R38- Irritating to skin. R41- Risk of serious damage to eyes. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S2- Keep out of the

reach of children. S7- Keep container tightly closed. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

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

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:22 PM

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

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MATERIAL SAFETY DATA SHEET

Polyaromatic Hydrocarbons

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
IDENTITY Decanter Tank Tar Sludge Polyaromatic Hydrocarbons (TDG name - Toxic Solid, organic NOS (Waste) (Pyrene)	**DATE PREPARED** February 7, 2007
SYNONYMS, CHEMICAL NAMES, COMMON NAMES Aromatics, PAH, Yellow Sludge	**USE:** Waste Sludge
MANUFACTURER'S NAME Cancarb Ltd.	**EMERGENCY TELEPHONE NUMBER (Health)** (403) 502-6614
ADDRESS P.O. Box 1000, Station M Calgary, Alberta Canada, T2P 4K5	**TELEPHONE NUMBER – TECHNICALINFORMATION** (403)-527-1121

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS			
HAZARDOUS COMPONENTS	**OSHA PEL**	**ACGIH TLV**	**%/wt**
Variable blend of Polynuclear Aromatic Hydrocarbons (PAHs) plus inert solids in water. Concentrations will vary depending upon the extent of product dryness. Hazardous ingredients may include:			
Pyrene (CAS# 129-00-0)	0.2 mg m^{3*}	None established	<7%
Benzo (g,h,i) Fluoroanthrene (CAS# 203-12-3)	None established	None established	<6%
Fluoroanthene (CAS# 206-44-0)	None established	None established	<4%
Phenanthrene (CAS# 85-01-8)	0.2 mg/m^{3*}	None established	<2%
Cyclopenta(d,e,f)Phenanthrene (CAS#203-64-5)	None established	None established	<2%
Anthracene (CAS# 120-12-7)	0.2 mg/m^{3*}	None established	<1%
Benzo(a)Pyrene (CAS# 50-32-8)		None established	<0.1%
Benzo(a)Anthracene (CAS# 56-55-3)	0.2 mg/m^{3*}	None established	<0.1%
Benzo(b)Fluoroanthene CAS # 205-99-2)	None established	None established	<0.1%
Benzo(j)Fluoroanthene (CAS# 205-82-3)	None established	None established	<0.1%
Benzo(k)Fluoroanthene (CAS# 207-08-9)	None established	None established	<0.1%
Indeno(1,2,3)Pyrene (CAS# 193-39-5)	None established	None established	<0.1%
	None established		
*Coal Tar Pitch Volatile. Remaining components are not hazardous.			

EMERGENCY OVERVIEW
Black, brown or yellow aqueous sludge May cause skin and eye irritation Suspected carcinogenic components.

SECTION 3 -HAZARDS IDENTIFICATION

PRIMARY ROUTE(s) OF EXPOSURE: Skin; Eyes. Inhalation if Sludge is Dry

IRRITATION DATA: May cause irritation to skin and eyes and burns to skin with sunlight..

INHALATION:

ACUTE: Not a likely route of exposure in sludge state. Mist may cause respiratory irritation.

CHRONIC: Repeated and prolonged exposure may cause toxicity to the liver and blood. Suspected carcinogenicity .

SKIN CONTACT:

ACUTE: Prolonged and repeated contact may cause irritation. Contact in the presence of sunlight may enhance irritant effects leading to skin burns..

CHRONIC: Systemic toxicity. Suspected carcinogenicity.

EYE CONTACT:

ACUTE: May be irritating, resulting in tearing, reddening, and swelling.

CHRONIC: None known.

INGESTION:

ACUTE: May cause gastric irritation and disturbance.

CHRONIC: Chronic effects of phenanthrene ingestion include liver effects; chronic effects of pyrene ingestion include muscle contraction or spasticity and blood changes; effects of chronic fluoranthene ingestion include kidney, urethra, and bladder effects.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Persons with pre-existing skin disorders may be at increased risk from exposure.

SECTION 4 - EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove from exposure to fresh air immediately. If breathing has stopped, give artificial respiration. Oxygen may be given if breathing is difficult. Get medical attention.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap and water until no evidence of the chemical remains. Get medical attention if irritation develops.

EYE CONTACT: Flush thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower lids, until no evidence of the chemical remains. Get medical attention if irritation develops.

INGESTION: Do not induce vomiting. Treat symptomatically and supportively. Get medical attention if irritation develops.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: None	**FLAMMABLE LIMITS:**	**LEL:** Not applicable	**UEL:** Not applicable

AUTOIGNITION TEMPERATURE: Will not ignite as aqueous solution. If dried, will support combustion.

EXTINGUISHING MEDIA

Water spray, foam, or dry chemical powder. Carbon dioxide may be ineffective on large fires.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters should wear full protective NIOSH approved self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None Known.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Stop discharge and control spill to avoid discharge to the environment. Use wet vacuum to limit spreading and place in suitable container for further handling and disposal. For dry material avoid generation of dust, use limited wetting to prevent spreading and use wet vacuum. Place in metal drum for disposal.

SECTION 7 - HANDLING AND STORAGE

Handling: KEEP WET. Do not allow to dry. Place wet vacuum discharge in metal drum. Empty drum into settling pond tanks. Avoid prolonged or repeated skin contact. Observe good personal and industrial hygiene practices.

Storage: Do not freeze.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION

Where airborne concentrations may exceed guidelines for permissible air concentrations, choose a respirator in accordance with OSHA Respirator Standard 29 CFR 1910.134. (i.e. organic vapor and P100 cartridges, powered air hoods.

VENTILATION

Use general dilution or local exhaust ventilation to maintain exposure below the exposure limits.

PROTECTIVE GLOVES

Choose appropriate gloves in accordance with OSHA Personal Protective Equipment Standard 29 CFR 1910.132.

EYE PROTECTION:

Safety glasses with side shields or choose in accordance with OSHA 29 CFR 1910.133.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Appropriate protective clothing to minimize repeated and prolonged skin contact. (i.e. Sarnex or Coated Sarnex).

RECOMMENDED EXPOSURE LIMITS

OH&S, OSHA and ACGIH have not set exposure limits for this waste mixture.
See Section 2 for exposure guidelines for the components of this waste.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	100° C	**SPECIFIC GRAVITY**	> 1
pH	Not available	**FREEZING POINT**	0° C
VAPOR PRESSURE (mm Hg)	Same as Water	**SOFTENING POINT**	Not applicable
VAPOR DENSITY (Air = 1)	Not available	**EVAPORATION RATE**	Not applicable
SOLUBILITY IN WATER	PAHs low solubility		
SOLUBILITY	Dry material soluble in hydrocarbon solvents		
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Not available .		
APPEARANCE AND ODOR:	Black, Brown or Yellow Sludge.		

SECTION 10 - STABILITY AND REACTIVITY

STABILITY	**Unstable**		**Conditions to Avoid**
	Stable	X	None Known. Stable under normal temperature and pressure.

INCOMPATIBILITY (Materials to Avoid)

Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may release toxic and/or hazardous gases from dried sludge.

HAZARDOUS POLYMERIZATION	**May Occur**		**Conditions to Avoid**
	Will Not Occur	X	None known.

SECTION 11 - TOXICOLOGICAL INFORMATION

This waste sludge has not been tested for acute or chronic toxicity. The following data is for its components >1%:

Pyrene	Oral LD_{50} (mouse): 800 mg/kg Inhalation LC_{50} (rat): 170 mg/m^3
Fluoranthene	Oral LD_{50} (rat): 2 gm/kg Dermal LD_{50}(rabbit): 3180 mg/kg
Phenanthrene	Oral LD_{50} (mouse): 700 mg/kg

TARGET ORGANS: Skin and eyes

CARCINOGENICITY: Some low level PAH components have been identified as suspected carcinogens by IARC and ACGIH. These include benzo(a)anthracene, benzo(a)pyrene, benz(b,j&k)fluoranthene, and indeno(1,2,3-cd) pyrene.

TUMORIGENIC DATA (RTECS): Phenanthrene, Clclopenta (def) phenanthrene, Benzo fluoranthrene, Pyrene, and fluoranthene.

MUTAGEN DATA (RTECS): Phenanthrene, Cyclopenta (def) phenanthrene, Pyrene, Benzo fluoroanthrene, Fluoranthene, Benzo (ghi) fluoranthene.

OTHER EFFECTS:

PAHs contained in the sludge have the property of photoallergenicity. In the presence of sunlight, these materials have the capacity to irritate the skin to a much greater degree, possibility leading to skin burns, than exposure without sunlight.

SECTION 12 - ECOLOGICAL INFORMATION

Sludge has not been tested for ecotoxicity.

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable federal, provincial, and local environmental regulations. Residual solids may be present in any containers used to handle this sludge. Do not reuse for food, clothing or products for human or animal consumption.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME	TDG CLASSIFICATION	TDG UN/NA
Waste Type 97 Decantar Tank Tar Sludge	6.1 PG II	UN 9397

SECTION 15 - REGULATORY INFORMATION

OSHA: This material is classified as hazardous under OSHA regulations.

WHMS: This material is considered a D2A, D2B Controlled Product.
This material has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

IDL: The following components are on the Canadian Ingredient Disclosure List:

Pyrene
Fluoranthene
Benzanthracene
Phenanthrene
Indeno (1,2,3-cd) pyrene
Benzopyrene
Naphthalene
Anthacene

SARA Title III - Toxic chemicals list 40 CFR 372.65:

Pyrene
Naphthalene
Anthracene

CERCLA Toxic Chemicals List 40 CFR 302:

Pyrene	RQ: 5000 pounds
Fluoranthene	RQ: 100 pounds
Benzanthrcene	RQ: 10 pounds
Phenanthrene	RQ: 5000 pounds
Indeno (1,2,3-cd) pyrene	RQ: 100 pounds
Benzopyrene	RQ: 1 pound
Naphthalene	RQ: 100 pounds
Anthracene	RQ: 5000 pounds

RCRA Hazardous Waste Codes 40 CFR 261.24, 261.33 :

Fluoranthene	U120
Benzanthracene	U108
Indeno(1,2,3-cd)pyrene	U137
Benzopyrene	U022
Naphthalene	U165

SECTION 16 - OTHER INFORMATION

HMIS Ratings:

Health	2*
Flammability	1
Reactivity	0

where 0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

This MSDS was prepared by: CANCARB Health, Safety & Environment Department
Telephone Number (403) 527-1121

R: 45; 36/37/38
S: 36/37/39

The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. CANCARB makes no warranty, either express or implied, with respect to this information and disclaims all liability from reliance thereon.

SAFETY DATA SHEET

Revision Date 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Sodium Metal**

Cat No. : **S135-1LB; S206-1LB**

Synonyms Natrium.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
In contact with water releases flammable gases which may ignite spontaneously
Causes severe skin burns and eye damage



Precautionary Statements

Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from any possible contact with water, because of violent reaction and possible flash fire
Handle under inert gas. Protect from moisture
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a dry place. Store in a closed container
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Reacts violently with water

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Sodium	7440-23-5	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature 115 °C
Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	2	W

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions	See Section 12 for additional ecological information.
Methods for Containment and Clean Up	No information available.

7. Handling and storage

Handling	Ensure adequate ventilation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Light grey
Odor	Odorless
Odor Threshold	No information available

pH	
Melting Point/Range	98 °C
Boiling Point/Range	°C
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 440 °C
Vapor Density	No information available
Specific Gravity	0.9684 @ 20°C
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	115 °C
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Na
Molecular Weight	22.99

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium	7440-23-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

TDG
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

IATA
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

IMDG/IMO
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Sodium	X	X	-	231-132-9	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Sodium	X	10 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium	10 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 18-Jan-2018

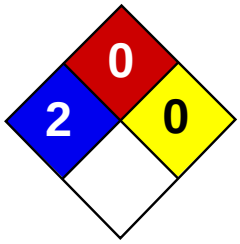
Print Date	18-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS





Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

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

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

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

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

Order Online: ScienceLab.com

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

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

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

Section 2: Composition and Information on Ingredients

Composition:

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

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

Section 3: Hazards Identification

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

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

Section 4: First Aid Measures

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

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

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

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

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

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

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

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

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

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

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

Section 7: Handling and Storage

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

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

Section 8: Exposure Controls/Personal Protection

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

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

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

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

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

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

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

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

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

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

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

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

Corrosivity: Non-corrosive in presence of glass.

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

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

Polymerization: Will not occur.

Section 11: Toxicological Information

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

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

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

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

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

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

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

Section 12: Ecological Information

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

BOD5 and COD: Not available.

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

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

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

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

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

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

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

Other Classifications:

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

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

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

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

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

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

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:29 PM

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

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

APPENDIX D –
LABORATORY DELIVERABLES

ANALYTICAL REPORT

Lab Number:	L1849431
Client:	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York City, NY 10001
ATTN:	Mohamed Ahmed
Phone:	(646) 606-2332
Project Name:	438 UNION AVE
Project Number:	438 UNION AVE
Report Date:	12/11/18

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Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1849431-01	SB-1 (0-2)	SOIL	BROOKLYN, NY	12/04/18 10:00	12/04/18
L1849431-02	SB-1 (10-12)	SOIL	BROOKLYN, NY	12/04/18 10:10	12/04/18
L1849431-03	SB-2 (0-2)	SOIL	BROOKLYN, NY	12/04/18 09:30	12/04/18
L1849431-04	SB-2 (10-12)	SOIL	BROOKLYN, NY	12/04/18 09:40	12/04/18
L1849431-05	SB-3 (0-2)	SOIL	BROOKLYN, NY	12/04/18 11:20	12/04/18
L1849431-06	SB-3 (10-12)	SOIL	BROOKLYN, NY	12/04/18 11:40	12/04/18
L1849431-07	SB-1 (10-12) DUP	SOIL	BROOKLYN, NY	12/04/18 10:05	12/04/18
L1849431-08	SB-4 (0-2)	SOIL	BROOKLYN, NY	12/04/18 12:30	12/04/18
L1849431-09	SB-4 (2-4)	SOIL	BROOKLYN, NY	12/04/18 12:35	12/04/18
L1849431-10	FIELD BLANK	WATER	BROOKLYN, NY	12/04/18 12:15	12/04/18
L1849431-11	TRIP BLANK	WATER	BROOKLYN, NY	12/04/18 00:00	12/04/18

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	438 UNION AVE	**Lab Number:**	L1849431
Project Number:	438 UNION AVE	**Report Date:**	12/11/18

Case Narrative (continued)

Report Submission

L1849431-11: The sample collection date was obtained from the sample label.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

Any reported concentrations that are below 200 ug/kg may be biased low due to the sample not being collected according to 5035-L/5035A-L low-level specifications.

Total Metals

L1849431-01 through -09: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

L1849431-10: The Field Blank has a concentration above the reporting limit for Calcium. The results were confirmed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Cristin Walker

Title: Technical Director/Representative Date: 12/11/18

ORGANICS

VOLATILES

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 12:23
Analyst: AD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	4.4	2.0	1
1,1-Dichloroethane	ND		ug/kg	0.87	0.13	1
Chloroform	ND		ug/kg	1.3	0.12	1
Carbon tetrachloride	ND		ug/kg	0.87	0.20	1
1,2-Dichloropropane	ND		ug/kg	0.87	0.11	1
Dibromochloromethane	ND		ug/kg	0.87	0.12	1
1,1,2-Trichloroethane	ND		ug/kg	0.87	0.23	1
Tetrachloroethene	ND		ug/kg	0.44	0.17	1
Chlorobenzene	ND		ug/kg	0.44	0.11	1
Trichlorofluoromethane	ND		ug/kg	3.5	0.60	1
1,2-Dichloroethane	ND		ug/kg	0.87	0.22	1
1,1,1-Trichloroethane	ND		ug/kg	0.44	0.14	1
Bromodichloromethane	ND		ug/kg	0.44	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.87	0.24	1
cis-1,3-Dichloropropene	ND		ug/kg	0.44	0.14	1
1,3-Dichloropropene, Total	ND		ug/kg	0.44	0.14	1
1,1-Dichloropropene	ND		ug/kg	0.44	0.14	1
Bromoform	ND		ug/kg	3.5	0.21	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.44	0.14	1
Benzene	ND		ug/kg	0.44	0.14	1
Toluene	ND		ug/kg	0.87	0.47	1
Ethylbenzene	ND		ug/kg	0.87	0.12	1
Chloromethane	ND		ug/kg	3.5	0.81	1
Bromomethane	ND		ug/kg	1.7	0.51	1
Vinyl chloride	ND		ug/kg	0.87	0.29	1
Chloroethane	ND		ug/kg	1.7	0.39	1
1,1-Dichloroethene	ND		ug/kg	0.87	0.21	1
trans-1,2-Dichloroethene	ND		ug/kg	1.3	0.12	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.44	0.12	1
1,2-Dichlorobenzene	ND		ug/kg	1.7	0.12	1
1,3-Dichlorobenzene	ND		ug/kg	1.7	0.13	1
1,4-Dichlorobenzene	ND		ug/kg	1.7	0.15	1
Methyl tert butyl ether	ND		ug/kg	1.7	0.18	1
p/m-Xylene	ND		ug/kg	1.7	0.49	1
o-Xylene	ND		ug/kg	0.87	0.25	1
Xylenes, Total	ND		ug/kg	0.87	0.25	1
cis-1,2-Dichloroethene	ND		ug/kg	0.87	0.15	1
1,2-Dichloroethene, Total	ND		ug/kg	0.87	0.12	1
Dibromomethane	ND		ug/kg	1.7	0.21	1
Styrene	ND		ug/kg	0.87	0.17	1
Dichlorodifluoromethane	ND		ug/kg	8.7	0.80	1
Acetone	ND		ug/kg	8.7	4.2	1
Carbon disulfide	ND		ug/kg	8.7	4.0	1
2-Butanone	ND		ug/kg	8.7	1.9	1
Vinyl acetate	ND		ug/kg	8.7	1.9	1
4-Methyl-2-pentanone	ND		ug/kg	8.7	1.1	1
1,2,3-Trichloropropane	ND		ug/kg	1.7	0.11	1
2-Hexanone	ND		ug/kg	8.7	1.0	1
Bromochloromethane	ND		ug/kg	1.7	0.18	1
2,2-Dichloropropane	ND		ug/kg	1.7	0.18	1
1,2-Dibromoethane	ND		ug/kg	0.87	0.24	1
1,3-Dichloropropane	ND		ug/kg	1.7	0.14	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.44	0.11	1
Bromobenzene	ND		ug/kg	1.7	0.13	1
n-Butylbenzene	ND		ug/kg	0.87	0.14	1
sec-Butylbenzene	ND		ug/kg	0.87	0.13	1
tert-Butylbenzene	ND		ug/kg	1.7	0.10	1
o-Chlorotoluene	ND		ug/kg	1.7	0.17	1
p-Chlorotoluene	ND		ug/kg	1.7	0.09	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.6	0.87	1
Hexachlorobutadiene	ND		ug/kg	3.5	0.15	1
Isopropylbenzene	ND		ug/kg	0.87	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.87	0.10	1
Naphthalene	ND		ug/kg	3.5	0.57	1
Acrylonitrile	ND		ug/kg	3.5	1.0	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.87	0.15	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.7	0.28	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.7	0.24	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.7	0.17	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.7	0.29	1
1,4-Dioxane	ND		ug/kg	87	30.	1
p-Diethylbenzene	ND		ug/kg	1.7	0.15	1
p-Ethyltoluene	ND		ug/kg	1.7	0.33	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.7	0.17	1
Ethyl ether	ND		ug/kg	1.7	0.30	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	4.4	1.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	107		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 12:49
Analyst: AD
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	5.8	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.14	1
Dibromochloromethane	ND		ug/kg	1.2	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.31	1
Tetrachloroethene	ND		ug/kg	0.58	0.23	1
Chlorobenzene	ND		ug/kg	0.58	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.6	0.81	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.58	0.19	1
Bromodichloromethane	ND		ug/kg	0.58	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.58	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.58	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.58	0.18	1
Bromoform	ND		ug/kg	4.6	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.58	0.19	1
Benzene	ND		ug/kg	0.58	0.19	1
Toluene	ND		ug/kg	1.2	0.63	1
Ethylbenzene	ND		ug/kg	1.2	0.16	1
Chloromethane	ND		ug/kg	4.6	1.1	1
Bromomethane	ND		ug/kg	2.3	0.68	1
Vinyl chloride	ND		ug/kg	1.2	0.39	1
Chloroethane	ND		ug/kg	2.3	0.52	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.7	0.16	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.58	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,4-Dichlorobenzene	ND		ug/kg	2.3	0.20	1
Methyl tert butyl ether	ND		ug/kg	2.3	0.23	1
p/m-Xylene	ND		ug/kg	2.3	0.65	1
o-Xylene	ND		ug/kg	1.2	0.34	1
Xylenes, Total	ND		ug/kg	1.2	0.34	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.20	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.3	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	ND		ug/kg	12	5.6	1
Carbon disulfide	ND		ug/kg	12	5.3	1
2-Butanone	ND		ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.5	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.3	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.3	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.3	0.23	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.32	1
1,3-Dichloropropane	ND		ug/kg	2.3	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.58	0.15	1
Bromobenzene	ND		ug/kg	2.3	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.19	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.3	0.14	1
o-Chlorotoluene	ND		ug/kg	2.3	0.22	1
p-Chlorotoluene	ND		ug/kg	2.3	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.5	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.6	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.6	0.76	1
Acrylonitrile	ND		ug/kg	4.6	1.3	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.2	0.20	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.3	0.37	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.3	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.3	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.3	0.39	1
1,4-Dioxane	ND		ug/kg	120	41.	1
p-Diethylbenzene	ND		ug/kg	2.3	0.20	1
p-Ethyltoluene	ND		ug/kg	2.3	0.45	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.3	0.22	1
Ethyl ether	ND		ug/kg	2.3	0.40	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.8	1.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	111		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 13:15
Analyst: AD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.21	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.73	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.18	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.17	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.57	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.98	1
Bromomethane	ND		ug/kg	2.1	0.61	1
Vinyl chloride	ND		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.48	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	ND		ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.59	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.21	1
Dichlorodifluoromethane	ND		ug/kg	10	0.96	1
Acetone	ND		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.8	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.18	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
Acrylonitrile	ND		ug/kg	4.2	1.2	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.0	0.18	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	100	37.	1
p-Diethylbenzene	ND		ug/kg	2.1	0.19	1
p-Ethyltoluene	ND		ug/kg	2.1	0.40	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.1	0.20	1
Ethyl ether	ND		ug/kg	2.1	0.36	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.2	1.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 13:40
Analyst: AD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.97	0.14	1
Chloroform	ND		ug/kg	1.4	0.14	1
Carbon tetrachloride	ND		ug/kg	0.97	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.97	0.12	1
Dibromochloromethane	ND		ug/kg	0.97	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	0.97	0.26	1
Tetrachloroethene	ND		ug/kg	0.48	0.19	1
Chlorobenzene	ND		ug/kg	0.48	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.9	0.67	1
1,2-Dichloroethane	ND		ug/kg	0.97	0.25	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	0.16	1
Bromodichloromethane	ND		ug/kg	0.48	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.97	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.48	0.15	1
Bromoform	ND		ug/kg	3.9	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	0.16	1
Benzene	ND		ug/kg	0.48	0.16	1
Toluene	ND		ug/kg	0.97	0.52	1
Ethylbenzene	ND		ug/kg	0.97	0.14	1
Chloromethane	ND		ug/kg	3.9	0.90	1
Bromomethane	ND		ug/kg	1.9	0.56	1
Vinyl chloride	ND		ug/kg	0.97	0.32	1
Chloroethane	ND		ug/kg	1.9	0.44	1
1,1-Dichloroethene	ND		ug/kg	0.97	0.23	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.13	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.48	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	ND		ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.54	1
o-Xylene	ND		ug/kg	0.97	0.28	1
Xylenes, Total	ND		ug/kg	0.97	0.28	1
cis-1,2-Dichloroethene	ND		ug/kg	0.97	0.17	1
1,2-Dichloroethene, Total	ND		ug/kg	0.97	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.23	1
Styrene	ND		ug/kg	0.97	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.7	0.88	1
Acetone	ND		ug/kg	9.7	4.6	1
Carbon disulfide	ND		ug/kg	9.7	4.4	1
2-Butanone	ND		ug/kg	9.7	2.1	1
Vinyl acetate	ND		ug/kg	9.7	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	9.7	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.7	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.20	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.20	1
1,2-Dibromoethane	ND		ug/kg	0.97	0.27	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	0.13	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.97	0.16	1
sec-Butylbenzene	ND		ug/kg	0.97	0.14	1
tert-Butylbenzene	ND		ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	0.97	1
Hexachlorobutadiene	ND		ug/kg	3.9	0.16	1
Isopropylbenzene	ND		ug/kg	0.97	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.97	0.10	1
Naphthalene	ND		ug/kg	3.9	0.63	1
Acrylonitrile	ND		ug/kg	3.9	1.1	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.97	0.16	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.31	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.32	1
1,4-Dioxane	ND		ug/kg	97	34.	1
p-Diethylbenzene	ND		ug/kg	1.9	0.17	1
p-Ethyltoluene	ND		ug/kg	1.9	0.37	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.9	0.18	1
Ethyl ether	ND		ug/kg	1.9	0.33	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	4.8	1.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	103		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 14:06
Analyst: AD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	3.2	1.4	1
1,1-Dichloroethane	ND		ug/kg	0.63	0.09	1
Chloroform	ND		ug/kg	0.94	0.09	1
Carbon tetrachloride	ND		ug/kg	0.63	0.14	1
1,2-Dichloropropane	ND		ug/kg	0.63	0.08	1
Dibromochloromethane	ND		ug/kg	0.63	0.09	1
1,1,2-Trichloroethane	ND		ug/kg	0.63	0.17	1
Tetrachloroethene	ND		ug/kg	0.32	0.12	1
Chlorobenzene	ND		ug/kg	0.32	0.08	1
Trichlorofluoromethane	ND		ug/kg	2.5	0.44	1
1,2-Dichloroethane	ND		ug/kg	0.63	0.16	1
1,1,1-Trichloroethane	ND		ug/kg	0.32	0.10	1
Bromodichloromethane	ND		ug/kg	0.32	0.07	1
trans-1,3-Dichloropropene	ND		ug/kg	0.63	0.17	1
cis-1,3-Dichloropropene	ND		ug/kg	0.32	0.10	1
1,3-Dichloropropene, Total	ND		ug/kg	0.32	0.10	1
1,1-Dichloropropene	ND		ug/kg	0.32	0.10	1
Bromoform	ND		ug/kg	2.5	0.16	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.32	0.10	1
Benzene	ND		ug/kg	0.32	0.10	1
Toluene	ND		ug/kg	0.63	0.34	1
Ethylbenzene	ND		ug/kg	0.63	0.09	1
Chloromethane	ND		ug/kg	2.5	0.59	1
Bromomethane	ND		ug/kg	1.3	0.37	1
Vinyl chloride	ND		ug/kg	0.63	0.21	1
Chloroethane	ND		ug/kg	1.3	0.28	1
1,1-Dichloroethene	ND		ug/kg	0.63	0.15	1
trans-1,2-Dichloroethene	ND		ug/kg	0.94	0.09	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.32	0.09	1
1,2-Dichlorobenzene	ND		ug/kg	1.3	0.09	1
1,3-Dichlorobenzene	ND		ug/kg	1.3	0.09	1
1,4-Dichlorobenzene	ND		ug/kg	1.3	0.11	1
Methyl tert butyl ether	ND		ug/kg	1.3	0.13	1
p/m-Xylene	ND		ug/kg	1.3	0.35	1
o-Xylene	ND		ug/kg	0.63	0.18	1
Xylenes, Total	ND		ug/kg	0.63	0.18	1
cis-1,2-Dichloroethene	ND		ug/kg	0.63	0.11	1
1,2-Dichloroethene, Total	ND		ug/kg	0.63	0.09	1
Dibromomethane	ND		ug/kg	1.3	0.15	1
Styrene	ND		ug/kg	0.63	0.12	1
Dichlorodifluoromethane	ND		ug/kg	6.3	0.58	1
Acetone	ND		ug/kg	6.3	3.0	1
Carbon disulfide	ND		ug/kg	6.3	2.9	1
2-Butanone	ND		ug/kg	6.3	1.4	1
Vinyl acetate	ND		ug/kg	6.3	1.4	1
4-Methyl-2-pentanone	ND		ug/kg	6.3	0.81	1
1,2,3-Trichloropropane	ND		ug/kg	1.3	0.08	1
2-Hexanone	ND		ug/kg	6.3	0.74	1
Bromochloromethane	ND		ug/kg	1.3	0.13	1
2,2-Dichloropropane	ND		ug/kg	1.3	0.13	1
1,2-Dibromoethane	ND		ug/kg	0.63	0.18	1
1,3-Dichloropropane	ND		ug/kg	1.3	0.10	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.32	0.08	1
Bromobenzene	ND		ug/kg	1.3	0.09	1
n-Butylbenzene	ND		ug/kg	0.63	0.10	1
sec-Butylbenzene	ND		ug/kg	0.63	0.09	1
tert-Butylbenzene	ND		ug/kg	1.3	0.07	1
o-Chlorotoluene	ND		ug/kg	1.3	0.12	1
p-Chlorotoluene	ND		ug/kg	1.3	0.07	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	1.9	0.63	1
Hexachlorobutadiene	ND		ug/kg	2.5	0.11	1
Isopropylbenzene	ND		ug/kg	0.63	0.07	1
p-Isopropyltoluene	ND		ug/kg	0.63	0.07	1
Naphthalene	0.81	J	ug/kg	2.5	0.41	1
Acrylonitrile	ND		ug/kg	2.5	0.72	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.63	0.11	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.3	0.20	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.3	0.17	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.3	0.12	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.3	0.21	1
1,4-Dioxane	ND		ug/kg	63	22.	1
p-Diethylbenzene	ND		ug/kg	1.3	0.11	1
p-Ethyltoluene	ND		ug/kg	1.3	0.24	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.3	0.12	1
Ethyl ether	ND		ug/kg	1.3	0.21	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	3.2	0.90	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	103		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 14:32
Analyst: AD
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	4.5	2.1	1
1,1-Dichloroethane	ND		ug/kg	0.90	0.13	1
Chloroform	ND		ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.90	0.21	1
1,2-Dichloropropane	ND		ug/kg	0.90	0.11	1
Dibromochloromethane	ND		ug/kg	0.90	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.90	0.24	1
Tetrachloroethene	ND		ug/kg	0.45	0.18	1
Chlorobenzene	ND		ug/kg	0.45	0.11	1
Trichlorofluoromethane	ND		ug/kg	3.6	0.63	1
1,2-Dichloroethane	ND		ug/kg	0.90	0.23	1
1,1,1-Trichloroethane	ND		ug/kg	0.45	0.15	1
Bromodichloromethane	ND		ug/kg	0.45	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.90	0.25	1
cis-1,3-Dichloropropene	ND		ug/kg	0.45	0.14	1
1,3-Dichloropropene, Total	ND		ug/kg	0.45	0.14	1
1,1-Dichloropropene	ND		ug/kg	0.45	0.14	1
Bromoform	ND		ug/kg	3.6	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.45	0.15	1
Benzene	ND		ug/kg	0.45	0.15	1
Toluene	ND		ug/kg	0.90	0.49	1
Ethylbenzene	ND		ug/kg	0.90	0.13	1
Chloromethane	ND		ug/kg	3.6	0.84	1
Bromomethane	ND		ug/kg	1.8	0.52	1
Vinyl chloride	ND		ug/kg	0.90	0.30	1
Chloroethane	ND		ug/kg	1.8	0.41	1
1,1-Dichloroethene	ND		ug/kg	0.90	0.22	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.12	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.45	0.12	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	0.15	1
Methyl tert butyl ether	ND		ug/kg	1.8	0.18	1
p/m-Xylene	ND		ug/kg	1.8	0.51	1
o-Xylene	ND		ug/kg	0.90	0.26	1
Xylenes, Total	ND		ug/kg	0.90	0.26	1
cis-1,2-Dichloroethene	ND		ug/kg	0.90	0.16	1
1,2-Dichloroethene, Total	ND		ug/kg	0.90	0.12	1
Dibromomethane	ND		ug/kg	1.8	0.22	1
Styrene	ND		ug/kg	0.90	0.18	1
Dichlorodifluoromethane	ND		ug/kg	9.0	0.83	1
Acetone	ND		ug/kg	9.0	4.3	1
Carbon disulfide	ND		ug/kg	9.0	4.1	1
2-Butanone	ND		ug/kg	9.0	2.0	1
Vinyl acetate	ND		ug/kg	9.0	1.9	1
4-Methyl-2-pentanone	ND		ug/kg	9.0	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	0.11	1
2-Hexanone	ND		ug/kg	9.0	1.1	1
Bromochloromethane	ND		ug/kg	1.8	0.18	1
2,2-Dichloropropane	ND		ug/kg	1.8	0.18	1
1,2-Dibromoethane	ND		ug/kg	0.90	0.25	1
1,3-Dichloropropane	ND		ug/kg	1.8	0.15	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.45	0.12	1
Bromobenzene	ND		ug/kg	1.8	0.13	1
n-Butylbenzene	ND		ug/kg	0.90	0.15	1
sec-Butylbenzene	ND		ug/kg	0.90	0.13	1
tert-Butylbenzene	ND		ug/kg	1.8	0.11	1
o-Chlorotoluene	ND		ug/kg	1.8	0.17	1
p-Chlorotoluene	ND		ug/kg	1.8	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.7	0.90	1
Hexachlorobutadiene	ND		ug/kg	3.6	0.15	1
Isopropylbenzene	ND		ug/kg	0.90	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.90	0.10	1
Naphthalene	ND		ug/kg	3.6	0.59	1
Acrylonitrile	ND		ug/kg	3.6	1.0	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.90	0.15	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	0.29	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	0.24	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	0.17	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	0.30	1
1,4-Dioxane	ND		ug/kg	90	32.	1
p-Diethylbenzene	ND		ug/kg	1.8	0.16	1
p-Ethyltoluene	ND		ug/kg	1.8	0.35	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.8	0.17	1
Ethyl ether	ND		ug/kg	1.8	0.31	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	4.5	1.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	107		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 14:59
Analyst: AD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	5.4	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	7.2		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.59	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.63	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	ND		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	18		ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	0.50	J	ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
Acrylonitrile	ND		ug/kg	4.4	1.2	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.1	0.19	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	110	38.	1
p-Diethylbenzene	ND		ug/kg	2.2	0.19	1
p-Ethyltoluene	ND		ug/kg	2.2	0.42	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.2	0.21	1
Ethyl ether	ND		ug/kg	2.2	0.37	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.4	1.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	107		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 15:25
Analyst: AD
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	3.6	1.7	1
1,1-Dichloroethane	ND		ug/kg	0.73	0.10	1
Chloroform	ND		ug/kg	1.1	0.10	1
Carbon tetrachloride	ND		ug/kg	0.73	0.17	1
1,2-Dichloropropane	ND		ug/kg	0.73	0.09	1
Dibromochloromethane	ND		ug/kg	0.73	0.10	1
1,1,2-Trichloroethane	ND		ug/kg	0.73	0.19	1
Tetrachloroethene	ND		ug/kg	0.36	0.14	1
Chlorobenzene	ND		ug/kg	0.36	0.09	1
Trichlorofluoromethane	ND		ug/kg	2.9	0.51	1
1,2-Dichloroethane	ND		ug/kg	0.73	0.19	1
1,1,1-Trichloroethane	ND		ug/kg	0.36	0.12	1
Bromodichloromethane	ND		ug/kg	0.36	0.08	1
trans-1,3-Dichloropropene	ND		ug/kg	0.73	0.20	1
cis-1,3-Dichloropropene	ND		ug/kg	0.36	0.12	1
1,3-Dichloropropene, Total	ND		ug/kg	0.36	0.12	1
1,1-Dichloropropene	ND		ug/kg	0.36	0.12	1
Bromoform	ND		ug/kg	2.9	0.18	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.36	0.12	1
Benzene	ND		ug/kg	0.36	0.12	1
Toluene	ND		ug/kg	0.73	0.40	1
Ethylbenzene	ND		ug/kg	0.73	0.10	1
Chloromethane	ND		ug/kg	2.9	0.68	1
Bromomethane	ND		ug/kg	1.4	0.42	1
Vinyl chloride	ND		ug/kg	0.73	0.24	1
Chloroethane	ND		ug/kg	1.4	0.33	1
1,1-Dichloroethene	ND		ug/kg	0.73	0.17	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	0.10	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.36	0.10	1
1,2-Dichlorobenzene	ND		ug/kg	1.4	0.10	1
1,3-Dichlorobenzene	ND		ug/kg	1.4	0.11	1
1,4-Dichlorobenzene	ND		ug/kg	1.4	0.12	1
Methyl tert butyl ether	ND		ug/kg	1.4	0.15	1
p/m-Xylene	ND		ug/kg	1.4	0.41	1
o-Xylene	ND		ug/kg	0.73	0.21	1
Xylenes, Total	ND		ug/kg	0.73	0.21	1
cis-1,2-Dichloroethene	ND		ug/kg	0.73	0.13	1
1,2-Dichloroethene, Total	ND		ug/kg	0.73	0.10	1
Dibromomethane	ND		ug/kg	1.4	0.17	1
Styrene	ND		ug/kg	0.73	0.14	1
Dichlorodifluoromethane	ND		ug/kg	7.3	0.67	1
Acetone	ND		ug/kg	7.3	3.5	1
Carbon disulfide	ND		ug/kg	7.3	3.3	1
2-Butanone	ND		ug/kg	7.3	1.6	1
Vinyl acetate	ND		ug/kg	7.3	1.6	1
4-Methyl-2-pentanone	ND		ug/kg	7.3	0.93	1
1,2,3-Trichloropropane	ND		ug/kg	1.4	0.09	1
2-Hexanone	ND		ug/kg	7.3	0.86	1
Bromochloromethane	ND		ug/kg	1.4	0.15	1
2,2-Dichloropropane	ND		ug/kg	1.4	0.15	1
1,2-Dibromoethane	ND		ug/kg	0.73	0.20	1
1,3-Dichloropropane	ND		ug/kg	1.4	0.12	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.36	0.10	1
Bromobenzene	ND		ug/kg	1.4	0.10	1
n-Butylbenzene	ND		ug/kg	0.73	0.12	1
sec-Butylbenzene	ND		ug/kg	0.73	0.11	1
tert-Butylbenzene	ND		ug/kg	1.4	0.09	1
o-Chlorotoluene	ND		ug/kg	1.4	0.14	1
p-Chlorotoluene	ND		ug/kg	1.4	0.08	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	0.73	1
Hexachlorobutadiene	ND		ug/kg	2.9	0.12	1
Isopropylbenzene	ND		ug/kg	0.73	0.08	1
p-Isopropyltoluene	ND		ug/kg	0.73	0.08	1
Naphthalene	ND		ug/kg	2.9	0.47	1
Acrylonitrile	ND		ug/kg	2.9	0.84	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.73	0.12	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.4	0.23	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.4	0.20	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.4	0.14	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.4	0.24	1
1,4-Dioxane	ND		ug/kg	73	26.	1
p-Diethylbenzene	ND		ug/kg	1.4	0.13	1
p-Ethyltoluene	ND		ug/kg	1.4	0.28	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.4	0.14	1
Ethyl ether	ND		ug/kg	1.4	0.25	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	3.6	1.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	103		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 12/10/18 15:51
Analyst: AD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	5.8	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.16	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.14	1
Dibromochloromethane	ND		ug/kg	1.2	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.31	1
Tetrachloroethene	ND		ug/kg	0.58	0.23	1
Chlorobenzene	ND		ug/kg	0.58	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.7	0.81	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.58	0.19	1
Bromodichloromethane	ND		ug/kg	0.58	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.58	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.58	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.58	0.18	1
Bromoform	ND		ug/kg	4.7	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.58	0.19	1
Benzene	ND		ug/kg	0.58	0.19	1
Toluene	ND		ug/kg	1.2	0.63	1
Ethylbenzene	ND		ug/kg	1.2	0.16	1
Chloromethane	ND		ug/kg	4.7	1.1	1
Bromomethane	ND		ug/kg	2.3	0.68	1
Vinyl chloride	ND		ug/kg	1.2	0.39	1
Chloroethane	ND		ug/kg	2.3	0.53	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.16	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.58	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,4-Dichlorobenzene	ND		ug/kg	2.3	0.20	1
Methyl tert butyl ether	ND		ug/kg	2.3	0.23	1
p/m-Xylene	ND		ug/kg	2.3	0.65	1
o-Xylene	ND		ug/kg	1.2	0.34	1
Xylenes, Total	ND		ug/kg	1.2	0.34	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.20	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.3	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	ND		ug/kg	12	5.6	1
Carbon disulfide	ND		ug/kg	12	5.3	1
2-Butanone	ND		ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.5	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.3	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.3	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.3	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.32	1
1,3-Dichloropropane	ND		ug/kg	2.3	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.58	0.15	1
Bromobenzene	ND		ug/kg	2.3	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.19	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.3	0.14	1
o-Chlorotoluene	ND		ug/kg	2.3	0.22	1
p-Chlorotoluene	ND		ug/kg	2.3	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.5	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.7	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.7	0.76	1
Acrylonitrile	ND		ug/kg	4.7	1.3	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.2	0.20	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.3	0.38	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.3	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.3	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.3	0.39	1
1,4-Dioxane	ND		ug/kg	120	41.	1
p-Diethylbenzene	ND		ug/kg	2.3	0.21	1
p-Ethyltoluene	ND		ug/kg	2.3	0.45	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.3	0.22	1
Ethyl ether	ND		ug/kg	2.3	0.40	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.8	1.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	100		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/07/18 02:19
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-11
Client ID: TRIP BLANK
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 00:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/07/18 02:48
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-11
Client ID: TRIP BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 00:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-11
Client ID: TRIP BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 00:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	98		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/06/18 20:15
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1186809-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/06/18 20:15
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1186809-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Acrylonitrile	ND		ug/l	5.0	1.5
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/06/18 20:15
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1186809-5					
o-Chlorotoluene	ND		ug/l	2.5	0.70
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.
p-Diethylbenzene	ND		ug/l	2.0	0.70
p-Ethyltoluene	ND		ug/l	2.0	0.70
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54
Ethyl ether	ND		ug/l	2.5	0.70
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	97		70-130

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 08:55
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1187527-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	ND		ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 08:55
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1187527-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 08:55
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1187527-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
Acrylonitrile	ND		ug/kg	4.0	1.2
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	100	35.
p-Diethylbenzene	ND		ug/kg	2.0	0.18
p-Ethyltoluene	ND		ug/kg	2.0	0.38
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.0	0.19
Ethyl ether	ND		ug/kg	2.0	0.34
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	1.4

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1186809-3 WG1186809-4								
Methylene chloride	98		91		70-130	7		20
1,1-Dichloroethane	100		91		70-130	9		20
Chloroform	100		92		70-130	8		20
Carbon tetrachloride	100		89		63-132	12		20
1,2-Dichloropropane	96		89		70-130	8		20
Dibromochloromethane	90		86		63-130	5		20
1,1,2-Trichloroethane	97		92		70-130	5		20
Tetrachloroethene	100		91		70-130	9		20
Chlorobenzene	100		91		75-130	9		20
Trichlorofluoromethane	100		87		62-150	14		20
1,2-Dichloroethane	96		90		70-130	6		20
1,1,1-Trichloroethane	100		90		67-130	11		20
Bromodichloromethane	92		85		67-130	8		20
trans-1,3-Dichloropropene	87		84		70-130	4		20
cis-1,3-Dichloropropene	92		88		70-130	4		20
1,1-Dichloropropene	100		90		70-130	11		20
Bromoform	84		79		54-136	6		20
1,1,2,2-Tetrachloroethane	92		90		67-130	2		20
Benzene	98		89		70-130	10		20
Toluene	100		91		70-130	9		20
Ethylbenzene	100		90		70-130	11		20
Chloromethane	86		75		64-130	14		20
Bromomethane	60		57		39-139	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1186809-3 WG1186809-4								
Vinyl chloride	110		99		55-140	11		20
Chloroethane	120		110		55-138	9		20
1,1-Dichloroethene	100		92		61-145	8		20
trans-1,2-Dichloroethene	110		94		70-130	16		20
Trichloroethene	100		90		70-130	11		20
1,2-Dichlorobenzene	98		88		70-130	11		20
1,3-Dichlorobenzene	100		90		70-130	11		20
1,4-Dichlorobenzene	100		90		70-130	11		20
Methyl tert butyl ether	95		94		63-130	1		20
p/m-Xylene	105		95		70-130	10		20
o-Xylene	100		90		70-130	11		20
cis-1,2-Dichloroethene	100		93		70-130	7		20
Dibromomethane	93		88		70-130	6		20
1,2,3-Trichloropropane	92		90		64-130	2		20
Acrylonitrile	91		94		70-130	3		20
Styrene	90		85		70-130	6		20
Dichlorodifluoromethane	79		67		36-147	16		20
Acetone	**51**	Q	65		58-148	**24**	Q	20
Carbon disulfide	100		88		51-130	13		20
2-Butanone	75		82		63-138	9		20
Vinyl acetate	85		83		70-130	2		20
4-Methyl-2-pentanone	80		80		59-130	0		20
2-Hexanone	68		76		57-130	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1186809-3 WG1186809-4								
Bromochloromethane	100		94		70-130	6		20
2,2-Dichloropropane	110		95		63-133	15		20
1,2-Dibromoethane	92		88		70-130	4		20
1,3-Dichloropropane	96		91		70-130	5		20
1,1,1,2-Tetrachloroethane	95		90		64-130	5		20
Bromobenzene	98		89		70-130	10		20
n-Butylbenzene	100		87		53-136	14		20
sec-Butylbenzene	100		89		70-130	12		20
tert-Butylbenzene	100		88		70-130	13		20
o-Chlorotoluene	84		88		70-130	5		20
p-Chlorotoluene	99		87		70-130	13		20
1,2-Dibromo-3-chloropropane	77		76		41-144	1		20
Hexachlorobutadiene	80		71		63-130	12		20
Isopropylbenzene	100		89		70-130	12		20
p-Isopropyltoluene	100		87		70-130	14		20
Naphthalene	83		82		70-130	1		20
n-Propylbenzene	100		89		69-130	12		20
1,2,3-Trichlorobenzene	87		84		70-130	4		20
1,2,4-Trichlorobenzene	91		85		70-130	7		20
1,3,5-Trimethylbenzene	100		89		64-130	12		20
1,2,4-Trimethylbenzene	100		88		70-130	13		20
1,4-Dioxane	**48**	Q	76		56-162	**45**	Q	20
p-Diethylbenzene	99		87		70-130	13		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1186809-3 WG1186809-4								
p-Ethyltoluene	100		91		70-130	9		20
1,2,4,5-Tetramethylbenzene	93		83		70-130	11		20
Ethyl ether	97		94		59-134	3		20
trans-1,4-Dichloro-2-butene	**54**	Q	**56**	Q	70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		97		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1187527-3 WG1187527-4								
Methylene chloride	90		93		70-130	3		30
1,1-Dichloroethane	95		96		70-130	1		30
Chloroform	103		105		70-130	2		30
Carbon tetrachloride	126		**135**	Q	70-130	7		30
1,2-Dichloropropane	84		87		70-130	4		30
Dibromochloromethane	106		110		70-130	4		30
1,1,2-Trichloroethane	91		91		70-130	0		30
Tetrachloroethene	114		120		70-130	5		30
Chlorobenzene	97		102		70-130	5		30
Trichlorofluoromethane	124		130		70-139	5		30
1,2-Dichloroethane	108		108		70-130	0		30
1,1,1-Trichloroethane	118		124		70-130	5		30
Bromodichloromethane	106		109		70-130	3		30
trans-1,3-Dichloropropene	101		104		70-130	3		30
cis-1,3-Dichloropropene	96		95		70-130	1		30
1,1-Dichloropropene	100		108		70-130	8		30
Bromoform	108		112		70-130	4		30
1,1,2,2-Tetrachloroethane	91		87		70-130	4		30
Benzene	92		95		70-130	3		30
Toluene	96		102		70-130	6		30
Ethylbenzene	98		103		70-130	5		30
Chloromethane	95		97		52-130	2		30
Bromomethane	120		117		57-147	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1187527-3 WG1187527-4								
Vinyl chloride	109		111		67-130	2		30
Chloroethane	114		119		50-151	4		30
1,1-Dichloroethene	101		106		65-135	5		30
trans-1,2-Dichloroethene	102		104		70-130	2		30
Trichloroethene	101		104		70-130	3		30
1,2-Dichlorobenzene	102		104		70-130	2		30
1,3-Dichlorobenzene	102		106		70-130	4		30
1,4-Dichlorobenzene	103		105		70-130	2		30
Methyl tert butyl ether	102		95		66-130	7		30
p/m-Xylene	100		107		70-130	7		30
o-Xylene	99		103		70-130	4		30
cis-1,2-Dichloroethene	96		100		70-130	4		30
Dibromomethane	102		105		70-130	3		30
Styrene	99		104		70-130	5		30
Dichlorodifluoromethane	132		136		30-146	3		30
Acetone	97		100		54-140	3		30
Carbon disulfide	91		93		59-130	2		30
2-Butanone	89		79		70-130	12		30
Vinyl acetate	93		88		70-130	6		30
4-Methyl-2-pentanone	80		77		70-130	4		30
1,2,3-Trichloropropane	97		94		68-130	3		30
2-Hexanone	83		76		70-130	9		30
Bromochloromethane	101		105		70-130	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1187527-3 WG1187527-4								
2,2-Dichloropropane	112		112		70-130	0		30
1,2-Dibromoethane	99		102		70-130	3		30
1,3-Dichloropropane	93		95		69-130	2		30
1,1,1,2-Tetrachloroethane	108		113		70-130	5		30
Bromobenzene	102		105		70-130	3		30
n-Butylbenzene	97		103		70-130	6		30
sec-Butylbenzene	100		105		70-130	5		30
tert-Butylbenzene	102		107		70-130	5		30
o-Chlorotoluene	98		101		70-130	3		30
p-Chlorotoluene	97		102		70-130	5		30
1,2-Dibromo-3-chloropropane	94		93		68-130	1		30
Hexachlorobutadiene	108		123		67-130	13		30
Isopropylbenzene	97		104		70-130	7		30
p-Isopropyltoluene	104		108		70-130	4		30
Naphthalene	97		99		70-130	2		30
Acrylonitrile	83		76		70-130	9		30
n-Propylbenzene	96		100		70-130	4		30
1,2,3-Trichlorobenzene	103		107		70-130	4		30
1,2,4-Trichlorobenzene	108		114		70-130	5		30
1,3,5-Trimethylbenzene	100		106		70-130	6		30
1,2,4-Trimethylbenzene	101		105		70-130	4		30
1,4-Dioxane	86		83		65-136	4		30
p-Diethylbenzene	101		104		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1187527-3 WG1187527-4								
p-Ethyltoluene	99		104		70-130	5		30
1,2,4,5-Tetramethylbenzene	101		112		70-130	10		30
Ethyl ether	95		95		67-130	0		30
trans-1,4-Dichloro-2-butene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	118		114		70-130
Toluene-d8	99		102		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	107		107		70-130

SEMIVOLATILES

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 11:42
Analyst: SZ
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	33.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	51.	1
2,4-Dinitrotoluene	ND		ug/kg	190	38.	1
2,6-Dinitrotoluene	ND		ug/kg	190	33.	1
Fluoranthene	53	J	ug/kg	110	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	29.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	33.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	550	170	1
Hexachloroethane	ND		ug/kg	150	31.	1
Isophorone	ND		ug/kg	170	25.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	30.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	66.	1
Butyl benzyl phthalate	ND		ug/kg	190	48.	1
Di-n-butylphthalate	ND		ug/kg	190	36.	1
Di-n-octylphthalate	ND		ug/kg	190	65.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	40.	1
Benzo(a)anthracene	63	J	ug/kg	110	22.	1
Benzo(a)pyrene	75	J	ug/kg	150	47.	1
Benzo(b)fluoranthene	90	J	ug/kg	110	32.	1
Benzo(k)fluoranthene	38	J	ug/kg	110	31.	1
Chrysene	63	J	ug/kg	110	20.	1
Acenaphthylene	ND		ug/kg	150	30.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	52	J	ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	56	J	ug/kg	150	27.	1
Pyrene	53	J	ug/kg	110	19.	1
Biphenyl	ND		ug/kg	440	44.	1
4-Chloroaniline	ND		ug/kg	190	35.	1
2-Nitroaniline	ND		ug/kg	190	37.	1
3-Nitroaniline	ND		ug/kg	190	36.	1
4-Nitroaniline	ND		ug/kg	190	79.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	230	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	36.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	23.	1
2,4-Dichlorophenol	ND		ug/kg	170	31.	1
2,4-Dimethylphenol	ND		ug/kg	190	63.	1
2-Nitrophenol	ND		ug/kg	410	72.	1
4-Nitrophenol	ND		ug/kg	270	78.	1
2,4-Dinitrophenol	ND		ug/kg	920	89.	1
4,6-Dinitro-o-cresol	ND		ug/kg	500	92.	1
Pentachlorophenol	ND		ug/kg	150	42.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	30.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	280	30.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	37.	1
Benzoic Acid	ND		ug/kg	620	190	1
Benzyl Alcohol	ND		ug/kg	190	58.	1
Carbazole	ND		ug/kg	190	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	76		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	62		30-120
2,4,6-Tribromophenol	66		10-136
4-Terphenyl-d14	42		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 12:08
Analyst: SZ
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	33.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	38.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	ND		ug/kg	110	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	29.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	540	170	1
Hexachloroethane	ND		ug/kg	150	31.	1
Isophorone	ND		ug/kg	170	25.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	66.	1
Butyl benzyl phthalate	ND		ug/kg	190	48.	1
Di-n-butylphthalate	ND		ug/kg	190	36.	1
Di-n-octylphthalate	ND		ug/kg	190	64.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	40.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	20.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	ND		ug/kg	110	19.	1
Biphenyl	ND		ug/kg	430	44.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	36.	1
4-Nitroaniline	ND		ug/kg	190	78.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	230	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	36.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	62.	1
2-Nitrophenol	ND		ug/kg	410	71.	1
4-Nitrophenol	ND		ug/kg	260	77.	1
2,4-Dinitrophenol	ND		ug/kg	910	88.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	91.	1
Pentachlorophenol	ND		ug/kg	150	42.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	30.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	610	190	1
Benzyl Alcohol	ND		ug/kg	190	58.	1
Carbazole	ND		ug/kg	190	18.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	73		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	62		30-120
2,4,6-Tribromophenol	70		10-136
4-Terphenyl-d14	51		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 12:34
Analyst: SZ
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	21.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	23.	1
Hexachlorobenzene	ND		ug/kg	120	23.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	28.	1
2-Chloronaphthalene	ND		ug/kg	200	20.	1
1,2-Dichlorobenzene	ND		ug/kg	200	37.	1
1,3-Dichlorobenzene	ND		ug/kg	200	35.	1
1,4-Dichlorobenzene	ND		ug/kg	200	36.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	54.	1
2,4-Dinitrotoluene	ND		ug/kg	200	41.	1
2,6-Dinitrotoluene	ND		ug/kg	200	35.	1
Fluoranthene	ND		ug/kg	120	24.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	22.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	31.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	35.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	220	20.	1
Hexachlorobutadiene	ND		ug/kg	200	30.	1
Hexachlorocyclopentadiene	ND		ug/kg	590	180	1
Hexachloroethane	ND		ug/kg	160	33.	1
Isophorone	ND		ug/kg	180	27.	1
Naphthalene	ND		ug/kg	200	25.	1
Nitrobenzene	ND		ug/kg	180	30.	1
NDPA/DPA	ND		ug/kg	160	23.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	32.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	200	71.	1
Butyl benzyl phthalate	ND		ug/kg	200	52.	1
Di-n-butylphthalate	ND		ug/kg	200	39.	1
Di-n-octylphthalate	ND		ug/kg	200	70.	1

Project Name: 438 UNION AVE **Lab Number:** L1849431

Project Number: 438 UNION AVE **Report Date:** 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03 Date Collected: 12/04/18 09:30

Client ID: SB-2 (0-2) Date Received: 12/04/18

Sample Location: BROOKLYN, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	200	19.	1
Dimethyl phthalate	ND		ug/kg	200	43.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	50.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Benzo(k)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	ND		ug/kg	120	21.	1
Acenaphthylene	ND		ug/kg	160	32.	1
Anthracene	ND		ug/kg	120	40.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	25.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	24.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	160	28.	1
Pyrene	ND		ug/kg	120	20.	1
Biphenyl	ND		ug/kg	470	48.	1
4-Chloroaniline	ND		ug/kg	200	37.	1
2-Nitroaniline	ND		ug/kg	200	40.	1
3-Nitroaniline	ND		ug/kg	200	39.	1
4-Nitroaniline	ND		ug/kg	200	85.	1
Dibenzofuran	ND		ug/kg	200	19.	1
2-Methylnaphthalene	ND		ug/kg	240	25.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	21.	1
Acetophenone	ND		ug/kg	200	25.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	39.	1
p-Chloro-m-cresol	ND		ug/kg	200	30.	1
2-Chlorophenol	ND		ug/kg	200	24.	1
2,4-Dichlorophenol	ND		ug/kg	180	33.	1
2,4-Dimethylphenol	ND		ug/kg	200	68.	1
2-Nitrophenol	ND		ug/kg	440	77.	1
4-Nitrophenol	ND		ug/kg	290	84.	1
2,4-Dinitrophenol	ND		ug/kg	980	96.	1
4,6-Dinitro-o-cresol	ND		ug/kg	530	98.	1
Pentachlorophenol	ND		ug/kg	160	45.	1
Phenol	ND		ug/kg	200	31.	1
2-Methylphenol	ND		ug/kg	200	32.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	300	32.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	200	39.	1
Benzoic Acid	ND		ug/kg	660	210	1
Benzyl Alcohol	ND		ug/kg	200	63.	1
Carbazole	ND		ug/kg	200	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	63		25-120
Phenol-d6	65		10-120
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	58		10-136
4-Terphenyl-d14	53		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 13:53
Analyst: SZ
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	22.	1
Hexachlorobenzene	ND		ug/kg	120	22.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	26.	1
2-Chloronaphthalene	ND		ug/kg	200	19.	1
1,2-Dichlorobenzene	ND		ug/kg	200	35.	1
1,3-Dichlorobenzene	ND		ug/kg	200	34.	1
1,4-Dichlorobenzene	ND		ug/kg	200	34.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	52.	1
2,4-Dinitrotoluene	ND		ug/kg	200	39.	1
2,6-Dinitrotoluene	ND		ug/kg	200	34.	1
Fluoranthene	ND		ug/kg	120	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	21.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	30.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	33.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	20.	1
Hexachlorobutadiene	ND		ug/kg	200	29.	1
Hexachlorocyclopentadiene	ND		ug/kg	560	180	1
Hexachloroethane	ND		ug/kg	160	32.	1
Isophorone	ND		ug/kg	180	25.	1
Naphthalene	ND		ug/kg	200	24.	1
Nitrobenzene	ND		ug/kg	180	29.	1
NDPA/DPA	ND		ug/kg	160	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	30.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	200	68.	1
Butyl benzyl phthalate	ND		ug/kg	200	49.	1
Di-n-butylphthalate	ND		ug/kg	200	37.	1
Di-n-octylphthalate	ND		ug/kg	200	67.	1

Project Name: 438 UNION AVE **Lab Number:** L1849431

Project Number: 438 UNION AVE **Report Date:** 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04 Date Collected: 12/04/18 09:40

Client ID: SB-2 (10-12) Date Received: 12/04/18

Sample Location: BROOKLYN, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	200	18.	1
Dimethyl phthalate	ND		ug/kg	200	41.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Benzo(k)fluoranthene	ND		ug/kg	120	31.	1
Chrysene	ND		ug/kg	120	20.	1
Acenaphthylene	ND		ug/kg	160	30.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	ND		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	23.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	160	27.	1
Pyrene	ND		ug/kg	120	19.	1
Biphenyl	ND		ug/kg	450	45.	1
4-Chloroaniline	ND		ug/kg	200	36.	1
2-Nitroaniline	ND		ug/kg	200	38.	1
3-Nitroaniline	ND		ug/kg	200	37.	1
4-Nitroaniline	ND		ug/kg	200	81.	1
Dibenzofuran	ND		ug/kg	200	18.	1
2-Methylnaphthalene	ND		ug/kg	240	24.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	20.	1
Acetophenone	ND		ug/kg	200	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
p-Chloro-m-cresol	ND		ug/kg	200	29.	1
2-Chlorophenol	ND		ug/kg	200	23.	1
2,4-Dichlorophenol	ND		ug/kg	180	32.	1
2,4-Dimethylphenol	ND		ug/kg	200	65.	1
2-Nitrophenol	ND		ug/kg	420	74.	1
4-Nitrophenol	ND		ug/kg	270	80.	1
2,4-Dinitrophenol	ND		ug/kg	940	91.	1
4,6-Dinitro-o-cresol	ND		ug/kg	510	94.	1
Pentachlorophenol	ND		ug/kg	160	43.	1
Phenol	ND		ug/kg	200	30.	1
2-Methylphenol	ND		ug/kg	200	30.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	280	31.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	200	38.	1
Benzoic Acid	ND		ug/kg	640	200	1
Benzyl Alcohol	ND		ug/kg	200	60.	1
Carbazole	ND		ug/kg	200	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**15**	Q	25-120
Phenol-d6	51		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	11		10-136
4-Terphenyl-d14	58		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 14:19
Analyst: SZ
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	200		ug/kg	160	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	120	22.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	35.	1
1,3-Dichlorobenzene	ND		ug/kg	190	33.	1
1,4-Dichlorobenzene	ND		ug/kg	190	34.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	52.	1
2,4-Dinitrotoluene	ND		ug/kg	190	39.	1
2,6-Dinitrotoluene	ND		ug/kg	190	33.	1
Fluoranthene	1800		ug/kg	120	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	21.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	30.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	33.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	560	180	1
Hexachloroethane	ND		ug/kg	160	31.	1
Isophorone	ND		ug/kg	180	25.	1
Naphthalene	510		ug/kg	190	24.	1
Nitrobenzene	ND		ug/kg	180	29.	1
NDPA/DPA	ND		ug/kg	160	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	30.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	67.	1
Butyl benzyl phthalate	ND		ug/kg	190	49.	1
Di-n-butylphthalate	ND		ug/kg	190	37.	1
Di-n-octylphthalate	ND		ug/kg	190	66.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	41.	1
Benzo(a)anthracene	890		ug/kg	120	22.	1
Benzo(a)pyrene	760		ug/kg	160	47.	1
Benzo(b)fluoranthene	970		ug/kg	120	33.	1
Benzo(k)fluoranthene	370		ug/kg	120	31.	1
Chrysene	970		ug/kg	120	20.	1
Acenaphthylene	110	J	ug/kg	160	30.	1
Anthracene	420		ug/kg	120	38.	1
Benzo(ghi)perylene	430		ug/kg	160	23.	1
Fluorene	200		ug/kg	190	19.	1
Phenanthrene	2000		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	120		ug/kg	120	22.	1
Indeno(1,2,3-cd)pyrene	460		ug/kg	160	27.	1
Pyrene	1600		ug/kg	120	19.	1
Biphenyl	54	J	ug/kg	440	45.	1
4-Chloroaniline	ND		ug/kg	190	35.	1
2-Nitroaniline	ND		ug/kg	190	38.	1
3-Nitroaniline	ND		ug/kg	190	37.	1
4-Nitroaniline	ND		ug/kg	190	80.	1
Dibenzofuran	240		ug/kg	190	18.	1
2-Methylnaphthalene	210	J	ug/kg	230	24.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
p-Chloro-m-cresol	ND		ug/kg	190	29.	1
2-Chlorophenol	ND		ug/kg	190	23.	1
2,4-Dichlorophenol	ND		ug/kg	180	31.	1
2,4-Dimethylphenol	ND		ug/kg	190	64.	1
2-Nitrophenol	ND		ug/kg	420	73.	1
4-Nitrophenol	ND		ug/kg	270	79.	1
2,4-Dinitrophenol	ND		ug/kg	930	91.	1
4,6-Dinitro-o-cresol	ND		ug/kg	500	93.	1
Pentachlorophenol	ND		ug/kg	160	43.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	30.	1
3-Methylphenol/4-Methylphenol	65	J	ug/kg	280	30.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	37.	1
Benzoic Acid	ND		ug/kg	630	200	1
Benzyl Alcohol	ND		ug/kg	190	60.	1
Carbazole	260		ug/kg	190	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	62		25-120
Phenol-d6	66		10-120
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	66		30-120
2,4,6-Tribromophenol	61		10-136
4-Terphenyl-d14	54		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 14:45
Analyst: SZ
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	170	22.	1
1,2,4-Trichlorobenzene	ND		ug/kg	220	25.	1
Hexachlorobenzene	ND		ug/kg	130	24.	1
Bis(2-chloroethyl)ether	ND		ug/kg	200	29.	1
2-Chloronaphthalene	ND		ug/kg	220	21.	1
1,2-Dichlorobenzene	ND		ug/kg	220	39.	1
1,3-Dichlorobenzene	ND		ug/kg	220	37.	1
1,4-Dichlorobenzene	ND		ug/kg	220	38.	1
3,3'-Dichlorobenzidine	ND		ug/kg	220	58.	1
2,4-Dinitrotoluene	ND		ug/kg	220	43.	1
2,6-Dinitrotoluene	ND		ug/kg	220	37.	1
Fluoranthene	ND		ug/kg	130	25.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	220	23.	1
4-Bromophenyl phenyl ether	ND		ug/kg	220	33.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	260	37.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	230	22.	1
Hexachlorobutadiene	ND		ug/kg	220	32.	1
Hexachlorocyclopentadiene	ND		ug/kg	620	200	1
Hexachloroethane	ND		ug/kg	170	35.	1
Isophorone	ND		ug/kg	200	28.	1
Naphthalene	ND		ug/kg	220	26.	1
Nitrobenzene	ND		ug/kg	200	32.	1
NDPA/DPA	ND		ug/kg	170	25.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	220	33.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	220	75.	1
Butyl benzyl phthalate	ND		ug/kg	220	55.	1
Di-n-butylphthalate	ND		ug/kg	220	41.	1
Di-n-octylphthalate	ND		ug/kg	220	74.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	220	20.	1
Dimethyl phthalate	ND		ug/kg	220	46.	1
Benzo(a)anthracene	ND		ug/kg	130	24.	1
Benzo(a)pyrene	ND		ug/kg	170	53.	1
Benzo(b)fluoranthene	ND		ug/kg	130	36.	1
Benzo(k)fluoranthene	ND		ug/kg	130	35.	1
Chrysene	ND		ug/kg	130	22.	1
Acenaphthylene	ND		ug/kg	170	33.	1
Anthracene	ND		ug/kg	130	42.	1
Benzo(ghi)perylene	ND		ug/kg	170	25.	1
Fluorene	ND		ug/kg	220	21.	1
Phenanthrene	ND		ug/kg	130	26.	1
Dibenzo(a,h)anthracene	ND		ug/kg	130	25.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	170	30.	1
Pyrene	ND		ug/kg	130	22.	1
Biphenyl	ND		ug/kg	490	50.	1
4-Chloroaniline	ND		ug/kg	220	39.	1
2-Nitroaniline	ND		ug/kg	220	42.	1
3-Nitroaniline	ND		ug/kg	220	41.	1
4-Nitroaniline	ND		ug/kg	220	90.	1
Dibenzofuran	ND		ug/kg	220	20.	1
2-Methylnaphthalene	ND		ug/kg	260	26.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	220	23.	1
Acetophenone	ND		ug/kg	220	27.	1
2,4,6-Trichlorophenol	ND		ug/kg	130	41.	1
p-Chloro-m-cresol	ND		ug/kg	220	32.	1
2-Chlorophenol	ND		ug/kg	220	26.	1
2,4-Dichlorophenol	ND		ug/kg	200	35.	1
2,4-Dimethylphenol	ND		ug/kg	220	72.	1
2-Nitrophenol	ND		ug/kg	470	81.	1
4-Nitrophenol	ND		ug/kg	300	88.	1
2,4-Dinitrophenol	ND		ug/kg	1000	100	1
4,6-Dinitro-o-cresol	ND		ug/kg	560	100	1
Pentachlorophenol	ND		ug/kg	170	48.	1
Phenol	ND		ug/kg	220	33.	1
2-Methylphenol	ND		ug/kg	220	34.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	310	34.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	220	42.	1
Benzoic Acid	ND		ug/kg	700	220	1
Benzyl Alcohol	ND		ug/kg	220	66.	1
Carbazole	ND		ug/kg	220	21.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		25-120
Phenol-d6	75		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	68		10-136
4-Terphenyl-d14	56		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/10/18 15:13
Analyst: SZ
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	21.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	23.	1
Hexachlorobenzene	ND		ug/kg	120	22.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	27.	1
2-Chloronaphthalene	ND		ug/kg	200	20.	1
1,2-Dichlorobenzene	ND		ug/kg	200	36.	1
1,3-Dichlorobenzene	ND		ug/kg	200	34.	1
1,4-Dichlorobenzene	ND		ug/kg	200	35.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	53.	1
2,4-Dinitrotoluene	ND		ug/kg	200	40.	1
2,6-Dinitrotoluene	ND		ug/kg	200	34.	1
Fluoranthene	ND		ug/kg	120	23.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	21.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	30.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	34.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	220	20.	1
Hexachlorobutadiene	ND		ug/kg	200	29.	1
Hexachlorocyclopentadiene	ND		ug/kg	570	180	1
Hexachloroethane	ND		ug/kg	160	32.	1
Isophorone	ND		ug/kg	180	26.	1
Naphthalene	ND		ug/kg	200	24.	1
Nitrobenzene	ND		ug/kg	180	30.	1
NDPA/DPA	ND		ug/kg	160	23.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	31.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	200	69.	1
Butyl benzyl phthalate	ND		ug/kg	200	50.	1
Di-n-butylphthalate	ND		ug/kg	200	38.	1
Di-n-octylphthalate	ND		ug/kg	200	68.	1

Project Name: 438 UNION AVE **Lab Number:** L1849431

Project Number: 438 UNION AVE **Report Date:** 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07 Date Collected: 12/04/18 10:05

Client ID: SB-1 (10-12) DUP Date Received: 12/04/18

Sample Location: BROOKLYN, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	200	18.	1
Dimethyl phthalate	ND		ug/kg	200	42.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Benzo(k)fluoranthene	ND		ug/kg	120	32.	1
Chrysene	ND		ug/kg	120	21.	1
Acenaphthylene	ND		ug/kg	160	31.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	ND		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	23.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	160	28.	1
Pyrene	92	J	ug/kg	120	20.	1
Biphenyl	ND		ug/kg	450	46.	1
4-Chloroaniline	ND		ug/kg	200	36.	1
2-Nitroaniline	ND		ug/kg	200	38.	1
3-Nitroaniline	ND		ug/kg	200	38.	1
4-Nitroaniline	ND		ug/kg	200	82.	1
Dibenzofuran	ND		ug/kg	200	19.	1
2-Methylnaphthalene	ND		ug/kg	240	24.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	21.	1
Acetophenone	ND		ug/kg	200	25.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	38.	1
p-Chloro-m-cresol	ND		ug/kg	200	30.	1
2-Chlorophenol	ND		ug/kg	200	24.	1
2,4-Dichlorophenol	ND		ug/kg	180	32.	1
2,4-Dimethylphenol	ND		ug/kg	200	66.	1
2-Nitrophenol	ND		ug/kg	430	75.	1
4-Nitrophenol	ND		ug/kg	280	81.	1
2,4-Dinitrophenol	ND		ug/kg	960	93.	1
4,6-Dinitro-o-cresol	ND		ug/kg	520	96.	1
Pentachlorophenol	ND		ug/kg	160	44.	1
Phenol	ND		ug/kg	200	30.	1
2-Methylphenol	ND		ug/kg	200	31.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	290	31.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	200	38.	1
Benzoic Acid	ND		ug/kg	650	200	1
Benzyl Alcohol	ND		ug/kg	200	61.	1
Carbazole	ND		ug/kg	200	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	73		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	61		30-120
2,4,6-Tribromophenol	72		10-136
4-Terphenyl-d14	53		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/11/18 14:49
Analyst: EK
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	390		ug/kg	160	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	120	22.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	35.	1
1,3-Dichlorobenzene	ND		ug/kg	190	33.	1
1,4-Dichlorobenzene	ND		ug/kg	190	34.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	52.	1
2,4-Dinitrotoluene	ND		ug/kg	190	39.	1
2,6-Dinitrotoluene	ND		ug/kg	190	33.	1
Fluoranthene	3800		ug/kg	120	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	21.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	30.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	33.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	560	180	1
Hexachloroethane	ND		ug/kg	160	31.	1
Isophorone	ND		ug/kg	180	25.	1
Naphthalene	560		ug/kg	190	24.	1
Nitrobenzene	ND		ug/kg	180	29.	1
NDPA/DPA	ND		ug/kg	160	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	30.	1
Bis(2-ethylhexyl)phthalate	320		ug/kg	190	67.	1
Butyl benzyl phthalate	ND		ug/kg	190	49.	1
Di-n-butylphthalate	ND		ug/kg	190	37.	1
Di-n-octylphthalate	ND		ug/kg	190	66.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	41.	1
Benzo(a)anthracene	1900		ug/kg	120	22.	1
Benzo(a)pyrene	1700		ug/kg	160	47.	1
Benzo(b)fluoranthene	2300		ug/kg	120	33.	1
Benzo(k)fluoranthene	680		ug/kg	120	31.	1
Chrysene	1900		ug/kg	120	20.	1
Acenaphthylene	170		ug/kg	160	30.	1
Anthracene	690		ug/kg	120	38.	1
Benzo(ghi)perylene	1100		ug/kg	160	23.	1
Fluorene	340		ug/kg	190	19.	1
Phenanthrene	3400		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	280		ug/kg	120	22.	1
Indeno(1,2,3-cd)pyrene	1200		ug/kg	160	27.	1
Pyrene	3700		ug/kg	120	19.	1
Biphenyl	66	J	ug/kg	440	45.	1
4-Chloroaniline	ND		ug/kg	190	35.	1
2-Nitroaniline	ND		ug/kg	190	38.	1
3-Nitroaniline	ND		ug/kg	190	37.	1
4-Nitroaniline	ND		ug/kg	190	80.	1
Dibenzofuran	310		ug/kg	190	18.	1
2-Methylnaphthalene	210	J	ug/kg	230	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
p-Chloro-m-cresol	ND		ug/kg	190	29.	1
2-Chlorophenol	ND		ug/kg	190	23.	1
2,4-Dichlorophenol	ND		ug/kg	180	31.	1
2,4-Dimethylphenol	ND		ug/kg	190	64.	1
2-Nitrophenol	ND		ug/kg	420	73.	1
4-Nitrophenol	ND		ug/kg	270	79.	1
2,4-Dinitrophenol	ND		ug/kg	930	91.	1
4,6-Dinitro-o-cresol	ND		ug/kg	500	93.	1
Pentachlorophenol	ND		ug/kg	160	43.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	30.	1
3-Methylphenol/4-Methylphenol	42	J	ug/kg	280	30.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	37.	1
Benzoic Acid	ND		ug/kg	630	200	1
Benzyl Alcohol	ND		ug/kg	190	60.	1
Carbazole	370		ug/kg	190	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	69		25-120
Phenol-d6	69		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	71		30-120
2,4,6-Tribromophenol	92		10-136
4-Terphenyl-d14	63		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/11/18 15:15
Analyst: EK
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	120	22.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	35.	1
1,3-Dichlorobenzene	ND		ug/kg	190	34.	1
1,4-Dichlorobenzene	ND		ug/kg	190	34.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	52.	1
2,4-Dinitrotoluene	ND		ug/kg	190	39.	1
2,6-Dinitrotoluene	ND		ug/kg	190	33.	1
Fluoranthene	960		ug/kg	120	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	21.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	30.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	33.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	20.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	560	180	1
Hexachloroethane	ND		ug/kg	160	32.	1
Isophorone	ND		ug/kg	180	25.	1
Naphthalene	36	J	ug/kg	190	24.	1
Nitrobenzene	ND		ug/kg	180	29.	1
NDPA/DPA	ND		ug/kg	160	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	30.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	67.	1
Butyl benzyl phthalate	ND		ug/kg	190	49.	1
Di-n-butylphthalate	ND		ug/kg	190	37.	1
Di-n-octylphthalate	ND		ug/kg	190	66.	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	41.	1
Benzo(a)anthracene	510		ug/kg	120	22.	1
Benzo(a)pyrene	430		ug/kg	160	48.	1
Benzo(b)fluoranthene	590		ug/kg	120	33.	1
Benzo(k)fluoranthene	190		ug/kg	120	31.	1
Chrysene	530		ug/kg	120	20.	1
Acenaphthylene	100	J	ug/kg	160	30.	1
Anthracene	95	J	ug/kg	120	38.	1
Benzo(ghi)perylene	220		ug/kg	160	23.	1
Fluorene	29	J	ug/kg	190	19.	1
Phenanthrene	550		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	82	J	ug/kg	120	22.	1
Indeno(1,2,3-cd)pyrene	260		ug/kg	160	27.	1
Pyrene	800		ug/kg	120	19.	1
Biphenyl	ND		ug/kg	440	45.	1
4-Chloroaniline	ND		ug/kg	190	35.	1
2-Nitroaniline	ND		ug/kg	190	38.	1
3-Nitroaniline	ND		ug/kg	190	37.	1
4-Nitroaniline	ND		ug/kg	190	81.	1
Dibenzofuran	20	J	ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	230	24.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
p-Chloro-m-cresol	ND		ug/kg	190	29.	1
2-Chlorophenol	ND		ug/kg	190	23.	1
2,4-Dichlorophenol	ND		ug/kg	180	31.	1
2,4-Dimethylphenol	ND		ug/kg	190	64.	1
2-Nitrophenol	ND		ug/kg	420	73.	1
4-Nitrophenol	ND		ug/kg	270	80.	1
2,4-Dinitrophenol	ND		ug/kg	940	91.	1
4,6-Dinitro-o-cresol	ND		ug/kg	510	94.	1
Pentachlorophenol	ND		ug/kg	160	43.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	30.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	280	30.	1

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	37.	1
Benzoic Acid	ND		ug/kg	630	200	1
Benzyl Alcohol	ND		ug/kg	190	60.	1
Carbazole	79	J	ug/kg	190	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	82		25-120
Phenol-d6	86		10-120
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	83		30-120
2,4,6-Tribromophenol	113		10-136
4-Terphenyl-d14	67		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/09/18 22:15
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 12/07/18 15:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/l	2.0	0.44	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Hexachlorobenzene	ND		ug/l	2.0	0.46	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
2-Chloronaphthalene	ND		ug/l	2.0	0.44	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
Fluoranthene	ND		ug/l	2.0	0.26	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorobutadiene	ND		ug/l	2.0	0.66	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Hexachloroethane	ND		ug/l	2.0	0.58	1
Isophorone	ND		ug/l	5.0	1.2	1
Naphthalene	ND		ug/l	2.0	0.46	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	ND		ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Benzo(a)anthracene	ND		ug/l	2.0	0.32	1
Benzo(a)pyrene	ND		ug/l	2.0	0.41	1
Benzo(b)fluoranthene	ND		ug/l	2.0	0.35	1
Benzo(k)fluoranthene	ND		ug/l	2.0	0.37	1
Chrysene	ND		ug/l	2.0	0.34	1
Acenaphthylene	ND		ug/l	2.0	0.46	1
Anthracene	ND		ug/l	2.0	0.33	1
Benzo(ghi)perylene	ND		ug/l	2.0	0.30	1
Fluorene	ND		ug/l	2.0	0.41	1
Phenanthrene	ND		ug/l	2.0	0.33	1
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.32	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.40	1
Pyrene	ND		ug/l	2.0	0.28	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1
Dibenzofuran	ND		ug/l	2.0	0.50	1
2-Methylnaphthalene	ND		ug/l	2.0	0.45	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		21-120
Phenol-d6	49		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	65		15-120
2,4,6-Tribromophenol	61		10-120
4-Terphenyl-d14	64		41-149

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/10/18 08:39
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1186343-1					
Acenaphthene	ND		ug/kg	130	17.
1,2,4-Trichlorobenzene	ND		ug/kg	160	19.
Hexachlorobenzene	ND		ug/kg	99	18.
Bis(2-chloroethyl)ether	ND		ug/kg	150	22.
2-Chloronaphthalene	ND		ug/kg	160	16.
1,2-Dichlorobenzene	ND		ug/kg	160	30.
1,3-Dichlorobenzene	ND		ug/kg	160	28.
1,4-Dichlorobenzene	ND		ug/kg	160	29.
3,3'-Dichlorobenzidine	ND		ug/kg	160	44.
2,4-Dinitrotoluene	ND		ug/kg	160	33.
2,6-Dinitrotoluene	ND		ug/kg	160	28.
Fluoranthene	ND		ug/kg	99	19.
4-Chlorophenyl phenyl ether	ND		ug/kg	160	18.
4-Bromophenyl phenyl ether	ND		ug/kg	160	25.
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	28.
Bis(2-chloroethoxy)methane	ND		ug/kg	180	16.
Hexachlorobutadiene	ND		ug/kg	160	24.
Hexachlorocyclopentadiene	ND		ug/kg	470	150
Hexachloroethane	ND		ug/kg	130	27.
Isophorone	ND		ug/kg	150	21.
Naphthalene	ND		ug/kg	160	20.
Nitrobenzene	ND		ug/kg	150	24.
NDPA/DPA	ND		ug/kg	130	19.
n-Nitrosodi-n-propylamine	ND		ug/kg	160	25.
Bis(2-ethylhexyl)phthalate	ND		ug/kg	160	57.
Butyl benzyl phthalate	ND		ug/kg	160	42.
Di-n-butylphthalate	ND		ug/kg	160	31.
Di-n-octylphthalate	ND		ug/kg	160	56.
Diethyl phthalate	ND		ug/kg	160	15.

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/10/18 08:39
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1186343-1					
Dimethyl phthalate	ND		ug/kg	160	35.
Benzo(a)anthracene	ND		ug/kg	99	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	99	28.
Benzo(k)fluoranthene	ND		ug/kg	99	26.
Chrysene	ND		ug/kg	99	17.
Acenaphthylene	ND		ug/kg	130	25.
Anthracene	ND		ug/kg	99	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	99	20.
Dibenzo(a,h)anthracene	ND		ug/kg	99	19.
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	23.
Pyrene	ND		ug/kg	99	16.
Biphenyl	ND		ug/kg	380	38.
4-Chloroaniline	ND		ug/kg	160	30.
2-Nitroaniline	ND		ug/kg	160	32.
3-Nitroaniline	ND		ug/kg	160	31.
4-Nitroaniline	ND		ug/kg	160	68.
Dibenzofuran	ND		ug/kg	160	16.
2-Methylnaphthalene	ND		ug/kg	200	20.
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	160	17.
Acetophenone	ND		ug/kg	160	20.
2,4,6-Trichlorophenol	ND		ug/kg	99	31.
p-Chloro-m-cresol	ND		ug/kg	160	24.
2-Chlorophenol	ND		ug/kg	160	19.
2,4-Dichlorophenol	ND		ug/kg	150	26.
2,4-Dimethylphenol	ND		ug/kg	160	54.
2-Nitrophenol	ND		ug/kg	360	62.

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/10/18 08:39
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 12/06/18 11:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1186343-1					
4-Nitrophenol	ND		ug/kg	230	67.
2,4-Dinitrophenol	ND		ug/kg	790	77.
4,6-Dinitro-o-cresol	ND		ug/kg	430	79.
Pentachlorophenol	ND		ug/kg	130	36.
Phenol	ND		ug/kg	160	25.
2-Methylphenol	ND		ug/kg	160	26.
3-Methylphenol/4-Methylphenol	ND		ug/kg	240	26.
2,4,5-Trichlorophenol	ND		ug/kg	160	32.
Benzoic Acid	ND		ug/kg	530	170
Benzyl Alcohol	ND		ug/kg	160	50.
Carbazole	ND		ug/kg	160	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		25-120
Phenol-d6	58		10-120
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	50		30-120
2,4,6-Tribromophenol	47		10-136
4-Terphenyl-d14	49		18-120

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/09/18 18:47
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/07/18 15:29

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 10 Batch: WG1186931-1					
Acenaphthene	ND		ug/l	2.0	0.44
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50
Hexachlorobenzene	ND		ug/l	2.0	0.46
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50
2-Chloronaphthalene	ND		ug/l	2.0	0.44
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93
Fluoranthene	ND		ug/l	2.0	0.26
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50
Hexachlorobutadiene	ND		ug/l	2.0	0.66
Hexachlorocyclopentadiene	ND		ug/l	20	0.69
Hexachloroethane	ND		ug/l	2.0	0.58
Isophorone	ND		ug/l	5.0	1.2
Naphthalene	ND		ug/l	2.0	0.46
Nitrobenzene	ND		ug/l	2.0	0.77
NDPA/DPA	ND		ug/l	2.0	0.42
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5
Butyl benzyl phthalate	ND		ug/l	5.0	1.2
Di-n-butylphthalate	ND		ug/l	5.0	0.39
Di-n-octylphthalate	ND		ug/l	5.0	1.3
Diethyl phthalate	ND		ug/l	5.0	0.38

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/09/18 18:47
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/07/18 15:29

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 10 Batch: WG1186931-1					
Dimethyl phthalate	ND		ug/l	5.0	1.8
Benzo(a)anthracene	ND		ug/l	2.0	0.32
Benzo(a)pyrene	ND		ug/l	2.0	0.41
Benzo(b)fluoranthene	ND		ug/l	2.0	0.35
Benzo(k)fluoranthene	ND		ug/l	2.0	0.37
Chrysene	ND		ug/l	2.0	0.34
Acenaphthylene	ND		ug/l	2.0	0.46
Anthracene	ND		ug/l	2.0	0.33
Benzo(ghi)perylene	ND		ug/l	2.0	0.30
Fluorene	ND		ug/l	2.0	0.41
Phenanthrene	ND		ug/l	2.0	0.33
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.32
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.40
Pyrene	ND		ug/l	2.0	0.28
Biphenyl	ND		ug/l	2.0	0.46
4-Chloroaniline	ND		ug/l	5.0	1.1
2-Nitroaniline	ND		ug/l	5.0	0.50
3-Nitroaniline	ND		ug/l	5.0	0.81
4-Nitroaniline	ND		ug/l	5.0	0.80
Dibenzofuran	ND		ug/l	2.0	0.50
2-Methylnaphthalene	ND		ug/l	2.0	0.45
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44
Acetophenone	ND		ug/l	5.0	0.53
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/09/18 18:47
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/07/18 15:29

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 10 Batch: WG1186931-1					
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59
Carbazole	ND		ug/l	2.0	0.49

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		21-120
Phenol-d6	44		10-120
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	61		15-120
2,4,6-Tribromophenol	54		10-120
4-Terphenyl-d14	56		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1186343-2 WG1186343-3								
Acenaphthene	73		66		31-137	10		50
1,2,4-Trichlorobenzene	73		64		38-107	13		50
Hexachlorobenzene	74		64		40-140	14		50
Bis(2-chloroethyl)ether	77		69		40-140	11		50
2-Chloronaphthalene	77		67		40-140	14		50
1,2-Dichlorobenzene	73		66		40-140	10		50
1,3-Dichlorobenzene	73		66		40-140	10		50
1,4-Dichlorobenzene	73		66		28-104	10		50
3,3'-Dichlorobenzidine	**38**	Q	**37**	Q	40-140	3		50
2,4-Dinitrotoluene	95		84		40-132	12		50
2,6-Dinitrotoluene	90		77		40-140	16		50
Fluoranthene	78		69		40-140	12		50
4-Chlorophenyl phenyl ether	72		64		40-140	12		50
4-Bromophenyl phenyl ether	71		62		40-140	14		50
Bis(2-chloroisopropyl)ether	80		72		40-140	11		50
Bis(2-chloroethoxy)methane	81		72		40-117	12		50
Hexachlorobutadiene	66		59		40-140	11		50
Hexachlorocyclopentadiene	65		52		40-140	22		50
Hexachloroethane	76		68		40-140	11		50
Isophorone	79		70		40-140	12		50
Naphthalene	76		68		40-140	11		50
Nitrobenzene	83		72		40-140	14		50
NDPA/DPA	77		67		36-157	14		50

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1186343-2 WG1186343-3								
n-Nitrosodi-n-propylamine	78		70		32-121	11		50
Bis(2-ethylhexyl)phthalate	92		80		40-140	14		50
Butyl benzyl phthalate	94		83		40-140	12		50
Di-n-butylphthalate	87		78		40-140	11		50
Di-n-octylphthalate	95		86		40-140	10		50
Diethyl phthalate	79		70		40-140	12		50
Dimethyl phthalate	78		68		40-140	14		50
Benzo(a)anthracene	73		66		40-140	10		50
Benzo(a)pyrene	80		77		40-140	4		50
Benzo(b)fluoranthene	79		74		40-140	7		50
Benzo(k)fluoranthene	80		79		40-140	1		50
Chrysene	75		70		40-140	7		50
Acenaphthylene	80		70		40-140	13		50
Anthracene	80		73		40-140	9		50
Benzo(ghi)perylene	76		74		40-140	3		50
Fluorene	77		69		40-140	11		50
Phenanthrene	77		69		40-140	11		50
Dibenzo(a,h)anthracene	75		72		40-140	4		50
Indeno(1,2,3-cd)pyrene	76		72		40-140	5		50
Pyrene	78		71		35-142	9		50
Biphenyl	82		70		54-104	16		50
4-Chloroaniline	**33**	Q	**29**	Q	40-140	13		50
2-Nitroaniline	97		83		47-134	16		50

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1186343-2 WG1186343-3								
3-Nitroaniline	65		61		26-129	6		50
4-Nitroaniline	90		79		41-125	13		50
Dibenzofuran	77		70		40-140	10		50
2-Methylnaphthalene	76		67		40-140	13		50
1,2,4,5-Tetrachlorobenzene	75		64		40-117	16		50
Acetophenone	81		74		14-144	9		50
2,4,6-Trichlorophenol	82		70		30-130	16		50
p-Chloro-m-cresol	87		75		26-103	15		50
2-Chlorophenol	83		73		25-102	13		50
2,4-Dichlorophenol	86		74		30-130	15		50
2,4-Dimethylphenol	88		74		30-130	17		50
2-Nitrophenol	96		82		30-130	16		50
4-Nitrophenol	102		86		11-114	17		50
2,4-Dinitrophenol	88		74		4-130	17		50
4,6-Dinitro-o-cresol	91		80		10-130	13		50
Pentachlorophenol	77		64		17-109	18		50
Phenol	84		73		26-90	14		50
2-Methylphenol	88		76		30-130.	15		50
3-Methylphenol/4-Methylphenol	87		76		30-130	13		50
2,4,5-Trichlorophenol	81		68		30-130	17		50
Benzoic Acid	21		20		10-110	5		50
Benzyl Alcohol	84		75		40-140	11		50
Carbazole	83		75		54-128	10		50

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1186343-2 WG1186343-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	76		69		25-120
Phenol-d6	78		69		10-120
Nitrobenzene-d5	76		67		23-120
2-Fluorobiphenyl	67		59		30-120
2,4,6-Tribromophenol	76		64		10-136
4-Terphenyl-d14	63		55		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10 Batch: WG1186931-2 WG1186931-3								
Acenaphthene	72		73		37-111	1		30
1,2,4-Trichlorobenzene	71		70		39-98	1		30
Hexachlorobenzene	75		78		40-140	4		30
Bis(2-chloroethyl)ether	80		80		40-140	0		30
2-Chloronaphthalene	71		70		40-140	1		30
1,2-Dichlorobenzene	69		68		40-140	1		30
1,3-Dichlorobenzene	68		68		40-140	0		30
1,4-Dichlorobenzene	67		68		36-97	1		30
3,3'-Dichlorobenzidine	51		**38**	Q	40-140	29		30
2,4-Dinitrotoluene	73		78		48-143	7		30
2,6-Dinitrotoluene	71		75		40-140	5		30
Fluoranthene	72		73		40-140	1		30
4-Chlorophenyl phenyl ether	74		75		40-140	1		30
4-Bromophenyl phenyl ether	76		79		40-140	4		30
Bis(2-chloroisopropyl)ether	92		90		40-140	2		30
Bis(2-chloroethoxy)methane	84		82		40-140	2		30
Hexachlorobutadiene	69		69		40-140	0		30
Hexachlorocyclopentadiene	68		67		40-140	1		30
Hexachloroethane	74		74		40-140	0		30
Isophorone	82		82		40-140	0		30
Naphthalene	69		69		40-140	0		30
Nitrobenzene	78		79		40-140	1		30
NDPA/DPA	69		73		40-140	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10 Batch: WG1186931-2 WG1186931-3								
n-Nitrosodi-n-propylamine	85		86		29-132	1		30
Bis(2-ethylhexyl)phthalate	81		80		40-140	1		30
Butyl benzyl phthalate	66		68		40-140	3		30
Di-n-butylphthalate	72		72		40-140	0		30
Di-n-octylphthalate	72		72		40-140	0		30
Diethyl phthalate	73		78		40-140	7		30
Dimethyl phthalate	71		74		40-140	4		30
Benzo(a)anthracene	70		71		40-140	1		30
Benzo(a)pyrene	74		77		40-140	4		30
Benzo(b)fluoranthene	70		72		40-140	3		30
Benzo(k)fluoranthene	80		83		40-140	4		30
Chrysene	76		77		40-140	1		30
Acenaphthylene	69		70		45-123	1		30
Anthracene	72		73		40-140	1		30
Benzo(ghi)perylene	70		76		40-140	8		30
Fluorene	73		74		40-140	1		30
Phenanthrene	73		73		40-140	0		30
Dibenzo(a,h)anthracene	70		76		40-140	8		30
Indeno(1,2,3-cd)pyrene	64		70		40-140	9		30
Pyrene	69		70		26-127	1		30
Biphenyl	71		71		40-140	0		30
4-Chloroaniline	61		**39**	Q	40-140	**44**	Q	30
2-Nitroaniline	68		71		52-143	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10 Batch: WG1186931-2 WG1186931-3								
3-Nitroaniline	54		49		25-145	10		30
4-Nitroaniline	60		63		51-143	5		30
Dibenzofuran	71		72		40-140	1		30
2-Methylnaphthalene	70		71		40-140	1		30
1,2,4,5-Tetrachlorobenzene	69		69		2-134	0		30
Acetophenone	80		80		39-129	0		30
2,4,6-Trichlorophenol	66		67		30-130	2		30
p-Chloro-m-cresol	73		74		23-97	1		30
2-Chlorophenol	69		69		27-123	0		30
2,4-Dichlorophenol	70		71		30-130	1		30
2,4-Dimethylphenol	49		39		30-130	23		30
2-Nitrophenol	70		71		30-130	1		30
4-Nitrophenol	74		76		10-80	3		30
2,4-Dinitrophenol	67		73		20-130	9		30
4,6-Dinitro-o-cresol	73		77		20-164	5		30
Pentachlorophenol	66		76		9-103	14		30
Phenol	61		59		12-110	3		30
2-Methylphenol	67		66		30-130	2		30
3-Methylphenol/4-Methylphenol	73		71		30-130	3		30
2,4,5-Trichlorophenol	70		70		30-130	0		30
Benzoic Acid	40		42		10-164	5		30
Benzyl Alcohol	71		63		26-116	12		30
Carbazole	70		71		55-144	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 10 Batch: WG1186931-2 WG1186931-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	64		63		21-120
Phenol-d6	55		54		10-120
Nitrobenzene-d5	77		77		23-120
2-Fluorobiphenyl	68		67		15-120
2,4,6-Tribromophenol	68		71		10-120
4-Terphenyl-d14	63		63		41-149

PCBS

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 07:43
Analyst: HT
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.7	3.43	1	A
Aroclor 1221	ND		ug/kg	38.7	3.87	1	A
Aroclor 1232	ND		ug/kg	38.7	8.20	1	A
Aroclor 1242	ND		ug/kg	38.7	5.21	1	A
Aroclor 1248	ND		ug/kg	38.7	5.80	1	A
Aroclor 1254	ND		ug/kg	38.7	4.23	1	A
Aroclor 1260	ND		ug/kg	38.7	7.14	1	A
Aroclor 1262	ND		ug/kg	38.7	4.91	1	A
Aroclor 1268	ND		ug/kg	38.7	4.00	1	A
PCBs, Total	ND		ug/kg	38.7	3.43	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95		30-150	A
Decachlorobiphenyl	80		30-150	A
2,4,5,6-Tetrachloro-m-xylene	95		30-150	B
Decachlorobiphenyl	95		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 07:55
Analyst: HT
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.67	1	A
Aroclor 1232	ND		ug/kg	36.6	7.77	1	A
Aroclor 1242	ND		ug/kg	36.6	4.94	1	A
Aroclor 1248	ND		ug/kg	36.6	5.50	1	A
Aroclor 1254	ND		ug/kg	36.6	4.01	1	A
Aroclor 1260	ND		ug/kg	36.6	6.77	1	A
Aroclor 1262	ND		ug/kg	36.6	4.66	1	A
Aroclor 1268	ND		ug/kg	36.6	3.80	1	A
PCBs, Total	ND		ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	81		30-150	A
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	82		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 08:07
Analyst: HT
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	40.0	3.56	1	A
Aroclor 1221	ND		ug/kg	40.0	4.01	1	A
Aroclor 1232	ND		ug/kg	40.0	8.49	1	A
Aroclor 1242	ND		ug/kg	40.0	5.40	1	A
Aroclor 1248	ND		ug/kg	40.0	6.00	1	A
Aroclor 1254	ND		ug/kg	40.0	4.38	1	A
Aroclor 1260	ND		ug/kg	40.0	7.40	1	A
Aroclor 1262	ND		ug/kg	40.0	5.08	1	A
Aroclor 1268	ND		ug/kg	40.0	4.15	1	A
PCBs, Total	ND		ug/kg	40.0	3.56	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	A
Decachlorobiphenyl	74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	82		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 08:20
Analyst: HT
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.3	3.40	1	A
Aroclor 1221	ND		ug/kg	38.3	3.84	1	A
Aroclor 1232	ND		ug/kg	38.3	8.12	1	A
Aroclor 1242	ND		ug/kg	38.3	5.16	1	A
Aroclor 1248	ND		ug/kg	38.3	5.75	1	A
Aroclor 1254	ND		ug/kg	38.3	4.19	1	A
Aroclor 1260	ND		ug/kg	38.3	7.08	1	A
Aroclor 1262	ND		ug/kg	38.3	4.87	1	A
Aroclor 1268	ND		ug/kg	38.3	3.97	1	A
PCBs, Total	ND		ug/kg	38.3	3.40	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	89		30-150	A
Decachlorobiphenyl	79		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	83		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 08:32
Analyst: HT
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.2	3.30	1	A
Aroclor 1221	ND		ug/kg	37.2	3.73	1	A
Aroclor 1232	ND		ug/kg	37.2	7.89	1	A
Aroclor 1242	ND		ug/kg	37.2	5.02	1	A
Aroclor 1248	ND		ug/kg	37.2	5.58	1	A
Aroclor 1254	ND		ug/kg	37.2	4.07	1	A
Aroclor 1260	ND		ug/kg	37.2	6.88	1	A
Aroclor 1262	ND		ug/kg	37.2	4.73	1	A
Aroclor 1268	ND		ug/kg	37.2	3.86	1	A
PCBs, Total	ND		ug/kg	37.2	3.30	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	A
Decachlorobiphenyl	70		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	79		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 08:44
Analyst: HT
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	43.3	3.85	1	A
Aroclor 1221	ND		ug/kg	43.3	4.34	1	A
Aroclor 1232	ND		ug/kg	43.3	9.19	1	A
Aroclor 1242	ND		ug/kg	43.3	5.84	1	A
Aroclor 1248	ND		ug/kg	43.3	6.50	1	A
Aroclor 1254	ND		ug/kg	43.3	4.74	1	A
Aroclor 1260	ND		ug/kg	43.3	8.01	1	A
Aroclor 1262	ND		ug/kg	43.3	5.50	1	A
Aroclor 1268	ND		ug/kg	43.3	4.49	1	A
PCBs, Total	ND		ug/kg	43.3	3.85	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82		30-150	A
Decachlorobiphenyl	74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	82		30-150	B
Decachlorobiphenyl	81		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 08:57
Analyst: HT
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.8	3.44	1	A
Aroclor 1221	ND		ug/kg	38.8	3.88	1	A
Aroclor 1232	ND		ug/kg	38.8	8.22	1	A
Aroclor 1242	ND		ug/kg	38.8	5.22	1	A
Aroclor 1248	ND		ug/kg	38.8	5.82	1	A
Aroclor 1254	ND		ug/kg	38.8	4.24	1	A
Aroclor 1260	ND		ug/kg	38.8	7.16	1	A
Aroclor 1262	ND		ug/kg	38.8	4.92	1	A
Aroclor 1268	ND		ug/kg	38.8	4.02	1	A
PCBs, Total	ND		ug/kg	38.8	3.44	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	A
Decachlorobiphenyl	96		30-150	A
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	89		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 09:09
Analyst: HT
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.0	3.37	1	A
Aroclor 1221	ND		ug/kg	38.0	3.80	1	A
Aroclor 1232	ND		ug/kg	38.0	8.05	1	A
Aroclor 1242	ND		ug/kg	38.0	5.12	1	A
Aroclor 1248	ND		ug/kg	38.0	5.69	1	A
Aroclor 1254	ND		ug/kg	38.0	4.15	1	A
Aroclor 1260	16.4	J	ug/kg	38.0	7.01	1	B
Aroclor 1262	ND		ug/kg	38.0	4.82	1	A
Aroclor 1268	ND		ug/kg	38.0	3.93	1	A
PCBs, Total	16.4	J	ug/kg	38.0	3.37	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	83		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 12/08/18 09:21
Analyst: HT
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	39.7	3.52	1	A
Aroclor 1221	ND		ug/kg	39.7	3.98	1	A
Aroclor 1232	ND		ug/kg	39.7	8.42	1	A
Aroclor 1242	ND		ug/kg	39.7	5.35	1	A
Aroclor 1248	ND		ug/kg	39.7	5.95	1	A
Aroclor 1254	ND		ug/kg	39.7	4.34	1	A
Aroclor 1260	ND		ug/kg	39.7	7.34	1	A
Aroclor 1262	ND		ug/kg	39.7	5.04	1	A
Aroclor 1268	ND		ug/kg	39.7	4.11	1	A
PCBs, Total	ND		ug/kg	39.7	3.52	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	A
Decachlorobiphenyl	77		30-150	A
2,4,5,6-Tetrachloro-m-xylene	84		30-150	B
Decachlorobiphenyl	84		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/08/18 00:55
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/06/18 19:24
Cleanup Method: EPA 3665A
Cleanup Date: 12/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	90		30-150	A
Decachlorobiphenyl	69		30-150	A
2,4,5,6-Tetrachloro-m-xylene	91		30-150	B
Decachlorobiphenyl	72		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 12/08/18 09:58
Analyst: HT

Extraction Method: EPA 3546
Extraction Date: 12/06/18 09:59
Cleanup Method: EPA 3665A
Cleanup Date: 12/07/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-09 Batch: WG1186307-1						
Aroclor 1016	ND		ug/kg	32.7	2.90	A
Aroclor 1221	ND		ug/kg	32.7	3.28	A
Aroclor 1232	ND		ug/kg	32.7	6.93	A
Aroclor 1242	ND		ug/kg	32.7	4.41	A
Aroclor 1248	ND		ug/kg	32.7	4.90	A
Aroclor 1254	ND		ug/kg	32.7	3.58	A
Aroclor 1260	ND		ug/kg	32.7	6.04	A
Aroclor 1262	ND		ug/kg	32.7	4.15	A
Aroclor 1268	ND		ug/kg	32.7	3.39	A
PCBs, Total	ND		ug/kg	32.7	2.90	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	73		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 12/08/18 03:38
Analyst: HT

Extraction Method: EPA 3510C
Extraction Date: 12/06/18 16:29
Cleanup Method: EPA 3665A
Cleanup Date: 12/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 10 Batch: WG1186489-1						
Aroclor 1016	ND		ug/l	0.083	0.034	A
Aroclor 1221	ND		ug/l	0.083	0.067	A
Aroclor 1232	ND		ug/l	0.083	0.046	A
Aroclor 1242	ND		ug/l	0.083	0.039	A
Aroclor 1248	ND		ug/l	0.083	0.049	A
Aroclor 1254	ND		ug/l	0.083	0.039	A
Aroclor 1260	ND		ug/l	0.083	0.032	A
Aroclor 1262	ND		ug/l	0.083	0.035	A
Aroclor 1268	ND		ug/l	0.083	0.034	A
PCBs, Total	ND		ug/l	0.083	0.032	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	77		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	84		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-09 Batch: WG1186307-2 WG1186307-3									
Aroclor 1016	66		67		40-140	2		50	A
Aroclor 1260	53		55		40-140	4		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		83		30-150	A
Decachlorobiphenyl	59		61		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		81		30-150	B
Decachlorobiphenyl	74		74		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 10 Batch: WG1186489-2 WG1186489-3									
Aroclor 1016	71		68		40-140	4		50	A
Aroclor 1260	72		69		40-140	4		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		78		30-150	A
Decachlorobiphenyl	80		76		30-150	A
2,4,5,6-Tetrachloro-m-xylene	79		76		30-150	B
Decachlorobiphenyl	82		80		30-150	B

PESTICIDES

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 21:34
Analyst: SL
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.83	0.358	1	A
Lindane	ND		ug/kg	0.763	0.341	1	A
Alpha-BHC	ND		ug/kg	0.763	0.217	1	A
Beta-BHC	ND		ug/kg	1.83	0.694	1	A
Heptachlor	ND		ug/kg	0.915	0.410	1	A
Aldrin	ND		ug/kg	1.83	0.644	1	A
Heptachlor epoxide	ND		ug/kg	3.43	1.03	1	A
Endrin	ND		ug/kg	0.763	0.313	1	A
Endrin aldehyde	ND		ug/kg	2.29	0.801	1	A
Endrin ketone	ND		ug/kg	1.83	0.471	1	A
Dieldrin	ND		ug/kg	1.14	0.572	1	A
4,4'-DDE	ND		ug/kg	1.83	0.423	1	A
4,4'-DDD	ND		ug/kg	1.83	0.653	1	A
4,4'-DDT	ND		ug/kg	3.43	1.47	1	A
Endosulfan I	ND		ug/kg	1.83	0.432	1	A
Endosulfan II	ND		ug/kg	1.83	0.612	1	A
Endosulfan sulfate	ND		ug/kg	0.763	0.363	1	A
Methoxychlor	ND		ug/kg	3.43	1.07	1	A
Toxaphene	ND		ug/kg	34.3	9.61	1	A
cis-Chlordane	ND		ug/kg	2.29	0.638	1	A
trans-Chlordane	1.46	JIP	ug/kg	2.29	0.604	1	A
Chlordane	ND		ug/kg	14.9	6.06	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	109		30-150	B
Decachlorobiphenyl	101		30-150	B
2,4,5,6-Tetrachloro-m-xylene	115		30-150	A
Decachlorobiphenyl	106		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 21:47
Analyst: SL
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.80	0.352	1	A
Lindane	ND		ug/kg	0.750	0.335	1	A
Alpha-BHC	ND		ug/kg	0.750	0.213	1	A
Beta-BHC	ND		ug/kg	1.80	0.683	1	A
Heptachlor	ND		ug/kg	0.900	0.404	1	A
Aldrin	ND		ug/kg	1.80	0.634	1	A
Heptachlor epoxide	ND		ug/kg	3.38	1.01	1	A
Endrin	ND		ug/kg	0.750	0.308	1	A
Endrin aldehyde	ND		ug/kg	2.25	0.788	1	A
Endrin ketone	ND		ug/kg	1.80	0.464	1	A
Dieldrin	ND		ug/kg	1.12	0.563	1	A
4,4'-DDE	ND		ug/kg	1.80	0.416	1	A
4,4'-DDD	ND		ug/kg	1.80	0.642	1	A
4,4'-DDT	ND		ug/kg	3.38	1.45	1	A
Endosulfan I	ND		ug/kg	1.80	0.425	1	A
Endosulfan II	ND		ug/kg	1.80	0.602	1	A
Endosulfan sulfate	ND		ug/kg	0.750	0.357	1	A
Methoxychlor	ND		ug/kg	3.38	1.05	1	A
Toxaphene	ND		ug/kg	33.8	9.45	1	A
cis-Chlordane	ND		ug/kg	2.25	0.627	1	A
trans-Chlordane	ND	IP	ug/kg	2.25	0.594	1	A
Chlordane	ND		ug/kg	14.6	5.96	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	111		30-150	B
Decachlorobiphenyl	107		30-150	B
2,4,5,6-Tetrachloro-m-xylene	105		30-150	A
Decachlorobiphenyl	109		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 22:00
Analyst: SL
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.91	0.375	1	A
Lindane	ND		ug/kg	0.798	0.356	1	A
Alpha-BHC	ND		ug/kg	0.798	0.226	1	A
Beta-BHC	ND		ug/kg	1.91	0.726	1	A
Heptachlor	ND		ug/kg	0.957	0.429	1	A
Aldrin	ND		ug/kg	1.91	0.674	1	A
Heptachlor epoxide	ND		ug/kg	3.59	1.08	1	A
Endrin	ND		ug/kg	0.798	0.327	1	A
Endrin aldehyde	ND		ug/kg	2.39	0.838	1	A
Endrin ketone	ND		ug/kg	1.91	0.493	1	A
Dieldrin	ND		ug/kg	1.20	0.598	1	A
4,4'-DDE	ND		ug/kg	1.91	0.443	1	A
4,4'-DDD	ND		ug/kg	1.91	0.683	1	A
4,4'-DDT	ND		ug/kg	3.59	1.54	1	A
Endosulfan I	ND		ug/kg	1.91	0.452	1	A
Endosulfan II	ND		ug/kg	1.91	0.640	1	A
Endosulfan sulfate	ND		ug/kg	0.798	0.380	1	A
Methoxychlor	ND		ug/kg	3.59	1.12	1	A
Toxaphene	ND		ug/kg	35.9	10.0	1	A
cis-Chlordane	ND		ug/kg	2.39	0.667	1	A
trans-Chlordane	ND	IP	ug/kg	2.39	0.632	1	A
Chlordane	ND		ug/kg	15.6	6.34	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	114		30-150	B
Decachlorobiphenyl	107		30-150	B
2,4,5,6-Tetrachloro-m-xylene	114		30-150	A
Decachlorobiphenyl	116		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 22:13
Analyst: SL
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.92	0.375	1	A
Lindane	ND		ug/kg	0.798	0.357	1	A
Alpha-BHC	ND		ug/kg	0.798	0.227	1	A
Beta-BHC	ND		ug/kg	1.92	0.726	1	A
Heptachlor	ND		ug/kg	0.958	0.430	1	A
Aldrin	ND		ug/kg	1.92	0.674	1	A
Heptachlor epoxide	ND		ug/kg	3.59	1.08	1	A
Endrin	ND		ug/kg	0.798	0.327	1	A
Endrin aldehyde	ND		ug/kg	2.39	0.838	1	A
Endrin ketone	ND		ug/kg	1.92	0.493	1	A
Dieldrin	ND		ug/kg	1.20	0.599	1	A
4,4'-DDE	ND		ug/kg	1.92	0.443	1	B
4,4'-DDD	ND		ug/kg	1.92	0.683	1	A
4,4'-DDT	ND		ug/kg	3.59	1.54	1	A
Endosulfan I	ND		ug/kg	1.92	0.453	1	A
Endosulfan II	ND		ug/kg	1.92	0.640	1	A
Endosulfan sulfate	ND		ug/kg	0.798	0.380	1	A
Methoxychlor	ND		ug/kg	3.59	1.12	1	A
Toxaphene	ND		ug/kg	35.9	10.0	1	A
cis-Chlordane	ND		ug/kg	2.39	0.667	1	A
trans-Chlordane	ND	IP	ug/kg	2.39	0.632	1	A
Chlordane	ND		ug/kg	15.6	6.35	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	104		30-150	B
Decachlorobiphenyl	97		30-150	B
2,4,5,6-Tetrachloro-m-xylene	96		30-150	A
Decachlorobiphenyl	103		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 22:25
Analyst: SL
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.83	0.359	1	A
Lindane	ND		ug/kg	0.764	0.342	1	A
Alpha-BHC	ND		ug/kg	0.764	0.217	1	A
Beta-BHC	ND		ug/kg	1.83	0.695	1	A
Heptachlor	ND		ug/kg	0.917	0.411	1	A
Aldrin	ND		ug/kg	1.83	0.646	1	A
Heptachlor epoxide	ND		ug/kg	3.44	1.03	1	A
Endrin	ND		ug/kg	0.764	0.313	1	A
Endrin aldehyde	ND		ug/kg	2.29	0.802	1	A
Endrin ketone	ND		ug/kg	1.83	0.472	1	A
Dieldrin	ND		ug/kg	1.15	0.573	1	A
4,4'-DDE	ND		ug/kg	1.83	0.424	1	A
4,4'-DDD	ND		ug/kg	1.83	0.654	1	A
4,4'-DDT	ND		ug/kg	3.44	1.47	1	A
Endosulfan I	ND		ug/kg	1.83	0.433	1	A
Endosulfan II	ND		ug/kg	1.83	0.613	1	A
Endosulfan sulfate	ND		ug/kg	0.764	0.364	1	A
Methoxychlor	ND		ug/kg	3.44	1.07	1	A
Toxaphene	ND		ug/kg	34.4	9.63	1	A
cis-Chlordane	ND		ug/kg	2.29	0.639	1	A
trans-Chlordane	ND	IP	ug/kg	2.29	0.605	1	A
Chlordane	ND		ug/kg	14.9	6.08	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	128		30-150	B
Decachlorobiphenyl	137		30-150	B
2,4,5,6-Tetrachloro-m-xylene	131		30-150	A
Decachlorobiphenyl	135		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/09/18 22:38
Analyst: SL
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	2.06	0.403	1	A
Lindane	ND		ug/kg	0.858	0.383	1	A
Alpha-BHC	ND		ug/kg	0.858	0.244	1	A
Beta-BHC	ND		ug/kg	2.06	0.780	1	A
Heptachlor	ND		ug/kg	1.03	0.461	1	A
Aldrin	ND		ug/kg	2.06	0.725	1	A
Heptachlor epoxide	ND		ug/kg	3.86	1.16	1	A
Endrin	ND		ug/kg	0.858	0.352	1	A
Endrin aldehyde	ND		ug/kg	2.57	0.901	1	A
Endrin ketone	ND		ug/kg	2.06	0.530	1	A
Dieldrin	ND		ug/kg	1.29	0.643	1	A
4,4'-DDE	ND		ug/kg	2.06	0.476	1	A
4,4'-DDD	ND		ug/kg	2.06	0.734	1	A
4,4'-DDT	ND		ug/kg	3.86	1.66	1	A
Endosulfan I	ND		ug/kg	2.06	0.486	1	A
Endosulfan II	ND		ug/kg	2.06	0.688	1	A
Endosulfan sulfate	ND		ug/kg	0.858	0.408	1	A
Methoxychlor	ND		ug/kg	3.86	1.20	1	A
Toxaphene	ND		ug/kg	38.6	10.8	1	A
cis-Chlordane	ND		ug/kg	2.57	0.717	1	A
trans-Chlordane	ND	IP	ug/kg	2.57	0.679	1	A
Chlordane	ND		ug/kg	16.7	6.82	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	127		30-150	B
Decachlorobiphenyl	122		30-150	B
2,4,5,6-Tetrachloro-m-xylene	122		30-150	A
Decachlorobiphenyl	127		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/10/18 11:55
Analyst: AMC
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.86	0.364	1	A
Lindane	ND		ug/kg	0.775	0.346	1	A
Alpha-BHC	ND		ug/kg	0.775	0.220	1	A
Beta-BHC	ND		ug/kg	1.86	0.706	1	A
Heptachlor	ND		ug/kg	0.930	0.417	1	A
Aldrin	ND		ug/kg	1.86	0.655	1	A
Heptachlor epoxide	ND		ug/kg	3.49	1.05	1	A
Endrin	ND		ug/kg	0.775	0.318	1	A
Endrin aldehyde	ND		ug/kg	2.33	0.814	1	A
Endrin ketone	ND		ug/kg	1.86	0.479	1	A
Dieldrin	ND		ug/kg	1.16	0.582	1	A
4,4'-DDE	ND		ug/kg	1.86	0.430	1	A
4,4'-DDD	ND		ug/kg	1.86	0.664	1	A
4,4'-DDT	ND		ug/kg	3.49	1.50	1	A
Endosulfan I	ND		ug/kg	1.86	0.440	1	A
Endosulfan II	ND		ug/kg	1.86	0.622	1	A
Endosulfan sulfate	ND		ug/kg	0.775	0.369	1	A
Methoxychlor	ND		ug/kg	3.49	1.08	1	A
Toxaphene	ND		ug/kg	34.9	9.77	1	A
cis-Chlordane	ND		ug/kg	2.33	0.648	1	A
trans-Chlordane	ND		ug/kg	2.33	0.614	1	A
Chlordane	ND		ug/kg	15.1	6.16	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	98		30-150	B
Decachlorobiphenyl	146		30-150	B
2,4,5,6-Tetrachloro-m-xylene	116		30-150	A
Decachlorobiphenyl	137		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/10/18 12:32
Analyst: AMC
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.75	0.344	1	A
Lindane	ND		ug/kg	0.731	0.327	1	A
Alpha-BHC	ND		ug/kg	0.731	0.208	1	A
Beta-BHC	ND		ug/kg	1.75	0.665	1	A
Heptachlor	ND		ug/kg	0.877	0.393	1	A
Aldrin	ND		ug/kg	1.75	0.618	1	A
Heptachlor epoxide	ND		ug/kg	3.29	0.987	1	A
Endrin	ND		ug/kg	0.731	0.300	1	A
Endrin aldehyde	ND		ug/kg	2.19	0.768	1	A
Endrin ketone	ND		ug/kg	1.75	0.452	1	A
Dieldrin	ND		ug/kg	1.10	0.548	1	A
4,4'-DDE	7.25	P	ug/kg	1.75	0.406	1	A
4,4'-DDD	6.82	P	ug/kg	1.75	0.626	1	B
4,4'-DDT	ND		ug/kg	3.29	1.41	1	A
Endosulfan I	ND		ug/kg	1.75	0.414	1	A
Endosulfan II	ND		ug/kg	1.75	0.586	1	A
Endosulfan sulfate	ND		ug/kg	0.731	0.348	1	A
Methoxychlor	ND		ug/kg	3.29	1.02	1	A
Toxaphene	ND		ug/kg	32.9	9.21	1	A
cis-Chlordane	ND		ug/kg	2.19	0.611	1	A
trans-Chlordane	ND		ug/kg	2.19	0.579	1	A
Chlordane	ND		ug/kg	14.2	5.81	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87		30-150	B
Decachlorobiphenyl	120		30-150	B
2,4,5,6-Tetrachloro-m-xylene	106		30-150	A
Decachlorobiphenyl	126		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 12/10/18 12:45
Analyst: AMC
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.85	0.362	1	A
Lindane	ND		ug/kg	0.771	0.344	1	A
Alpha-BHC	ND		ug/kg	0.771	0.219	1	A
Beta-BHC	ND		ug/kg	1.85	0.701	1	A
Heptachlor	ND		ug/kg	0.925	0.415	1	A
Aldrin	ND		ug/kg	1.85	0.651	1	A
Heptachlor epoxide	ND		ug/kg	3.47	1.04	1	A
Endrin	ND		ug/kg	0.771	0.316	1	A
Endrin aldehyde	ND		ug/kg	2.31	0.809	1	A
Endrin ketone	ND		ug/kg	1.85	0.476	1	A
Dieldrin	ND		ug/kg	1.16	0.578	1	A
4,4'-DDE	ND		ug/kg	1.85	0.428	1	A
4,4'-DDD	ND		ug/kg	1.85	0.660	1	A
4,4'-DDT	ND		ug/kg	3.47	1.49	1	A
Endosulfan I	ND		ug/kg	1.85	0.437	1	A
Endosulfan II	ND		ug/kg	1.85	0.618	1	A
Endosulfan sulfate	ND		ug/kg	0.771	0.367	1	A
Methoxychlor	ND		ug/kg	3.47	1.08	1	A
Toxaphene	ND		ug/kg	34.7	9.71	1	A
cis-Chlordane	ND		ug/kg	2.31	0.644	1	A
trans-Chlordane	ND		ug/kg	2.31	0.610	1	A
Chlordane	ND		ug/kg	15.0	6.13	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	102		30-150	B
Decachlorobiphenyl	98		30-150	B
2,4,5,6-Tetrachloro-m-xylene	109		30-150	A
Decachlorobiphenyl	68		30-150	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/09/18 20:43
Analyst: SL

Extraction Method: EPA 3510C
Extraction Date: 12/06/18 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	ND		ug/l	0.029	0.003	1	A
Dieldrin	ND		ug/l	0.029	0.003	1	A
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	0.006	J	ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	ND		ug/l	0.014	0.005	1	A
trans-Chlordane	ND		ug/l	0.014	0.004	1	A
Chlordane	ND		ug/l	0.143	0.033	1	A

Project Name: 438 UNION AVE
Lab Number: L1849431
Project Number: 438 UNION AVE
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	67		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	45		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/09/18 20:05
Analyst: SL

Extraction Method: EPA 3510C
Extraction Date: 12/06/18 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 10 Batch: WG1186268-1						
Delta-BHC	ND		ug/l	0.014	0.003	A
Lindane	ND		ug/l	0.014	0.003	A
Alpha-BHC	ND		ug/l	0.014	0.003	A
Beta-BHC	ND		ug/l	0.014	0.004	A
Heptachlor	ND		ug/l	0.014	0.002	A
Aldrin	ND		ug/l	0.014	0.002	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	A
Endrin	ND		ug/l	0.029	0.003	A
Endrin aldehyde	ND		ug/l	0.029	0.006	A
Endrin ketone	ND		ug/l	0.029	0.003	A
Dieldrin	ND		ug/l	0.029	0.003	A
4,4'-DDE	ND		ug/l	0.029	0.003	A
4,4'-DDD	ND		ug/l	0.029	0.003	A
4,4'-DDT	ND		ug/l	0.029	0.003	A
Endosulfan I	ND		ug/l	0.014	0.002	A
Endosulfan II	ND		ug/l	0.029	0.004	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	A
Methoxychlor	ND		ug/l	0.143	0.005	A
Toxaphene	ND		ug/l	0.143	0.045	A
cis-Chlordane	ND		ug/l	0.014	0.005	A
trans-Chlordane	ND		ug/l	0.014	0.004	A
Chlordane	ND		ug/l	0.143	0.033	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/09/18 20:05
Analyst: SL

Extraction Method: EPA 3510C
Extraction Date: 12/06/18 08:57

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 10 Batch: WG1186268-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	57		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/09/18 20:56
Analyst: SL

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-09 Batch: WG1186328-1						
Delta-BHC	ND		ug/kg	1.58	0.310	A
Lindane	ND		ug/kg	0.659	0.294	A
Alpha-BHC	ND		ug/kg	0.659	0.187	A
Beta-BHC	ND		ug/kg	1.58	0.599	A
Heptachlor	ND		ug/kg	0.790	0.354	A
Aldrin	ND		ug/kg	1.58	0.557	A
Heptachlor epoxide	ND		ug/kg	2.96	0.889	A
Endrin	ND		ug/kg	0.659	0.270	A
Endrin aldehyde	ND		ug/kg	1.98	0.692	A
Endrin ketone	ND		ug/kg	1.58	0.407	A
Dieldrin	ND		ug/kg	0.988	0.494	A
4,4'-DDE	ND		ug/kg	1.58	0.366	A
4,4'-DDD	ND		ug/kg	1.58	0.564	A
4,4'-DDT	ND		ug/kg	2.96	1.27	A
Endosulfan I	ND		ug/kg	1.58	0.374	A
Endosulfan II	ND		ug/kg	1.58	0.528	A
Endosulfan sulfate	ND		ug/kg	0.659	0.314	A
Methoxychlor	ND		ug/kg	2.96	0.922	A
Toxaphene	ND		ug/kg	29.6	8.30	A
cis-Chlordane	ND		ug/kg	1.98	0.551	A
trans-Chlordane	ND		ug/kg	1.98	0.522	A
Chlordane	ND		ug/kg	12.8	5.24	A

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/09/18 20:56
Analyst: SL

Extraction Method: EPA 3546
Extraction Date: 12/06/18 10:25
Cleanup Method: EPA 3620B
Cleanup Date: 12/08/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-09 Batch: WG1186328-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82		30-150	B
Decachlorobiphenyl	77		30-150	B
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	83		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 10 Batch: WG1186268-2 WG1186268-3									
Delta-BHC	66		70		30-150	7		20	A
Lindane	63		69		30-150	9		20	A
Alpha-BHC	66		73		30-150	11		20	A
Beta-BHC	59		67		30-150	12		20	A
Heptachlor	63		67		30-150	7		20	A
Aldrin	60		69		30-150	14		20	A
Heptachlor epoxide	62		69		30-150	11		20	A
Endrin	62		70		30-150	11		20	A
Endrin aldehyde	54		60		30-150	11		20	A
Endrin ketone	65		71		30-150	10		20	A
Dieldrin	66		73		30-150	11		20	A
4,4'-DDE	58		67		30-150	14		20	A
4,4'-DDD	61		69		30-150	13		20	A
4,4'-DDT	62		66		30-150	6		20	A
Endosulfan I	57		68		30-150	16		20	A
Endosulfan II	60		67		30-150	11		20	A
Endosulfan sulfate	62		67		30-150	8		20	A
Methoxychlor	57		68		30-150	17		20	A
cis-Chlordane	50		58		30-150	15		20	A
trans-Chlordane	57		62		30-150	9		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 10 Batch: WG1186268-2 WG1186268-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		59		30-150	A
Decachlorobiphenyl	55		53		30-150	A
2,4,5,6-Tetrachloro-m-xylene	58		58		30-150	B
Decachlorobiphenyl	52		51		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-09 Batch: WG1186328-2 WG1186328-3									
Delta-BHC	117		108		30-150	8		30	A
Lindane	113		111		30-150	2		30	A
Alpha-BHC	122		118		30-150	3		30	A
Beta-BHC	103		108		30-150	5		30	A
Heptachlor	111		103		30-150	7		30	A
Aldrin	101		94		30-150	7		30	A
Heptachlor epoxide	113		107		30-150	5		30	A
Endrin	111		106		30-150	5		30	A
Endrin aldehyde	87		84		30-150	4		30	A
Endrin ketone	108		101		30-150	7		30	A
Dieldrin	116		108		30-150	7		30	A
4,4'-DDE	90		84		30-150	7		30	A
4,4'-DDD	110		103		30-150	7		30	A
4,4'-DDT	106		98		30-150	8		30	A
Endosulfan I	95		88		30-150	8		30	A
Endosulfan II	105		98		30-150	7		30	A
Endosulfan sulfate	93		86		30-150	8		30	A
Methoxychlor	93		86		30-150	8		30	A
cis-Chlordane	73		68		30-150	7		30	A
trans-Chlordane	87		81		30-150	7		30	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-09 Batch: WG1186328-2 WG1186328-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	124		111		30-150	B
Decachlorobiphenyl	114		106		30-150	B
2,4,5,6-Tetrachloro-m-xylene	114		109		30-150	A
Decachlorobiphenyl	118		111		30-150	A

METALS

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7820		mg/kg	9.25	2.50	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Antimony, Total	0.814	J	mg/kg	4.63	0.352	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Arsenic, Total	2.34		mg/kg	0.925	0.192	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Barium, Total	52.7		mg/kg	0.925	0.161	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Beryllium, Total	0.426	J	mg/kg	0.463	0.031	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Cadmium, Total	0.426	J	mg/kg	0.925	0.091	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Calcium, Total	3500		mg/kg	9.25	3.24	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Chromium, Total	15.9		mg/kg	0.925	0.089	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Cobalt, Total	8.06		mg/kg	1.85	0.154	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Copper, Total	17.2		mg/kg	0.925	0.239	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Iron, Total	19800		mg/kg	4.63	0.836	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Lead, Total	25.4		mg/kg	4.63	0.248	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Magnesium, Total	1990		mg/kg	9.25	1.42	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Manganese, Total	570		mg/kg	0.925	0.147	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.073	0.016	1	12/07/18 10:20	12/07/18 22:10	EPA 7471B	1,7471B	EA
Nickel, Total	10.9		mg/kg	2.31	0.224	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Potassium, Total	735		mg/kg	231	13.3	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Selenium, Total	0.361	J	mg/kg	1.85	0.239	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.925	0.262	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Sodium, Total	78.2	J	mg/kg	185	2.91	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.85	0.291	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Vanadium, Total	25.6		mg/kg	0.925	0.188	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB
Zinc, Total	37.1		mg/kg	4.63	0.271	2	12/10/18 12:55	12/10/18 18:37	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5200		mg/kg	8.84	2.39	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Antimony, Total	0.540	J	mg/kg	4.42	0.336	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Arsenic, Total	0.938		mg/kg	0.884	0.184	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Barium, Total	23.3		mg/kg	0.884	0.154	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Beryllium, Total	0.239	J	mg/kg	0.442	0.029	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Cadmium, Total	0.283	J	mg/kg	0.884	0.087	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Calcium, Total	265		mg/kg	8.84	3.10	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Chromium, Total	11.8		mg/kg	0.884	0.085	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Cobalt, Total	3.71		mg/kg	1.77	0.147	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Copper, Total	10.8		mg/kg	0.884	0.228	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Iron, Total	16400		mg/kg	4.42	0.799	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Lead, Total	13.8		mg/kg	4.42	0.237	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Magnesium, Total	1270		mg/kg	8.84	1.36	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Manganese, Total	86.8		mg/kg	0.884	0.141	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.074	0.016	1	12/07/18 10:20	12/07/18 22:11	EPA 7471B	1,7471B	EA
Nickel, Total	8.14		mg/kg	2.21	0.214	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Potassium, Total	540		mg/kg	221	12.7	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.77	0.228	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.884	0.250	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Sodium, Total	55.1	J	mg/kg	177	2.79	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.77	0.279	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Vanadium, Total	19.5		mg/kg	0.884	0.180	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB
Zinc, Total	20.2		mg/kg	4.42	0.259	2	12/10/18 12:55	12/10/18 18:42	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	9210		mg/kg	9.42	2.54	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Antimony, Total	0.933	J	mg/kg	4.71	0.358	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Arsenic, Total	1.61		mg/kg	0.942	0.196	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Barium, Total	42.9		mg/kg	0.942	0.164	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Beryllium, Total	0.452	J	mg/kg	0.471	0.031	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Cadmium, Total	0.424	J	mg/kg	0.942	0.092	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Calcium, Total	1090		mg/kg	9.42	3.30	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Chromium, Total	20.5		mg/kg	0.942	0.090	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Cobalt, Total	8.14		mg/kg	1.88	0.156	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Copper, Total	16.1		mg/kg	0.942	0.243	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Iron, Total	22200		mg/kg	4.71	0.851	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Lead, Total	5.04		mg/kg	4.71	0.252	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Magnesium, Total	2740		mg/kg	9.42	1.45	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Manganese, Total	324		mg/kg	0.942	0.150	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.079	0.017	1	12/07/18 10:20	12/07/18 22:13	EPA 7471B	1,7471B	EA
Nickel, Total	13.3		mg/kg	2.36	0.228	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Potassium, Total	1580		mg/kg	236	13.6	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.88	0.243	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.942	0.267	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Sodium, Total	49.9	J	mg/kg	188	2.97	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.88	0.297	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Vanadium, Total	32.7		mg/kg	0.942	0.191	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB
Zinc, Total	53.3		mg/kg	4.71	0.276	2	12/10/18 12:55	12/10/18 18:47	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7290		mg/kg	9.40	2.54	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Antimony, Total	0.536	J	mg/kg	4.70	0.357	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Arsenic, Total	1.37		mg/kg	0.940	0.196	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Barium, Total	25.2		mg/kg	0.940	0.164	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Beryllium, Total	0.357	J	mg/kg	0.470	0.031	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Cadmium, Total	0.282	J	mg/kg	0.940	0.092	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Calcium, Total	503		mg/kg	9.40	3.29	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Chromium, Total	14.3		mg/kg	0.940	0.090	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Cobalt, Total	5.71		mg/kg	1.88	0.156	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Copper, Total	11.3		mg/kg	0.940	0.242	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Iron, Total	15500		mg/kg	4.70	0.849	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Lead, Total	3.17	J	mg/kg	4.70	0.252	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Magnesium, Total	1630		mg/kg	9.40	1.45	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Manganese, Total	198		mg/kg	0.940	0.149	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.076	0.016	1	12/07/18 10:20	12/07/18 22:15	EPA 7471B	1,7471B	EA
Nickel, Total	10.1		mg/kg	2.35	0.228	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Potassium, Total	806		mg/kg	235	13.5	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.88	0.242	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.940	0.266	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Sodium, Total	49.8	J	mg/kg	188	2.96	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.88	0.296	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Vanadium, Total	25.4		mg/kg	0.940	0.191	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB
Zinc, Total	23.9		mg/kg	4.70	0.275	2	12/10/18 12:55	12/10/18 18:52	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7610		mg/kg	8.95	2.42	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Antimony, Total	0.966	J	mg/kg	4.47	0.340	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Arsenic, Total	5.91		mg/kg	0.895	0.186	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Barium, Total	558		mg/kg	0.895	0.156	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Beryllium, Total	0.420	J	mg/kg	0.447	0.030	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Cadmium, Total	0.447	J	mg/kg	0.895	0.088	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Calcium, Total	2140		mg/kg	8.95	3.13	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Chromium, Total	16.6		mg/kg	0.895	0.086	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Cobalt, Total	6.01		mg/kg	1.79	0.148	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Copper, Total	25.5		mg/kg	0.895	0.231	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Iron, Total	16200		mg/kg	4.47	0.808	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Lead, Total	649		mg/kg	4.47	0.240	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Magnesium, Total	1690		mg/kg	8.95	1.38	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Manganese, Total	353		mg/kg	0.895	0.142	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Mercury, Total	1.30		mg/kg	0.075	0.016	1	12/07/18 10:20	12/07/18 22:17	EPA 7471B	1,7471B	EA
Nickel, Total	10.6		mg/kg	2.24	0.216	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Potassium, Total	709		mg/kg	224	12.9	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.79	0.231	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Silver, Total	0.268	J	mg/kg	0.895	0.253	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Sodium, Total	55.5	J	mg/kg	179	2.82	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.79	0.282	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Vanadium, Total	23.2		mg/kg	0.895	0.182	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB
Zinc, Total	172		mg/kg	4.47	0.262	2	12/10/18 12:55	12/10/18 18:56	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	9000		mg/kg	10.2	2.75	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Antimony, Total	0.865	J	mg/kg	5.09	0.387	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Arsenic, Total	1.48		mg/kg	1.02	0.212	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Barium, Total	42.0		mg/kg	1.02	0.177	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Beryllium, Total	0.387	J	mg/kg	0.509	0.034	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Cadmium, Total	0.366	J	mg/kg	1.02	0.100	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Calcium, Total	773		mg/kg	10.2	3.56	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Chromium, Total	20.3		mg/kg	1.02	0.098	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Cobalt, Total	6.68		mg/kg	2.04	0.169	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Copper, Total	15.4		mg/kg	1.02	0.262	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Iron, Total	20300		mg/kg	5.09	0.919	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Lead, Total	3.51	J	mg/kg	5.09	0.273	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Magnesium, Total	2510		mg/kg	10.2	1.57	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Manganese, Total	285		mg/kg	1.02	0.162	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.082	0.017	1	12/07/18 10:20	12/07/18 22:19	EPA 7471B	1,7471B	EA
Nickel, Total	11.1		mg/kg	2.54	0.246	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Potassium, Total	1140		mg/kg	254	14.6	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	2.04	0.262	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	1.02	0.288	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Sodium, Total	47.3	J	mg/kg	204	3.20	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	2.04	0.320	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Vanadium, Total	28.4		mg/kg	1.02	0.206	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB
Zinc, Total	43.3		mg/kg	5.09	0.298	2	12/10/18 12:55	12/10/18 19:01	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	6310		mg/kg	9.24	2.50	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Antimony, Total	0.656	J	mg/kg	4.62	0.351	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Arsenic, Total	1.66		mg/kg	0.924	0.192	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Barium, Total	29.2		mg/kg	0.924	0.161	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Beryllium, Total	0.148	J	mg/kg	0.462	0.031	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Cadmium, Total	0.296	J	mg/kg	0.924	0.091	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Calcium, Total	1060		mg/kg	9.24	3.23	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Chromium, Total	12.2		mg/kg	0.924	0.089	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Cobalt, Total	3.58		mg/kg	1.85	0.153	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Copper, Total	8.51		mg/kg	0.924	0.238	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Iron, Total	17300		mg/kg	4.62	0.834	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Lead, Total	8.80		mg/kg	4.62	0.248	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Magnesium, Total	1870		mg/kg	9.24	1.42	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Manganese, Total	90.4		mg/kg	0.924	0.147	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Mercury, Total	ND		mg/kg	0.075	0.016	1	12/07/18 10:20	12/07/18 22:21	EPA 7471B	1,7471B	EA
Nickel, Total	8.17		mg/kg	2.31	0.224	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Potassium, Total	680		mg/kg	231	13.3	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.85	0.238	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.924	0.262	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Sodium, Total	82.5	J	mg/kg	185	2.91	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.85	0.291	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Vanadium, Total	24.6		mg/kg	0.924	0.188	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB
Zinc, Total	19.1		mg/kg	4.62	0.271	2	12/10/18 12:55	12/10/18 19:06	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	8370		mg/kg	8.99	2.43	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Antimony, Total	2.48	J	mg/kg	4.50	0.342	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Arsenic, Total	9.59		mg/kg	0.899	0.187	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Barium, Total	168		mg/kg	0.899	0.156	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Beryllium, Total	0.450		mg/kg	0.450	0.030	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Cadmium, Total	0.584	J	mg/kg	0.899	0.088	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Calcium, Total	1520		mg/kg	8.99	3.15	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Chromium, Total	15.9		mg/kg	0.899	0.086	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Cobalt, Total	7.30		mg/kg	1.80	0.149	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Copper, Total	53.4		mg/kg	0.899	0.232	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Iron, Total	23200		mg/kg	4.50	0.812	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Lead, Total	419		mg/kg	4.50	0.241	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Magnesium, Total	1730		mg/kg	8.99	1.38	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Manganese, Total	366		mg/kg	0.899	0.143	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Mercury, Total	2.85		mg/kg	0.074	0.016	1	12/07/18 10:20	12/07/18 22:23	EPA 7471B	1,7471B	EA
Nickel, Total	11.9		mg/kg	2.25	0.218	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Potassium, Total	667		mg/kg	225	13.0	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Selenium, Total	0.602	J	mg/kg	1.80	0.232	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.899	0.254	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Sodium, Total	64.7	J	mg/kg	180	2.83	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.80	0.283	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Vanadium, Total	27.2		mg/kg	0.899	0.182	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB
Zinc, Total	219		mg/kg	4.50	0.264	2	12/10/18 12:55	12/10/18 19:11	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY
Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7610		mg/kg	9.32	2.52	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Antimony, Total	1.07	J	mg/kg	4.66	0.354	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Arsenic, Total	2.87		mg/kg	0.932	0.194	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Barium, Total	49.3		mg/kg	0.932	0.162	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Beryllium, Total	0.503		mg/kg	0.466	0.031	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Cadmium, Total	0.270	J	mg/kg	0.932	0.091	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Calcium, Total	1020		mg/kg	9.32	3.26	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Chromium, Total	11.8		mg/kg	0.932	0.089	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Cobalt, Total	4.82		mg/kg	1.86	0.155	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Copper, Total	12.4		mg/kg	0.932	0.240	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Iron, Total	13100		mg/kg	4.66	0.841	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Lead, Total	52.8		mg/kg	4.66	0.250	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Magnesium, Total	1460		mg/kg	9.32	1.43	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Manganese, Total	505		mg/kg	0.932	0.148	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Mercury, Total	1.76		mg/kg	0.076	0.016	1	12/07/18 10:20	12/07/18 22:25	EPA 7471B	1,7471B	EA
Nickel, Total	9.35		mg/kg	2.33	0.225	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Potassium, Total	399		mg/kg	233	13.4	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Selenium, Total	ND		mg/kg	1.86	0.240	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Silver, Total	ND		mg/kg	0.932	0.264	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Sodium, Total	43.6	J	mg/kg	186	2.93	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Thallium, Total	ND		mg/kg	1.86	0.293	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Vanadium, Total	17.9		mg/kg	0.932	0.189	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB
Zinc, Total	105		mg/kg	4.66	0.273	2	12/10/18 12:55	12/10/18 19:25	EPA 3050B	1,6010D	AB

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-10
Client ID: FIELD BLANK
Sample Location: BROOKLYN, NY
Sample Depth:
Matrix: Water

Date Collected: 12/04/18 12:15
Date Received: 12/04/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	0.032	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Antimony, Total	ND		mg/l	0.050	0.007	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Arsenic, Total	ND		mg/l	0.005	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Barium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Beryllium, Total	ND		mg/l	0.005	0.001	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Cadmium, Total	ND		mg/l	0.005	0.001	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Calcium, Total	0.102		mg/l	0.100	0.035	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Chromium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Cobalt, Total	ND		mg/l	0.020	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Copper, Total	0.005	J	mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Iron, Total	0.018	J	mg/l	0.050	0.009	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Lead, Total	0.003	J	mg/l	0.010	0.003	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Magnesium, Total	0.018	J	mg/l	0.100	0.015	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Manganese, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/10/18 16:37	12/10/18 22:23	EPA 7470A	1,7470A	MG
Nickel, Total	ND		mg/l	0.025	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Potassium, Total	ND		mg/l	2.50	0.237	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Selenium, Total	ND		mg/l	0.010	0.004	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Silver, Total	ND		mg/l	0.007	0.003	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Sodium, Total	0.308	J	mg/l	2.00	0.120	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Thallium, Total	ND		mg/l	0.020	0.003	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Vanadium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC
Zinc, Total	ND		mg/l	0.050	0.002	1	12/07/18 15:00	12/07/18 23:07	EPA 3005A	1,6010D	MC

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1186649-1										
Mercury, Total	ND		mg/kg	0.083	0.018	1	12/07/18 10:20	12/07/18 21:45	1,7471B	EA

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10 Batch: WG1186860-1										
Aluminum, Total	ND		mg/l	0.100	0.032	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Antimony, Total	ND		mg/l	0.050	0.007	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Arsenic, Total	ND		mg/l	0.005	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Barium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Beryllium, Total	ND		mg/l	0.005	0.001	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Cadmium, Total	ND		mg/l	0.005	0.001	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Calcium, Total	ND		mg/l	0.100	0.035	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Chromium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Cobalt, Total	ND		mg/l	0.020	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Copper, Total	0.004	J	mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Iron, Total	0.014	J	mg/l	0.050	0.009	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Lead, Total	ND		mg/l	0.010	0.003	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Magnesium, Total	ND		mg/l	0.100	0.015	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Manganese, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Nickel, Total	ND		mg/l	0.025	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Potassium, Total	ND		mg/l	2.50	0.237	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Selenium, Total	ND		mg/l	0.010	0.004	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Silver, Total	ND		mg/l	0.007	0.003	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Sodium, Total	ND		mg/l	2.00	0.120	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Thallium, Total	ND		mg/l	0.020	0.003	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Vanadium, Total	ND		mg/l	0.010	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC
Zinc, Total	ND		mg/l	0.050	0.002	1	12/07/18 15:00	12/07/18 23:03	1,6010D	MC

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1187498-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Antimony, Total	ND		mg/kg	2.00	0.152	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Arsenic, Total	ND		mg/kg	0.400	0.083	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Barium, Total	ND		mg/kg	0.400	0.070	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Beryllium, Total	ND		mg/kg	0.200	0.013	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Cadmium, Total	ND		mg/kg	0.400	0.039	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Calcium, Total	ND		mg/kg	4.00	1.40	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Chromium, Total	0.048	J	mg/kg	0.400	0.038	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Cobalt, Total	ND		mg/kg	0.800	0.066	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Copper, Total	ND		mg/kg	0.400	0.103	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Iron, Total	ND		mg/kg	2.00	0.361	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Lead, Total	ND		mg/kg	2.00	0.107	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Magnesium, Total	ND		mg/kg	4.00	0.616	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Manganese, Total	ND		mg/kg	0.400	0.064	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Nickel, Total	ND		mg/kg	1.00	0.097	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Potassium, Total	ND		mg/kg	100	5.76	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Selenium, Total	ND		mg/kg	0.800	0.103	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Silver, Total	ND		mg/kg	0.400	0.113	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Sodium, Total	3.24	J	mg/kg	80.0	1.26	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Thallium, Total	ND		mg/kg	0.800	0.126	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Vanadium, Total	ND		mg/kg	0.400	0.081	1	12/10/18 12:55	12/10/18 16:52	1,6010D	AB
Zinc, Total	ND		mg/kg	2.00	0.117	1	12/10/18 12:55	12/10/18 18:28	1,6010D	AB

Prep Information

Digestion Method: EPA 3050B

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE
Lab Number: L1849431
Report Date: 12/11/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10 Batch: WG1187658-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/10/18 16:37	12/10/18 22:19	1,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1186649-2 SRM Lot Number: D102-540								
Mercury, Total	120		-		65-134	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1186860-2					
Aluminum, Total	99	-	80-120	-	
Antimony, Total	94	-	80-120	-	
Arsenic, Total	101	-	80-120	-	
Barium, Total	100	-	80-120	-	
Beryllium, Total	99	-	80-120	-	
Cadmium, Total	106	-	80-120	-	
Calcium, Total	98	-	80-120	-	
Chromium, Total	100	-	80-120	-	
Cobalt, Total	99	-	80-120	-	
Copper, Total	95	-	80-120	-	
Iron, Total	101	-	80-120	-	
Lead, Total	95	-	80-120	-	
Magnesium, Total	106	-	80-120	-	
Manganese, Total	97	-	80-120	-	
Nickel, Total	102	-	80-120	-	
Potassium, Total	99	-	80-120	-	
Selenium, Total	98	-	80-120	-	
Silver, Total	102	-	80-120	-	
Sodium, Total	100	-	80-120	-	
Thallium, Total	99	-	80-120	-	
Vanadium, Total	101	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1186860-2					
Zinc, Total	105	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1187498-2 SRM Lot Number: D102-540					
Aluminum, Total	70	-	49-150	-	
Antimony, Total	122	-	1-199	-	
Arsenic, Total	111	-	83-117	-	
Barium, Total	99	-	83-118	-	
Beryllium, Total	98	-	83-116	-	
Cadmium, Total	102	-	83-118	-	
Calcium, Total	101	-	82-118	-	
Chromium, Total	100	-	83-117	-	
Cobalt, Total	104	-	84-116	-	
Copper, Total	103	-	84-116	-	
Iron, Total	90	-	61-139	-	
Lead, Total	105	-	82-118	-	
Magnesium, Total	96	-	76-124	-	
Manganese, Total	93	-	82-118	-	
Nickel, Total	105	-	83-117	-	
Potassium, Total	91	-	70-130	-	
Selenium, Total	109	-	79-121	-	
Silver, Total	109	-	80-120	-	
Sodium, Total	95	-	74-126	-	
Thallium, Total	102	-	81-119	-	
Vanadium, Total	96	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1187498-2 SRM Lot Number: D102-540					
Zinc, Total	104	-	81-118	-	
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1187658-2					
Mercury, Total	91	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1186649-3 WG1186649-4 QC Sample: L1849338-11 Client ID: MS Sample												
Mercury, Total	27.3	0.147	83.4	**38200**	Q	81.8	**37100**	Q	80-120	2		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1186860-3 QC Sample: L1849290-01 Client ID: MS Sample										
Aluminum, Total	41.9	2	47.5	**280**	Q	-	-	75-125	-	20
Antimony, Total	ND	0.5	0.277	**55**	Q	-	-	75-125	-	20
Arsenic, Total	0.288	0.12	0.408	100		-	-	75-125	-	20
Barium, Total	0.293	2	2.12	91		-	-	75-125	-	20
Beryllium, Total	0.004J	0.05	0.049	99		-	-	75-125	-	20
Cadmium, Total	0.003J	0.051	0.051	100		-	-	75-125	-	20
Calcium, Total	5.82	10	14.9	91		-	-	75-125	-	20
Chromium, Total	0.064	0.2	0.247	91		-	-	75-125	-	20
Cobalt, Total	0.037	0.5	0.477	88		-	-	75-125	-	20
Copper, Total	0.132	0.25	0.346	86		-	-	75-125	-	20
Iron, Total	108	1	113	**500**	Q	-	-	75-125	-	20
Lead, Total	0.072	0.51	0.497	83		-	-	75-125	-	20
Magnesium, Total	11.4	10	21.8	104		-	-	75-125	-	20
Manganese, Total	2.30	0.5	2.81	102		-	-	75-125	-	20
Nickel, Total	0.084	0.5	0.537	91		-	-	75-125	-	20
Potassium, Total	6.42	10	15.6	92		-	-	75-125	-	20
Selenium, Total	ND	0.12	0.081	**68**	Q	-	-	75-125	-	20
Silver, Total	ND	0.05	0.048	95		-	-	75-125	-	20
Sodium, Total	4.60	10	14.0	94		-	-	75-125	-	20
Thallium, Total	ND	0.12	0.102	85		-	-	75-125	-	20
Vanadium, Total	0.061	0.5	0.517	91		-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1186860-3 QC Sample: L1849290-01 Client ID: MS Sample									
Zinc, Total	0.179	0.5	0.647	94	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1187498-3 QC Sample: L1849419-01 Client ID: MS Sample										
Aluminum, Total	5810	164	5880	**43**	Q	-	-	75-125	-	20
Antimony, Total	ND	41	26.6	**65**	Q	-	-	75-125	-	20
Arsenic, Total	2.29	9.83	9.38	**72**	Q	-	-	75-125	-	20
Barium, Total	44.4	164	185	86		-	-	75-125	-	20
Beryllium, Total	ND	4.1	2.95	**72**	Q	-	-	75-125	-	20
Cadmium, Total	0.284J	4.18	3.47	83		-	-	75-125	-	20
Calcium, Total	1710	820	2130	**51**	Q	-	-	75-125	-	20
Chromium, Total	18.1	16.4	28.3	**62**	Q	-	-	75-125	-	20
Cobalt, Total	6.49	41	37.6	76		-	-	75-125	-	20
Copper, Total	7.20	20.5	23.8	81		-	-	75-125	-	20
Iron, Total	15900	82	13300	**0**	Q	-	-	75-125	-	20
Lead, Total	1.22J	41.8	30.2	**72**	Q	-	-	75-125	-	20
Magnesium, Total	2580	820	3520	115		-	-	75-125	-	20
Manganese, Total	218	41	214	**0**	Q	-	-	75-125	-	20
Nickel, Total	13.9	41	44.9	76		-	-	75-125	-	20
Potassium, Total	1320	820	2410	**133**	Q	-	-	75-125	-	20
Selenium, Total	0.263J	9.83	7.76	79		-	-	75-125	-	20
Silver, Total	ND	24.6	22.7	92		-	-	75-125	-	20
Sodium, Total	200	820	863	81		-	-	75-125	-	20
Thallium, Total	ND	9.83	5.57	**57**	Q	-	-	75-125	-	20
Vanadium, Total	32.9	41	65.7	80		-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1187658-3 QC Sample: L1849431-10 Client ID: FIELD BLANK									
Mercury, Total	ND	0.005	0.00408	82	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION AVE

Project Number: 438 UNION AVE

Lab Number: L1849431

Report Date: 12/11/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1186860-4 QC Sample: L1849290-01 Client ID: DUP Sample						
Iron, Total	108	110	mg/l	2		20
Manganese, Total	2.30	2.32	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1187498-4 QC Sample: L1849419-01 Client ID: DUP Sample						
Lead, Total	1.22J	1.44J	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1187658-4 QC Sample: L1849431-10 Client ID: FIELD BLANK						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-01
Client ID: SB-1 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:00
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-02
Client ID: SB-1 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:10
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-03
Client ID: SB-2 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-04
Client ID: SB-2 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 09:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-05
Client ID: SB-3 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:20
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-06
Client ID: SB-3 (10-12)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 11:40
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-07
Client ID: SB-1 (10-12) DUP
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 10:05
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-08
Client ID: SB-4 (0-2)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:30
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

SAMPLE RESULTS

Lab ID: L1849431-09
Client ID: SB-4 (2-4)
Sample Location: BROOKLYN, NY

Date Collected: 12/04/18 12:35
Date Received: 12/04/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	12/07/18 10:38	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1186754-1 QC Sample: L1849431-01 Client ID: SB-1 (0-2)						
Solids, Total	85.3	84.9	%	0		20

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849431-01A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-01B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-01C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-01X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-01Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-01Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-02A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-02B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-02C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-02X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-02Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-02Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-03A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-03B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849431-03C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-03X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-03Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-03Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-04A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-04B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-04C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-04X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-04Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-04Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-05A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-05B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-05C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-05X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-05Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-05Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-06A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-06B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-06C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-06X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849431-06Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-06Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-07A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-07B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-07C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-07X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-07Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-07Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-08A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-08B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-08C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-08X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-08Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-08Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-09A	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-09B	Vial Large Septa unpreserved (4oz)	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-09C	Glass 250ml/8oz unpreserved	B	NA		2.6	Y	Absent		NYTCL-8270(14),TS(7),NYTCL-8081(14),NYTCL-8082(14)
L1849431-09X	Vial MeOH preserved split	B	NA		2.6	Y	Absent		NYTCL-8260(14)
L1849431-09Y	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)
L1849431-09Z	Vial Water preserved split	B	NA		2.6	Y	Absent	**08-DEC-18 13:08**	NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION AVE
Project Number: 438 UNION AVE

Lab Number: L1849431
Report Date: 12/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849431-10A	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1849431-10B	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1849431-10C	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1849431-10D	Plastic 250ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1849431-10E	Amber 120ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8082-LVI(7)
L1849431-10F	Amber 120ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8082-LVI(7)
L1849431-10G	Amber 120ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8081(7)
L1849431-10H	Amber 120ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8081(7)
L1849431-10I	Amber 250ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8270-LVI(7)
L1849431-10J	Amber 250ml unpreserved	A	7	7	3.1	Y	Absent		NYTCL-8270-LVI(7)
L1849431-11A	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1849431-11B	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name:	438 UNION AVE	**Lab Number:**	L1849431
Project Number:	438 UNION AVE	**Report Date:**	12/11/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: DU Report with 'J' Qualifiers

Project Name:	438 UNION AVE	**Lab Number:**	L1849431
Project Number:	438 UNION AVE	**Report Date:**	12/11/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	438 UNION AVE	**Lab Number:**	L1849431
Project Number:	438 UNION AVE	**Report Date:**	12/11/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 12/4/18

ALPHA Job #: L1849431

Client Information

Client: TAHEN ENVIRONMENTAL
Address: 121 W 27th Street NY NY 10001
Phone: 646-705-2332
Fax:
Email: mahmed@tahen-env.com

Project Information

Project Name: 438 UNION AVE
Project Location: BROOKLYN, NY
Project #
(Use Project name as Project #) ☒
Project Manager: Mohamed Ahmed
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☒ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	NYTCL VOCs 8260	NYTCL SVOCs 8270	Pesticides	PCBs	Metals				Sample Specific Comments	Total Bottle
L1849431-01	SB-1 (0-2)	12/4/18	1000	S	CZ	X	X	X	X	X					
-02	SB-1 (10-12)	12/4/18	1010	S	CZ	X	X	X	X	X					
-03	SB-2 (0-2)		0930		CZ	X	X	X	X	X					
-04	SB-2 (10-12)		0940		CZ	X	X	X	X	X					
-05	SB-3 (0-2)		1120			X	X	X	X	X					
-06	SB-3 (10-12)		1140			X	X	X	X	X					
-07	SB-1 (10-12) DUP		1005			X	X	X	X	X					
-08	SB-4 (0-2)		1230			X	X	X	X	X					
-09	SB-4 (10-12)		1235	S		X	X	X	X	X					
-10	Field Blank	12/4/18	1215	W	CZ	X	X	X	X	X					

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type								
Preservative								

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	12/4/18 1320	Romell Jackson AAL	12/4 1300
D. Santos AAL	12/4 1708	D. Santos AAL	12/4/18 1830
D. Santos AAL	12/4/18 2230	[illegible]	12/4/18 223

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 12/4/18

ALPHA Job #: 4849431

Client Information
Client: TRC ENVI.
Address:
Phone:
Fax:
Email:

Project Information
Project Name: 439 UNION AVE
Project Location:
Project #
(Use Project name as Project #) ☐
Project Manager:
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	Sample Specific Comments	Total Bottle
49431-11	TRIP BLANK	—	—	W	—	X		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
	12/4/18 1300		12/4 1300
	12/4 1708	D. Santos AAL	12/4/18 1830
D. Santos AAL	12/4/18 2230		12/4/18 2230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ANALYTICAL REPORT

Lab Number:	L1849682
Client:	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York City, NY 10001
ATTN:	Mohamed Ahmed
Phone:	(646) 606-2332
Project Name:	438 UNION
Project Number:	438 UNION
Report Date:	12/12/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1849682-01	SV-1	SOIL_VAPOR	BROOKLYN	12/05/18 13:44	12/05/18
L1849682-02	SV-2	SOIL_VAPOR	BROOKLYN	12/05/18 13:50	12/05/18
L1849682-03	SV-3	SOIL_VAPOR	BROOKLYN	12/05/18 09:53	12/05/18
L1849682-04	SV-4	SOIL_VAPOR	BROOKLYN	12/05/18 10:05	12/05/18

Project Name:	438 UNION	**Lab Number:**	L1849682
Project Number:	438 UNION	**Report Date:**	12/12/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	438 UNION	**Lab Number:**	L1849682
Project Number:	438 UNION	**Report Date:**	12/12/18

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on December 4, 2018. The canister certification results are provided as an addendum.

L1849682-04 results for Acetone should be considered estimated due to co-elution with a non-target peak.

The WG1188129-3 LCS recovery for bromoform (131%) is above the upper 130% acceptance limit. All samples associated with this LCS do not have reportable amounts of this analyte.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 12/12/18

AIR

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-01
Client ID: SV-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:44
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 12/11/18 17:06
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.467	0.200	--	2.31	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	36.4	5.00	--	68.6	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	20.5	1.00	--	48.7	2.38	--		1
Trichlorofluoromethane	0.219	0.200	--	1.23	1.12	--		1
iso-Propyl Alcohol	4.04	0.500	--	9.93	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	1.03	0.500	--	3.12	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	1.00	0.500	--	2.95	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-01
Client ID: SV-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:44
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	0.617	0.500	--	2.22	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.707	0.200	--	2.49	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	2.10	0.200	--	6.71	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.257	0.200	--	0.885	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.292	0.200	--	1.36	0.934	--		1
Heptane	0.880	0.200	--	3.61	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	3.06	0.200	--	11.5	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.352	0.200	--	1.53	0.869	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-01
Client ID: SV-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:44
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	1.33	0.400	--	5.78	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.491	0.200	--	2.13	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	0.441	0.200	--	2.17	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	101		60-140

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-02
Client ID: SV-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:50
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 12/11/18 18:25
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.448	0.200	--	2.22	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	55.0	5.00	--	104	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	28.0	1.00	--	66.5	2.38	--		1
Trichlorofluoromethane	0.223	0.200	--	1.25	1.12	--		1
iso-Propyl Alcohol	9.64	0.500	--	23.7	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	0.694	0.500	--	2.10	1.52	--		1
Methylene chloride	0.695	0.500	--	2.41	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	1.07	0.500	--	3.16	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-02
Client ID: SV-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:50
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	0.935	0.500	--	2.76	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.589	0.200	--	2.08	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.605	0.200	--	1.93	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.241	0.200	--	0.830	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.338	0.200	--	1.58	0.934	--		1
Heptane	0.588	0.200	--	2.41	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	3.55	0.200	--	13.4	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	0.290	0.200	--	1.97	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.365	0.200	--	1.59	0.869	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-02
Client ID: SV-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:50
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	1.38	0.400	--	5.99	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.499	0.200	--	2.17	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	0.619	0.200	--	3.04	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	98		60-140

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-03
Client ID: SV-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 09:53
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 12/11/18 19:05
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.445	0.200	--	2.20	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	28.2	5.00	--	53.1	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	20.0	1.00	--	47.5	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	5.19	0.500	--	12.8	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.259	0.200	--	0.807	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	0.606	0.500	--	1.79	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-03
Client ID: SV-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 09:53
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.897	0.200	--	3.16	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.550	0.200	--	1.76	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.250	0.200	--	0.861	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.259	0.200	--	1.21	0.934	--		1
Heptane	0.717	0.200	--	2.94	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	2.15	0.200	--	8.10	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.251	0.200	--	1.09	0.869	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-03
Client ID: SV-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 09:53
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	0.918	0.400	--	3.99	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.318	0.200	--	1.38	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	98		60-140

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-04
Client ID: SV-4
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 12/11/18 19:44
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.429	0.200	--	2.12	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	15.5	5.00	--	29.2	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	10.8	1.00	--	25.7	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	0.681	0.500	--	1.67	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	0.614	0.500	--	1.86	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-04
Client ID: SV-4
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	2.91	0.200	--	10.3	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.849	0.200	--	2.71	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	9.81	0.200	--	33.8	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	10.6	0.200	--	49.5	0.934	--		1
Heptane	0.998	0.200	--	4.09	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	6.22	0.200	--	23.4	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	0.536	0.200	--	3.63	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.405	0.200	--	1.76	0.869	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849682-04
Client ID: SV-4
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	1.33	0.400	--	5.78	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.399	0.200	--	1.73	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	97		60-140

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 12/11/18 14:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1188129-4								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 12/11/18 14:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1188129-4								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Isopropyl Ether	ND	0.200	--	ND	0.836	--		1
Ethyl-Tert-Butyl-Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
Tertiary-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 12/11/18 14:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1188129-4								
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl Acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 12/11/18 14:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1188129-4								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane (C9)	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
o-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
p-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane (C10)	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane (C12)	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1

Project Name: 438 UNION
Project Number: 438 UNION
Lab Number: L1849682
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 12/11/18 14:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1188129-4								
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1188129-3								
Chlorodifluoromethane	97		-		70-130	-		
Propylene	119		-		70-130	-		
Propane	94		-		70-130	-		
Dichlorodifluoromethane	104		-		70-130	-		
Chloromethane	108		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	107		-		70-130	-		
Methanol	94		-		70-130	-		
Vinyl chloride	104		-		70-130	-		
1,3-Butadiene	114		-		70-130	-		
Butane	103		-		70-130	-		
Bromomethane	106		-		70-130	-		
Chloroethane	103		-		70-130	-		
Ethyl Alcohol	103		-		70-130	-		
Dichlorofluoromethane	95		-		70-130	-		
Vinyl bromide	107		-		70-130	-		
Acrolein	93		-		70-130	-		
Acetone	111		-		70-130	-		
Acetonitrile	107		-		70-130	-		
Trichlorofluoromethane	104		-		70-130	-		
iso-Propyl Alcohol	118		-		70-130	-		
Acrylonitrile	101		-		70-130	-		
Pentane	107		-		70-130	-		
Ethyl ether	97		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1188129-3								
1,1-Dichloroethene	104		-		70-130	-		
tert-Butyl Alcohol	93		-		70-130	-		
Methylene chloride	106		-		70-130	-		
3-Chloropropene	120		-		70-130	-		
Carbon disulfide	105		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	108		-		70-130	-		
trans-1,2-Dichloroethene	103		-		70-130	-		
1,1-Dichloroethane	103		-		70-130	-		
Methyl tert butyl ether	112		-		70-130	-		
Vinyl acetate	124		-		70-130	-		
2-Butanone	113		-		70-130	-		
cis-1,2-Dichloroethene	106		-		70-130	-		
Ethyl Acetate	109		-		70-130	-		
Chloroform	106		-		70-130	-		
Tetrahydrofuran	116		-		70-130	-		
2,2-Dichloropropane	100		-		70-130	-		
1,2-Dichloroethane	100		-		70-130	-		
n-Hexane	108		-		70-130	-		
Isopropyl Ether	102		-		70-130	-		
Ethyl-Tert-Butyl-Ether	99		-		70-130	-		
1,1,1-Trichloroethane	105		-		70-130	-		
1,1-Dichloropropene	108		-		70-130	-		
Benzene	104		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1188129-3								
Carbon tetrachloride	110		-		70-130	-		
Cyclohexane	106		-		70-130	-		
Tertiary-Amyl Methyl Ether	105		-		70-130	-		
Dibromomethane	102		-		70-130	-		
1,2-Dichloropropane	108		-		70-130	-		
Bromodichloromethane	111		-		70-130	-		
1,4-Dioxane	108		-		70-130	-		
Trichloroethene	108		-		70-130	-		
2,2,4-Trimethylpentane	106		-		70-130	-		
Methyl Methacrylate	120		-		70-130	-		
Heptane	115		-		70-130	-		
cis-1,3-Dichloropropene	117		-		70-130	-		
4-Methyl-2-pentanone	118		-		70-130	-		
trans-1,3-Dichloropropene	100		-		70-130	-		
1,1,2-Trichloroethane	110		-		70-130	-		
Toluene	108		-		70-130	-		
1,3-Dichloropropane	106		-		70-130	-		
2-Hexanone	120		-		70-130	-		
Dibromochloromethane	123		-		70-130	-		
1,2-Dibromoethane	114		-		70-130	-		
Butyl Acetate	112		-		70-130	-		
Octane	104		-		70-130	-		
Tetrachloroethene	113		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1188129-3								
1,1,1,2-Tetrachloroethane	112		-		70-130	-		
Chlorobenzene	113		-		70-130	-		
Ethylbenzene	110		-		70-130	-		
p/m-Xylene	111		-		70-130	-		
Bromoform	**131**	Q	-		70-130	-		
Styrene	112		-		70-130	-		
1,1,2,2-Tetrachloroethane	118		-		70-130	-		
o-Xylene	113		-		70-130	-		
1,2,3-Trichloropropane	107		-		70-130	-		
Nonane (C9)	109		-		70-130	-		
Isopropylbenzene	111		-		70-130	-		
Bromobenzene	108		-		70-130	-		
o-Chlorotoluene	107		-		70-130	-		
n-Propylbenzene	106		-		70-130	-		
p-Chlorotoluene	104		-		70-130	-		
4-Ethyltoluene	113		-		70-130	-		
1,3,5-Trimethylbenzene	111		-		70-130	-		
tert-Butylbenzene	110		-		70-130	-		
1,2,4-Trimethylbenzene	116		-		70-130	-		
Decane (C10)	107		-		70-130	-		
Benzyl chloride	129		-		70-130	-		
1,3-Dichlorobenzene	113		-		70-130	-		
1,4-Dichlorobenzene	113		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1188129-3								
sec-Butylbenzene	110		-		70-130	-		
p-Isopropyltoluene	107		-		70-130	-		
1,2-Dichlorobenzene	114		-		70-130	-		
n-Butylbenzene	114		-		70-130	-		
1,2-Dibromo-3-chloropropane	118		-		70-130	-		
Undecane	103		-		70-130	-		
Dodecane (C12)	124		-		70-130	-		
1,2,4-Trichlorobenzene	128		-		70-130	-		
Naphthalene	117		-		70-130	-		
1,2,3-Trichlorobenzene	124		-		70-130	-		
Hexachlorobutadiene	128		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1188129-5 QC Sample: L1849682-01 Client ID: SV-1						
Dichlorodifluoromethane	0.467	0.441	ppbV	6		25
Chloromethane	ND	ND	ppbV	NC		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethyl Alcohol	36.4	33.2	ppbV	9		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	20.5	18.9	ppbV	8		25
Trichlorofluoromethane	0.219	0.203	ppbV	8		25
iso-Propyl Alcohol	4.04	3.98	ppbV	1		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
tert-Butyl Alcohol	1.03	1.07	ppbV	4		25
Methylene chloride	ND	ND	ppbV	NC		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1188129-5 QC Sample: L1849682-01 Client ID: SV-1						
2-Butanone	1.00	0.953	ppbV	5		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Ethyl Acetate	0.617	ND	ppbV	NC		25
Chloroform	ND	ND	ppbV	NC		25
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	0.707	0.709	ppbV	0		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Benzene	2.10	2.11	ppbV	0		25
Carbon tetrachloride	ND	ND	ppbV	NC		25
Cyclohexane	0.257	0.270	ppbV	5		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	0.292	0.293	ppbV	0		25
Heptane	0.880	0.835	ppbV	5		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1188129-5 QC Sample: L1849682-01 Client ID: SV-1						
Toluene	3.06	3.11	ppbV	2		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Tetrachloroethene	ND	ND	ppbV	NC		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	0.352	0.355	ppbV	1		25
p/m-Xylene	1.33	1.34	ppbV	1		25
Bromoform	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	0.491	0.485	ppbV	1		25
4-Ethyltoluene	ND	ND	ppbV	NC		25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC		25
1,2,4-Trimethylbenzene	0.441	0.442	ppbV	0		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25

Project Name: 438 UNION

Project Number: 438 UNION

Lab Number: L1849682

Report Date: 12/12/18

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1849682-01	SV-1	0273	#30 SV	12/04/18	280220		-	-	-	Pass	18.0	17.3	4
L1849682-01	SV-1	194	2.7L Can	12/04/18	280220	L1807799-01	Pass	-29.3	-1.1	-	-	-	-
L1849682-02	SV-2	0014	Flow 3	12/04/18	280220		-	-	-	Pass	18.0	18.6	3
L1849682-02	SV-2	2339	2.7L Can	12/04/18	280220	L1847124-01	Pass	-29.2	-3.8	-	-	-	-
L1849682-03	SV-3	0745	#30 SV	12/04/18	280220		-	-	-	Pass	18.0	27.2	41
L1849682-03	SV-3	2521	2.7L Can	12/04/18	280220	L1832078-02	Pass	-29.9	2.1	-	-	-	-
L1849682-04	SV-4	01086	SV20	12/04/18	280220		-	-	-	Pass	18.2	16.8	8
L1849682-04	SV-4	368	2.7L Can	12/04/18	280220	L1832078-02	Pass	-29.9	-3.7	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 03/07/18 10:53
Analyst: GJ

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	90		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 03/07/18 10:53
Analyst: GJ

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1807799

Project Number: CANISTER QC BAT **Report Date:** 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--	J	1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1807799
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1807799-01
Client ID: CAN 340 SHELF 1
Sample Location:

Date Collected: 03/06/18 16:00
Date Received: 03/07/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	89		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/16/18 20:14
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	94		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/16/18 20:14
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1832078

Project Number: CANISTER QC BAT **Report Date:** 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1832078
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1832078-02
Client ID: CAN 1750 SHELF 7
Sample Location:

Date Collected: 08/15/18 16:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	95		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 11/16/18 19:54
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	86		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	84		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/16/18 19:54
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1847124
Report Date: 12/12/18

Air Canister Certification Results

Lab ID: L1847124-01
Client ID: CAN1735 SHELF 3
Sample Location:

Date Collected: 11/15/18 16:00
Date Received: 11/16/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	86		60-140

Project Name: 438 UNION
Project Number: 438 UNION

Lab Number: L1849682
Report Date: 12/12/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849682-01A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1849682-02A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1849682-03A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1849682-04A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	438 UNION	**Lab Number:**	L1849682
Project Number:	438 UNION	**Report Date:**	12/12/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	438 UNION	**Lab Number:**	L1849682
Project Number:	438 UNION	**Report Date:**	12/12/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	438 UNION	**Lab Number:**	L1849682
Project Number:	438 UNION	**Report Date:**	12/12/18

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

PAGE ____ OF ____

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/6/18

ALPHA Job #: L1849682

Client Information

Client: Tenen Env.
Address:
Phone:
Fax:
Email: mahmed@tenen-env.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: 438 Union
Project Location: Brooklyn
Project #: 438 Union
Project Manager: Mohamed Ahmed
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker: ____
(Default based on Regulatory Criteria Indicated)
Other Formats: ____
☒ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	ANALYSIS TO-15	TO-15 SIM	APH (Subset Non-petroleum HCs)	Fixed Gases ☐	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
49682.01	SV-1	12/5/18	1145	1344	29.15	2.52	SV	CZ	2.7			X					
.02	SV-2	"	1150	1350	30.24	5.24	"	"	"			X					
.03	SV-3	"	0755	0953	30.65	0.26	"	"	"	2521	0745	X					
.04	SV-4	"	0803	1005	30.33	6.25	"	"	"	368	01086	X					

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: CS

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature] 12-5-18	12/5/18 1727	[signature]	12-5-18 1417
[signature] 12/6	12-6-18 3:57	[signature]	12-5-18
		[signature]	12/6/18 0352

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ANALYTICAL REPORT

Lab Number:	L1849687
Client:	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York City, NY 10001
ATTN:	Mohamed Ahmed
Phone:	(646) 606-2332
Project Name:	438 UNION
Project Number:	438 UNION AVE
Report Date:	12/12/18

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Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1849687-01	MW-3	WATER	BROOKLYN	12/05/18 10:00	12/05/18
L1849687-02	MW-2	WATER	BROOKLYN	12/05/18 12:30	12/05/18
L1849687-03	MW-1	WATER	BROOKLYN	12/05/18 13:30	12/05/18
L1849687-04	FIELD BLANK	WATER	BROOKLYN	12/05/18 14:00	12/05/18
L1849687-05	TRIP BLANK	WATER	BROOKLYN	12/05/18 00:00	12/05/18
L1849687-06	MW-3 DUP	WATER	BROOKLYN	12/05/18 10:05	12/05/18

Project Name:	438 UNION	**Lab Number:**	L1849687
Project Number:	438 UNION AVE	**Report Date:**	12/12/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	438 UNION	**Lab Number:**	L1849687
Project Number:	438 UNION AVE	**Report Date:**	12/12/18

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1849687-02: The collection date and time on the chain of custody was 05-DEC-18 12:50; however, the collection date/time on the container label was 05-DEC-18 12:30. At the client's request, the collection date/time is reported as 05-DEC-18 12:30.

L1849687-06: Two of the sample containers submitted for the Volatile Organics analysis were received broken; however, there was adequate sample remaining to perform the requested analysis.

Total Metals

L1849687-04: The Field Blank has results for barium, calcium, copper, manganese, potassium, and sodium present above the reporting limits. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1188186-3 MS recovery, performed on L1849687-01, is outside the acceptance criteria for aluminum (181%). A post digestion spike was performed and was within acceptance criteria.

The WG1188186-3 MS recoveries for calcium (133%) and iron (52%), performed on L1849687-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

Dissolved Metals

L1849687-04: The Field Blank has results for barium, calcium, copper, potassium, and sodium present above the reporting limits. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1187724-4 Laboratory Duplicate RPD for iron (42%), performed on L1849687-01, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/12/18

ORGANICS

VOLATILES

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 16:24
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.66		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION **Lab Number:** L1849687

Project Number: 438 UNION AVE **Report Date:** 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01 Date Collected: 12/05/18 10:00

Client ID: MW-3 Date Received: 12/05/18

Sample Location: BROOKLYN Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.39	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 16:46
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	0.70	J	ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.29	J	ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION **Lab Number:** L1849687

Project Number: 438 UNION AVE **Report Date:** 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02 Date Collected: 12/05/18 12:30

Client ID: MW-2 Date Received: 12/05/18

Sample Location: BROOKLYN Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	107		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 17:08
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	12		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.56		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	108		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 17:30
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.2	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	108		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-05
Client ID: TRIP BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 00:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 17:52
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION **Lab Number:** L1849687

Project Number: 438 UNION AVE **Report Date:** 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-05 Date Collected: 12/05/18 00:00

Client ID: TRIP BLANK Date Received: 12/05/18

Sample Location: BROOKLYN Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-05
Client ID: TRIP BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 00:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	107		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/10/18 18:14
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.29	J	ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.35	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.2	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	108		70-130

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 10:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1187709-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 10:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1187709-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Acrylonitrile	ND		ug/l	5.0	1.5
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 12/10/18 10:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1187709-5					
o-Chlorotoluene	ND		ug/l	2.5	0.70
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.
p-Diethylbenzene	ND		ug/l	2.0	0.70
p-Ethyltoluene	ND		ug/l	2.0	0.70
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54
Ethyl ether	ND		ug/l	2.5	0.70
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1187709-3 WG1187709-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		99		70-130	1		20
Chloroform	100		99		70-130	1		20
Carbon tetrachloride	86		87		63-132	1		20
1,2-Dichloropropane	98		95		70-130	3		20
Dibromochloromethane	99		98		63-130	1		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	84		84		70-130	0		20
Chlorobenzene	98		97		75-130	1		20
Trichlorofluoromethane	88		87		62-150	1		20
1,2-Dichloroethane	100		100		70-130	0		20
1,1,1-Trichloroethane	89		86		67-130	3		20
Bromodichloromethane	100		99		67-130	1		20
trans-1,3-Dichloropropene	88		88		70-130	0		20
cis-1,3-Dichloropropene	90		88		70-130	2		20
1,1-Dichloropropene	86		87		70-130	1		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	95		94		70-130	1		20
Toluene	96		94		70-130	2		20
Ethylbenzene	94		94		70-130	0		20
Chloromethane	89		88		64-130	1		20
Bromomethane	93		88		39-139	6		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1187709-3 WG1187709-4								
Vinyl chloride	89		87		55-140	2		20
Chloroethane	120		120		55-138	0		20
1,1-Dichloroethene	90		87		61-145	3		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	97		95		70-130	2		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		98		70-130	2		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	86		86		63-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	94		95		70-130	1		20
Dibromomethane	96		98		70-130	2		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Acrylonitrile	100		100		70-130	0		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	65		61		36-147	6		20
Acetone	100		100		58-148	0		20
Carbon disulfide	95		93		51-130	2		20
2-Butanone	94		95		63-138	1		20
Vinyl acetate	94		97		70-130	3		20
4-Methyl-2-pentanone	85		85		59-130	0		20
2-Hexanone	80		80		57-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1187709-3 WG1187709-4								
Bromochloromethane	100		100		70-130	0		20
2,2-Dichloropropane	82		78		63-133	5		20
1,2-Dibromoethane	93		94		70-130	1		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	98		98		64-130	0		20
Bromobenzene	98		95		70-130	3		20
n-Butylbenzene	98		94		53-136	4		20
sec-Butylbenzene	95		91		70-130	4		20
tert-Butylbenzene	81		78		70-130	4		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	100		97		70-130	3		20
1,2-Dibromo-3-chloropropane	91		92		41-144	1		20
Hexachlorobutadiene	90		85		63-130	6		20
Isopropylbenzene	94		91		70-130	3		20
p-Isopropyltoluene	94		90		70-130	4		20
Naphthalene	85		84		70-130	1		20
n-Propylbenzene	98		94		69-130	4		20
1,2,3-Trichlorobenzene	95		91		70-130	4		20
1,2,4-Trichlorobenzene	94		90		70-130	4		20
1,3,5-Trimethylbenzene	98		94		64-130	4		20
1,2,4-Trimethylbenzene	99		94		70-130	5		20
1,4-Dioxane	118		104		56-162	13		20
p-Diethylbenzene	92		88		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1187709-3 WG1187709-4								
p-Ethyltoluene	97		93		70-130	4		20
1,2,4,5-Tetramethylbenzene	87		84		70-130	4		20
Ethyl ether	97		92		59-134	5		20
trans-1,4-Dichloro-2-butene	89		93		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	92		92		70-130
Dibromofluoromethane	99		100		70-130

SEMIVOLATILES

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/10/18 16:31
Analyst: CB

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Isophorone	ND		ug/l	5.0	1.2	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	ND		ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dibenzofuran	ND		ug/l	2.0	0.50	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		21-120
Phenol-d6	58		10-120
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	79		10-120
4-Terphenyl-d14	69		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 20:10
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.01	1
2-Chloronaphthalene	ND		ug/l	0.20	0.02	1
Fluoranthene	0.09	J	ug/l	0.10	0.02	1
Hexachlorobutadiene	ND		ug/l	0.50	0.05	1
Naphthalene	0.06	J	ug/l	0.10	0.05	1
Benzo(a)anthracene	0.02	J	ug/l	0.10	0.02	1
Benzo(a)pyrene	0.03	J	ug/l	0.10	0.02	1
Benzo(b)fluoranthene	0.04	J	ug/l	0.10	0.01	1
Benzo(k)fluoranthene	0.02	J	ug/l	0.10	0.01	1
Chrysene	0.03	J	ug/l	0.10	0.01	1
Acenaphthylene	ND		ug/l	0.10	0.01	1
Anthracene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.10		ug/l	0.10	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01	1
Indeno(1,2,3-cd)pyrene	0.02	J	ug/l	0.10	0.01	1
Pyrene	0.09	J	ug/l	0.10	0.02	1
2-Methylnaphthalene	0.04	J	ug/l	0.10	0.02	1
Pentachlorophenol	ND		ug/l	0.80	0.01	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.06	1

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		21-120
Phenol-d6	48		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	81		15-120
2,4,6-Tribromophenol	85		10-120
4-Terphenyl-d14	88		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/10/18 16:57
Analyst: CB

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Isophorone	ND		ug/l	5.0	1.2	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	ND		ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dibenzofuran	ND		ug/l	2.0	0.50	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	7.0	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	61		21-120
Phenol-d6	53		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	68		15-120
2,4,6-Tribromophenol	59		10-120
4-Terphenyl-d14	71		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 20:36
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.01	1
2-Chloronaphthalene	ND		ug/l	0.20	0.02	1
Fluoranthene	0.02	J	ug/l	0.10	0.02	1
Hexachlorobutadiene	ND		ug/l	0.50	0.05	1
Naphthalene	ND		ug/l	0.10	0.05	1
Benzo(a)anthracene	ND		ug/l	0.10	0.02	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.01	1
Benzo(k)fluoranthene	ND		ug/l	0.10	0.01	1
Chrysene	ND		ug/l	0.10	0.01	1
Acenaphthylene	ND		ug/l	0.10	0.01	1
Anthracene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.10	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Pyrene	0.02	J	ug/l	0.10	0.02	1
2-Methylnaphthalene	ND		ug/l	0.10	0.02	1
Pentachlorophenol	ND		ug/l	0.80	0.01	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.06	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	44		10-120
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	78		15-120
2,4,6-Tribromophenol	64		10-120
4-Terphenyl-d14	89		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/10/18 17:23
Analyst: CB

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Isophorone	ND		ug/l	5.0	1.2	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	ND		ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dibenzofuran	ND		ug/l	2.0	0.50	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		21-120
Phenol-d6	55		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	73		15-120
2,4,6-Tribromophenol	43		10-120
4-Terphenyl-d14	69		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 21:03
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.10	J	ug/l	0.10	0.01	1
2-Chloronaphthalene	ND		ug/l	0.20	0.02	1
Fluoranthene	0.03	J	ug/l	0.10	0.02	1
Hexachlorobutadiene	ND		ug/l	0.50	0.05	1
Naphthalene	8.4		ug/l	0.10	0.05	1
Benzo(a)anthracene	ND		ug/l	0.10	0.02	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.01	1
Benzo(k)fluoranthene	ND		ug/l	0.10	0.01	1
Chrysene	ND		ug/l	0.10	0.01	1
Acenaphthylene	0.02	J	ug/l	0.10	0.01	1
Anthracene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1
Fluorene	0.05	J	ug/l	0.10	0.01	1
Phenanthrene	0.07	J	ug/l	0.10	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Pyrene	0.06	J	ug/l	0.10	0.02	1
2-Methylnaphthalene	0.38		ug/l	0.10	0.02	1
Pentachlorophenol	ND		ug/l	0.80	0.01	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.06	1

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		21-120
Phenol-d6	46		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	80		15-120
2,4,6-Tribromophenol	51		10-120
4-Terphenyl-d14	87		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN

Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/10/18 17:49
Analyst: CB

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Isophorone	ND		ug/l	5.0	1.2	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	ND		ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dibenzofuran	ND		ug/l	2.0	0.50	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		21-120
Phenol-d6	51		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	68		15-120
2,4,6-Tribromophenol	57		10-120
4-Terphenyl-d14	74		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN

Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 21:29
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.01	1
2-Chloronaphthalene	ND		ug/l	0.20	0.02	1
Fluoranthene	0.03	J	ug/l	0.10	0.02	1
Hexachlorobutadiene	ND		ug/l	0.50	0.05	1
Naphthalene	ND		ug/l	0.10	0.05	1
Benzo(a)anthracene	ND		ug/l	0.10	0.02	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.01	1
Benzo(k)fluoranthene	ND		ug/l	0.10	0.01	1
Chrysene	ND		ug/l	0.10	0.01	1
Acenaphthylene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.05	J	ug/l	0.10	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Pyrene	0.03	J	ug/l	0.10	0.02	1
2-Methylnaphthalene	ND		ug/l	0.10	0.02	1
Pentachlorophenol	ND		ug/l	0.80	0.01	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.06	1

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		21-120
Phenol-d6	44		10-120
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	78		15-120
2,4,6-Tribromophenol	66		10-120
4-Terphenyl-d14	93		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 12/10/18 18:15
Analyst: CB

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6	1
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50	1
Hexachlorocyclopentadiene	ND		ug/l	20	0.69	1
Isophorone	ND		ug/l	5.0	1.2	1
Nitrobenzene	ND		ug/l	2.0	0.77	1
NDPA/DPA	ND		ug/l	2.0	0.42	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.2	1
Di-n-butylphthalate	0.41	J	ug/l	5.0	0.39	1
Di-n-octylphthalate	ND		ug/l	5.0	1.3	1
Diethyl phthalate	ND		ug/l	5.0	0.38	1
Dimethyl phthalate	ND		ug/l	5.0	1.8	1
Biphenyl	ND		ug/l	2.0	0.46	1
4-Chloroaniline	ND		ug/l	5.0	1.1	1
2-Nitroaniline	ND		ug/l	5.0	0.50	1
3-Nitroaniline	ND		ug/l	5.0	0.81	1
4-Nitroaniline	ND		ug/l	5.0	0.80	1

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Dibenzofuran	ND		ug/l	2.0	0.50	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44	1
Acetophenone	ND		ug/l	5.0	0.53	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	6.4	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1
Carbazole	ND		ug/l	2.0	0.49	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		21-120
Phenol-d6	59		10-120
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	70		15-120
2,4,6-Tribromophenol	66		10-120
4-Terphenyl-d14	61		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 21:55
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 16:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.01	1
2-Chloronaphthalene	ND		ug/l	0.20	0.02	1
Fluoranthene	0.03	J	ug/l	0.10	0.02	1
Hexachlorobutadiene	ND		ug/l	0.50	0.05	1
Naphthalene	0.06	J	ug/l	0.10	0.05	1
Benzo(a)anthracene	ND		ug/l	0.10	0.02	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.01	1
Benzo(k)fluoranthene	ND		ug/l	0.10	0.01	1
Chrysene	ND		ug/l	0.10	0.01	1
Acenaphthylene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.06	J	ug/l	0.10	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Pyrene	0.03	J	ug/l	0.10	0.02	1
2-Methylnaphthalene	0.04	J	ug/l	0.10	0.02	1
Pentachlorophenol	ND		ug/l	0.80	0.01	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.06	1

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		21-120
Phenol-d6	47		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	82		10-120
4-Terphenyl-d14	83		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/08/18 22:36
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 12:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06 Batch: WG1187163-1					
Acenaphthene	ND		ug/l	2.0	0.44
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.50
Hexachlorobenzene	ND		ug/l	2.0	0.46
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.50
2-Chloronaphthalene	ND		ug/l	2.0	0.44
1,2-Dichlorobenzene	ND		ug/l	2.0	0.45
1,3-Dichlorobenzene	ND		ug/l	2.0	0.40
1,4-Dichlorobenzene	ND		ug/l	2.0	0.43
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.6
2,4-Dinitrotoluene	ND		ug/l	5.0	1.2
2,6-Dinitrotoluene	ND		ug/l	5.0	0.93
Fluoranthene	ND		ug/l	2.0	0.26
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.49
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.38
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.53
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.50
Hexachlorobutadiene	ND		ug/l	2.0	0.66
Hexachlorocyclopentadiene	ND		ug/l	20	0.69
Hexachloroethane	ND		ug/l	2.0	0.58
Isophorone	ND		ug/l	5.0	1.2
Naphthalene	ND		ug/l	2.0	0.46
Nitrobenzene	ND		ug/l	2.0	0.77
NDPA/DPA	ND		ug/l	2.0	0.42
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.64
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	1.5
Butyl benzyl phthalate	ND		ug/l	5.0	1.2
Di-n-butylphthalate	ND		ug/l	5.0	0.39
Di-n-octylphthalate	ND		ug/l	5.0	1.3
Diethyl phthalate	ND		ug/l	5.0	0.38

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/08/18 22:36
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 12:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06 Batch: WG1187163-1					
Dimethyl phthalate	ND		ug/l	5.0	1.8
Benzo(a)anthracene	ND		ug/l	2.0	0.32
Benzo(a)pyrene	ND		ug/l	2.0	0.41
Benzo(b)fluoranthene	ND		ug/l	2.0	0.35
Benzo(k)fluoranthene	ND		ug/l	2.0	0.37
Chrysene	ND		ug/l	2.0	0.34
Acenaphthylene	ND		ug/l	2.0	0.46
Anthracene	ND		ug/l	2.0	0.33
Benzo(ghi)perylene	ND		ug/l	2.0	0.30
Fluorene	ND		ug/l	2.0	0.41
Phenanthrene	ND		ug/l	2.0	0.33
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.32
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.40
Pyrene	ND		ug/l	2.0	0.28
Biphenyl	ND		ug/l	2.0	0.46
4-Chloroaniline	ND		ug/l	5.0	1.1
2-Nitroaniline	ND		ug/l	5.0	0.50
3-Nitroaniline	ND		ug/l	5.0	0.81
4-Nitroaniline	ND		ug/l	5.0	0.80
Dibenzofuran	ND		ug/l	2.0	0.50
2-Methylnaphthalene	ND		ug/l	2.0	0.45
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.44
Acetophenone	ND		ug/l	5.0	0.53
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/08/18 22:36
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 12:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06 Batch: WG1187163-1					
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59
Carbazole	ND		ug/l	2.0	0.49

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		21-120
Phenol-d6	43		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	39		10-120
4-Terphenyl-d14	59		41-149

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 12:42
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 12:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-04,06 Batch: WG1187164-1					
Acenaphthene	ND		ug/l	0.10	0.01
2-Chloronaphthalene	ND		ug/l	0.20	0.02
Fluoranthene	ND		ug/l	0.10	0.02
Hexachlorobutadiene	ND		ug/l	0.50	0.05
Naphthalene	ND		ug/l	0.10	0.05
Benzo(a)anthracene	ND		ug/l	0.10	0.02
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(b)fluoranthene	ND		ug/l	0.10	0.01
Benzo(k)fluoranthene	ND		ug/l	0.10	0.01
Chrysene	ND		ug/l	0.10	0.01
Acenaphthylene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.10	0.02
Dibenzo(a,h)anthracene	ND		ug/l	0.10	0.01
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
2-Methylnaphthalene	ND		ug/l	0.10	0.02
Pentachlorophenol	ND		ug/l	0.80	0.01
Hexachlorobenzene	ND		ug/l	0.80	0.01
Hexachloroethane	ND		ug/l	0.80	0.06

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 12/10/18 12:42
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 12:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-04,06 Batch: WG1187164-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		21-120
Phenol-d6	51		10-120
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	78		10-120
4-Terphenyl-d14	76		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187163-2 WG1187163-3								
Acenaphthene	77		70		37-111	10		30
1,2,4-Trichlorobenzene	70		66		39-98	6		30
Hexachlorobenzene	68		64		40-140	6		30
Bis(2-chloroethyl)ether	74		68		40-140	8		30
2-Chloronaphthalene	76		71		40-140	7		30
1,2-Dichlorobenzene	69		64		40-140	8		30
1,3-Dichlorobenzene	69		62		40-140	11		30
1,4-Dichlorobenzene	68		63		36-97	8		30
3,3'-Dichlorobenzidine	51		**36**	Q	40-140	**34**	Q	30
2,4-Dinitrotoluene	75		72		48-143	4		30
2,6-Dinitrotoluene	78		74		40-140	5		30
Fluoranthene	79		72		40-140	9		30
4-Chlorophenyl phenyl ether	76		70		40-140	8		30
4-Bromophenyl phenyl ether	71		66		40-140	7		30
Bis(2-chloroisopropyl)ether	79		73		40-140	8		30
Bis(2-chloroethoxy)methane	78		73		40-140	7		30
Hexachlorobutadiene	68		64		40-140	6		30
Hexachlorocyclopentadiene	56		52		40-140	7		30
Hexachloroethane	68		63		40-140	8		30
Isophorone	78		73		40-140	7		30
Naphthalene	74		68		40-140	8		30
Nitrobenzene	75		70		40-140	7		30
NDPA/DPA	75		73		40-140	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187163-2 WG1187163-3								
n-Nitrosodi-n-propylamine	82		74		29-132	10		30
Bis(2-ethylhexyl)phthalate	61		58		40-140	5		30
Butyl benzyl phthalate	61		58		40-140	5		30
Di-n-butylphthalate	66		61		40-140	8		30
Di-n-octylphthalate	56		56		40-140	0		30
Diethyl phthalate	73		69		40-140	6		30
Dimethyl phthalate	77		72		40-140	7		30
Benzo(a)anthracene	80		73		40-140	9		30
Benzo(a)pyrene	82		77		40-140	6		30
Benzo(b)fluoranthene	82		72		40-140	13		30
Benzo(k)fluoranthene	81		75		40-140	8		30
Chrysene	84		76		40-140	10		30
Acenaphthylene	75		71		45-123	5		30
Anthracene	82		73		40-140	12		30
Benzo(ghi)perylene	93		83		40-140	11		30
Fluorene	80		72		40-140	11		30
Phenanthrene	84		72		40-140	15		30
Dibenzo(a,h)anthracene	87		81		40-140	7		30
Indeno(1,2,3-cd)pyrene	88		80		40-140	10		30
Pyrene	76		72		26-127	5		30
Biphenyl	79		74		40-140	7		30
4-Chloroaniline	60		48		40-140	22		30
2-Nitroaniline	70		66		52-143	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187163-2 WG1187163-3								
3-Nitroaniline	62		56		25-145	10		30
4-Nitroaniline	68		63		51-143	8		30
Dibenzofuran	77		70		40-140	10		30
2-Methylnaphthalene	75		70		40-140	7		30
1,2,4,5-Tetrachlorobenzene	72		68		2-134	6		30
Acetophenone	74		68		39-129	8		30
2,4,6-Trichlorophenol	71		68		30-130	4		30
p-Chloro-m-cresol	75		71		23-97	5		30
2-Chlorophenol	68		63		27-123	8		30
2,4-Dichlorophenol	74		69		30-130	7		30
2,4-Dimethylphenol	75		73		30-130	3		30
2-Nitrophenol	65		58		30-130	11		30
4-Nitrophenol	68		68		10-80	0		30
2,4-Dinitrophenol	75		74		20-130	1		30
4,6-Dinitro-o-cresol	69		68		20-164	1		30
Pentachlorophenol	70		70		9-103	0		30
Phenol	55		51		12-110	8		30
2-Methylphenol	71		67		30-130	6		30
3-Methylphenol/4-Methylphenol	73		68		30-130	7		30
2,4,5-Trichlorophenol	72		70		30-130	3		30
Benzoic Acid	82		80		10-164	2		30
Benzyl Alcohol	64		62		26-116	3		30
Carbazole	81		75		55-144	8		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187163-2 WG1187163-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	56		53		21-120
Phenol-d6	51		49		10-120
Nitrobenzene-d5	73		68		23-120
2-Fluorobiphenyl	74		65		15-120
2,4,6-Tribromophenol	58		58		10-120
4-Terphenyl-d14	63		58		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187164-2 WG1187164-3								
Acenaphthene	72		74		40-140	3		40
2-Chloronaphthalene	74		78		40-140	5		40
Fluoranthene	93		80		40-140	15		40
Hexachlorobutadiene	64		72		40-140	12		40
Naphthalene	65		72		40-140	10		40
Benzo(a)anthracene	94		82		40-140	14		40
Benzo(a)pyrene	95		82		40-140	15		40
Benzo(b)fluoranthene	92		82		40-140	11		40
Benzo(k)fluoranthene	96		83		40-140	15		40
Chrysene	86		74		40-140	15		40
Acenaphthylene	82		84		40-140	2		40
Anthracene	83		76		40-140	9		40
Benzo(ghi)perylene	92		79		40-140	15		40
Fluorene	81		79		40-140	3		40
Phenanthrene	80		75		40-140	6		40
Dibenzo(a,h)anthracene	98		83		40-140	17		40
Indeno(1,2,3-cd)pyrene	94		80		40-140	16		40
Pyrene	92		79		40-140	15		40
2-Methylnaphthalene	72		78		40-140	8		40
Pentachlorophenol	80		67		40-140	18		40
Hexachlorobenzene	85		84		40-140	1		40
Hexachloroethane	63		69		40-140	9		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187164-2 WG1187164-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	60		62		21-120
Phenol-d6	53		54		10-120
Nitrobenzene-d5	73		80		23-120
2-Fluorobiphenyl	83		87		15-120
2,4,6-Tribromophenol	108		79		10-120
4-Terphenyl-d14	95		80		41-149

PCBS

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/10/18 02:57
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	60		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	64		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/10/18 03:11
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	80		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	82		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/10/18 03:24
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	54		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	63		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN

Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/10/18 03:38
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	61		30-150	A
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	68		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 12/10/18 03:51
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.083	0.034	1	A
Aroclor 1221	ND		ug/l	0.083	0.067	1	A
Aroclor 1232	ND		ug/l	0.083	0.046	1	A
Aroclor 1242	ND		ug/l	0.083	0.039	1	A
Aroclor 1248	ND		ug/l	0.083	0.049	1	A
Aroclor 1254	ND		ug/l	0.083	0.039	1	A
Aroclor 1260	ND		ug/l	0.083	0.032	1	A
Aroclor 1262	ND		ug/l	0.083	0.035	1	A
Aroclor 1268	ND		ug/l	0.083	0.034	1	A
PCBs, Total	ND		ug/l	0.083	0.032	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	58		30-150	A
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	63		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 12/10/18 00:48
Analyst: AWS

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 20:44
Cleanup Method: EPA 3665A
Cleanup Date: 12/09/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/09/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-04,06 Batch: WG1187216-1						
Aroclor 1016	ND		ug/l	0.083	0.034	A
Aroclor 1221	ND		ug/l	0.083	0.067	A
Aroclor 1232	ND		ug/l	0.083	0.046	A
Aroclor 1242	ND		ug/l	0.083	0.039	A
Aroclor 1248	ND		ug/l	0.083	0.049	A
Aroclor 1254	ND		ug/l	0.083	0.039	A
Aroclor 1260	ND		ug/l	0.083	0.032	A
Aroclor 1262	ND		ug/l	0.083	0.035	A
Aroclor 1268	ND		ug/l	0.083	0.034	A
PCBs, Total	ND		ug/l	0.083	0.032	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	52		30-150	A
Decachlorobiphenyl	59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	65		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187216-2 WG1187216-3									
Aroclor 1016	73		78		40-140	7		50	A
Aroclor 1260	72		80		40-140	11		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		84		30-150	A
Decachlorobiphenyl	84		89		30-150	A
2,4,5,6-Tetrachloro-m-xylene	83		82		30-150	B
Decachlorobiphenyl	93		91		30-150	B

PESTICIDES

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/10/18 15:25
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	ND		ug/l	0.029	0.003	1	A
Dieldrin	ND		ug/l	0.029	0.003	1	A
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	ND		ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	ND		ug/l	0.014	0.005	1	A
trans-Chlordane	ND		ug/l	0.014	0.004	1	A
Chlordane	ND		ug/l	0.143	0.033	1	A

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	65		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	59		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN

Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/10/18 15:38
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	ND		ug/l	0.029	0.003	1	A
Dieldrin	ND		ug/l	0.029	0.003	1	A
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	ND		ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	ND		ug/l	0.014	0.005	1	A
trans-Chlordane	ND		ug/l	0.014	0.004	1	A
Chlordane	ND		ug/l	0.143	0.033	1	A

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	73		30-150	A
2,4,5,6-Tetrachloro-m-xylene	71		30-150	B
Decachlorobiphenyl	77		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN

Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/10/18 15:50
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	0.045		ug/l	0.029	0.003	1	B
Dieldrin	0.012	J	ug/l	0.029	0.003	1	B
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	ND		ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	0.113	P	ug/l	0.014	0.005	1	A
trans-Chlordane	0.021		ug/l	0.014	0.004	1	A
Chlordane	0.738		ug/l	0.143	0.033	1	B

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	55		30-150	A
Decachlorobiphenyl	83		30-150	A
2,4,5,6-Tetrachloro-m-xylene	63		30-150	B
Decachlorobiphenyl	75		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN

Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/10/18 16:03
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	ND		ug/l	0.029	0.003	1	A
Dieldrin	ND		ug/l	0.029	0.003	1	A
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	ND		ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	ND		ug/l	0.014	0.005	1	A
trans-Chlordane	ND		ug/l	0.014	0.004	1	A
Chlordane	ND		ug/l	0.143	0.033	1	A

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	84		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	79		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 12/10/18 16:16
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.014	0.003	1	A
Lindane	ND		ug/l	0.014	0.003	1	A
Alpha-BHC	ND		ug/l	0.014	0.003	1	A
Beta-BHC	ND		ug/l	0.014	0.004	1	A
Heptachlor	ND		ug/l	0.014	0.002	1	A
Aldrin	ND		ug/l	0.014	0.002	1	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	1	A
Endrin	ND		ug/l	0.029	0.003	1	A
Endrin aldehyde	ND		ug/l	0.029	0.006	1	A
Endrin ketone	ND		ug/l	0.029	0.003	1	A
Dieldrin	ND		ug/l	0.029	0.003	1	A
4,4'-DDE	ND		ug/l	0.029	0.003	1	A
4,4'-DDD	ND		ug/l	0.029	0.003	1	A
4,4'-DDT	ND		ug/l	0.029	0.003	1	A
Endosulfan I	ND		ug/l	0.014	0.002	1	A
Endosulfan II	ND		ug/l	0.029	0.004	1	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	1	A
Methoxychlor	ND		ug/l	0.143	0.005	1	A
Toxaphene	ND		ug/l	0.143	0.045	1	A
cis-Chlordane	ND		ug/l	0.014	0.005	1	A
trans-Chlordane	ND		ug/l	0.014	0.004	1	A
Chlordane	ND		ug/l	0.143	0.033	1	A

Project Name: 438 UNION
Lab Number: L1849687
Project Number: 438 UNION AVE
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	51		30-150	A
Decachlorobiphenyl	55		30-150	A
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	51		30-150	B

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/10/18 14:34
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-04,06 Batch: WG1187224-1						
Delta-BHC	ND		ug/l	0.014	0.003	A
Lindane	ND		ug/l	0.014	0.003	A
Alpha-BHC	ND		ug/l	0.014	0.003	A
Beta-BHC	ND		ug/l	0.014	0.004	A
Heptachlor	ND		ug/l	0.014	0.002	A
Aldrin	ND		ug/l	0.014	0.002	A
Heptachlor epoxide	ND		ug/l	0.014	0.003	A
Endrin	ND		ug/l	0.029	0.003	A
Endrin aldehyde	ND		ug/l	0.029	0.006	A
Endrin ketone	ND		ug/l	0.029	0.003	A
Dieldrin	ND		ug/l	0.029	0.003	A
4,4'-DDE	ND		ug/l	0.029	0.003	A
4,4'-DDD	ND		ug/l	0.029	0.003	A
4,4'-DDT	ND		ug/l	0.029	0.003	A
Endosulfan I	ND		ug/l	0.014	0.002	A
Endosulfan II	ND		ug/l	0.029	0.004	A
Endosulfan sulfate	ND		ug/l	0.029	0.003	A
Methoxychlor	ND		ug/l	0.143	0.005	A
Toxaphene	ND		ug/l	0.143	0.045	A
cis-Chlordane	ND		ug/l	0.014	0.005	A
trans-Chlordane	ND		ug/l	0.014	0.004	A
Chlordane	ND		ug/l	0.143	0.033	A

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/10/18 14:34
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 12/08/18 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-04,06 Batch: WG1187224-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	76		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	85		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187224-2 WG1187224-3									
Delta-BHC	65		66		30-150	1		20	A
Lindane	63		65		30-150	3		20	A
Alpha-BHC	64		66		30-150	4		20	A
Beta-BHC	62		62		30-150	0		20	A
Heptachlor	53		54		30-150	1		20	A
Aldrin	51		48		30-150	6		20	A
Heptachlor epoxide	65		66		30-150	0		20	A
Endrin	68		67		30-150	2		20	A
Endrin aldehyde	54		56		30-150	4		20	A
Endrin ketone	70		70		30-150	0		20	A
Dieldrin	71		69		30-150	2		20	A
4,4'-DDE	63		62		30-150	2		20	A
4,4'-DDD	67		67		30-150	0		20	A
4,4'-DDT	69		69		30-150	1		20	A
Endosulfan I	62		61		30-150	2		20	A
Endosulfan II	64		64		30-150	0		20	A
Endosulfan sulfate	63		62		30-150	1		20	A
Methoxychlor	79		80		30-150	2		20	A
cis-Chlordane	59		55		30-150	7		20	A
trans-Chlordane	59		56		30-150	6		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-04,06 Batch: WG1187224-2 WG1187224-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	40		41		30-150	A
Decachlorobiphenyl	53		73		30-150	A
2,4,5,6-Tetrachloro-m-xylene	46		48		30-150	B
Decachlorobiphenyl	56		70		30-150	B

METALS

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water
Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4.54		mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Antimony, Total	0.00075	J	mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00160		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Barium, Total	0.07146		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Beryllium, Total	0.00030	J	mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00010	J	mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Calcium, Total	42.1		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Chromium, Total	0.01292		mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Cobalt, Total	0.01444		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Copper, Total	0.01117		mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Iron, Total	9.12		mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Lead, Total	0.01100		mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Magnesium, Total	5.12		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Manganese, Total	1.628		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:31	EPA 7470A	1,7470A	EA
Nickel, Total	0.01419		mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Potassium, Total	9.61		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Selenium, Total	0.00870		mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Sodium, Total	21.0		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Thallium, Total	0.00020	J	mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Vanadium, Total	0.01287		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Zinc, Total	0.02642		mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 10:18	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.0256		mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00151	J	mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00020	J	mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.03641		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-01
Client ID: MW-3
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water

Date Collected: 12/05/18 10:00
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	0.00011	J	mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Calcium, Dissolved	43.7		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00025	J	mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.01009		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00146		mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0812		mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	4.06		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Manganese, Dissolved	1.360		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:35	EPA 7470A	1,7470A	EA
Nickel, Dissolved	0.00699		mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Potassium, Dissolved	9.84		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00825		mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Sodium, Dissolved	20.7		mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM
Zinc, Dissolved	0.00996	J	mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 13:23	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water

Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.286		mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00020	J	mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Barium, Total	0.03718		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Calcium, Total	33.5		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Chromium, Total	0.00155		mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00062		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Copper, Total	0.00082	J	mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Iron, Total	0.393		mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Lead, Total	0.00068	J	mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Magnesium, Total	5.08		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Manganese, Total	0.1507		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:38	EPA 7470A	1,7470A	EA
Nickel, Total	0.00105	J	mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Potassium, Total	9.22		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Selenium, Total	0.00217	J	mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Sodium, Total	21.3		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 10:23	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00843	J	mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Antimony, Dissolved	ND		mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.03296		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-02
Client ID: MW-2
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water
Date Collected: 12/05/18 12:30
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Calcium, Dissolved	32.4		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00102		mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00039	J	mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00051	J	mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Iron, Dissolved	ND		mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	4.63		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Manganese, Dissolved	0.1293		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:40	EPA 7470A	1,7470A	EA
Nickel, Dissolved	0.00076	J	mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Potassium, Dissolved	8.63		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00198	J	mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Sodium, Dissolved	19.3		mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 15:56	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	13.4		mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Antimony, Total	0.00059	J	mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00397		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Barium, Total	0.1886		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Beryllium, Total	0.00109		mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00023		mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Calcium, Total	46.0		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Chromium, Total	0.03164		mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Cobalt, Total	0.01453		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Copper, Total	0.03682		mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Iron, Total	28.8		mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Lead, Total	0.04407		mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Magnesium, Total	16.7		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Manganese, Total	1.292		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:40	EPA 7470A	1,7470A	EA
Nickel, Total	0.02848		mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Potassium, Total	6.46		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Selenium, Total	0.00502		mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Sodium, Total	52.1		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Thallium, Total	0.00023	J	mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Vanadium, Total	0.04274		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Zinc, Total	0.05853		mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 10:27	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.0536		mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00059	J	mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.03239		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-03
Client ID: MW-1
Sample Location: BROOKLYN
Date Collected: 12/05/18 13:30
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Calcium, Dissolved	43.3		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00027	J	mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00063		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00080	J	mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.102		mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	12.2		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Manganese, Dissolved	0.1421		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:41	EPA 7470A	1,7470A	EA
Nickel, Dissolved	0.00164	J	mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Potassium, Dissolved	4.56		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00342	J	mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Sodium, Dissolved	52.3		mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 14:44	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water

Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00994	J	mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Antimony, Total	0.00054	J	mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Barium, Total	0.00153		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Calcium, Total	0.151		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Chromium, Total	0.00031	J	mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Copper, Total	0.00150		mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Iron, Total	0.0323	J	mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Manganese, Total	0.00138		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:41	EPA 7470A	1,7470A	EA
Nickel, Total	ND		mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Potassium, Total	0.202		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Sodium, Total	0.225		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 10:00	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00101	J	mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.00113		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-04
Client ID: FIELD BLANK
Sample Location: BROOKLYN
Date Collected: 12/05/18 14:00
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Calcium, Dissolved	0.168		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00108		mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0335	J	mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	ND		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:43	EPA 7470A	1,7470A	EA
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Potassium, Dissolved	0.491		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Sodium, Dissolved	0.242		mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 14:40	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Sample Depth:
Matrix: Water

Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	12.9		mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00384		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Barium, Total	0.1436		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Beryllium, Total	0.00080		mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00016	J	mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Calcium, Total	44.7		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Chromium, Total	0.03816		mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Cobalt, Total	0.02367		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Copper, Total	0.03106		mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Iron, Total	25.9		mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Lead, Total	0.03486		mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Magnesium, Total	7.60		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Manganese, Total	2.081		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:43	EPA 7470A	1,7470A	EA
Nickel, Total	0.02663		mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Potassium, Total	12.0		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Selenium, Total	0.0102		mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Sodium, Total	22.1		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Thallium, Total	0.00028	J	mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Vanadium, Total	0.03428		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Zinc, Total	0.06722		mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 10:32	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.192		mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00071	J	mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00021	J	mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.04423		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

SAMPLE RESULTS

Lab ID: L1849687-06
Client ID: MW-3 DUP
Sample Location: BROOKLYN
Date Collected: 12/05/18 10:05
Date Received: 12/05/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	0.00007	J	mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Calcium, Dissolved	42.2		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00052	J	mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.01116		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00111		mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.308		mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Lead, Dissolved	0.00045	J	mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	3.88		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Manganese, Dissolved	1.393		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:45	EPA 7470A	1,7470A	EA
Nickel, Dissolved	0.00762		mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Potassium, Dissolved	9.10		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00841		mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Sodium, Dissolved	19.9		mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM
Zinc, Dissolved	0.00685	J	mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 14:48	EPA 3005A	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE
Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-04,06 Batch: WG1187724-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Antimony, Dissolved	0.00081	J	mg/l	0.00400	0.00042	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Barium, Dissolved	ND		mg/l	0.00050	0.00017	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Calcium, Dissolved	ND		mg/l	0.100	0.0394	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Cobalt, Dissolved	ND		mg/l	0.00050	0.00016	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Copper, Dissolved	0.00045	J	mg/l	0.00100	0.00038	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Iron, Dissolved	0.0287	J	mg/l	0.0750	0.0191	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Magnesium, Dissolved	ND		mg/l	0.0700	0.0242	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Potassium, Dissolved	ND		mg/l	0.100	0.0309	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Sodium, Dissolved	0.0488	J	mg/l	0.100	0.0293	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	12/10/18 20:07	12/11/18 12:58	1,6020B	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-04,06 Batch: WG1187977-1										
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	12/11/18 11:12	12/11/18 19:31	1,7470A	EA

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04,06 Batch: WG1187999-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	12/11/18 11:44	12/11/18 20:21	1,7470A	EA

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04,06 Batch: WG1188186-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Antimony, Total	0.00078	J	mg/l	0.00400	0.00042	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Barium, Total	ND		mg/l	0.00050	0.00017	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Calcium, Total	ND		mg/l	0.100	0.0394	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Chromium, Total	0.00023	J	mg/l	0.00100	0.00017	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Iron, Total	0.0276	J	mg/l	0.0500	0.0191	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Sodium, Total	ND		mg/l	0.100	0.0293	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Thallium, Total	0.00020	J	mg/l	0.00050	0.00014	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Method Blank Analysis
Batch Quality Control

Zinc, Total	ND	mg/l	0.01000	0.00341	1	12/11/18 20:36	12/12/18 09:05	1,6020B	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1187724-2								
Aluminum, Dissolved	108		-		80-120	-		
Antimony, Dissolved	98		-		80-120	-		
Arsenic, Dissolved	109		-		80-120	-		
Barium, Dissolved	110		-		80-120	-		
Beryllium, Dissolved	113		-		80-120	-		
Cadmium, Dissolved	116		-		80-120	-		
Calcium, Dissolved	106		-		80-120	-		
Chromium, Dissolved	103		-		80-120	-		
Cobalt, Dissolved	108		-		80-120	-		
Copper, Dissolved	105		-		80-120	-		
Iron, Dissolved	111		-		80-120	-		
Lead, Dissolved	114		-		80-120	-		
Magnesium, Dissolved	118		-		80-120	-		
Manganese, Dissolved	106		-		80-120	-		
Nickel, Dissolved	108		-		80-120	-		
Potassium, Dissolved	106		-		80-120	-		
Selenium, Dissolved	104		-		80-120	-		
Silver, Dissolved	107		-		80-120	-		
Sodium, Dissolved	109		-		80-120	-		
Thallium, Dissolved	108		-		80-120	-		
Vanadium, Dissolved	107		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1187724-2					
Zinc, Dissolved	115	-	80-120	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1187977-2					
Mercury, Dissolved	106	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1187999-2					
Mercury, Total	105	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1188186-2					
Aluminum, Total	106	-	80-120	-	
Antimony, Total	105	-	80-120	-	
Arsenic, Total	101	-	80-120	-	
Barium, Total	110	-	80-120	-	
Beryllium, Total	113	-	80-120	-	
Cadmium, Total	115	-	80-120	-	
Calcium, Total	112	-	80-120	-	
Chromium, Total	105	-	80-120	-	
Cobalt, Total	106	-	80-120	-	
Copper, Total	102	-	80-120	-	
Iron, Total	116	-	80-120	-	
Lead, Total	105	-	80-120	-	
Magnesium, Total	116	-	80-120	-	
Manganese, Total	107	-	80-120	-	
Nickel, Total	107	-	80-120	-	
Potassium, Total	110	-	80-120	-	
Selenium, Total	107	-	80-120	-	
Silver, Total	107	-	80-120	-	
Sodium, Total	112	-	80-120	-	
Thallium, Total	102	-	80-120	-	
Vanadium, Total	107	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1188186-2					
Zinc, Total	106	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187724-3 QC Sample: L1849687-01 Client ID: MW-3												
Aluminum, Dissolved	0.0256	2	2.04	101		-	-		75-125	-		20
Antimony, Dissolved	0.00151J	0.5	0.6017	120		-	-		75-125	-		20
Arsenic, Dissolved	0.00020J	0.12	0.1242	104		-	-		75-125	-		20
Barium, Dissolved	0.03641	2	2.063	101		-	-		75-125	-		20
Beryllium, Dissolved	ND	0.05	0.05570	111		-	-		75-125	-		20
Cadmium, Dissolved	0.00011J	0.051	0.05481	107		-	-		75-125	-		20
Calcium, Dissolved	43.7	10	51.7	80		-	-		75-125	-		20
Chromium, Dissolved	0.00025J	0.2	0.2022	101		-	-		75-125	-		20
Cobalt, Dissolved	0.01009	0.5	0.5284	104		-	-		75-125	-		20
Copper, Dissolved	0.00146	0.25	0.2489	99		-	-		75-125	-		20
Iron, Dissolved	0.0812	1	1.19	111		-	-		75-125	-		20
Lead, Dissolved	ND	0.51	0.4993	98		-	-		75-125	-		20
Magnesium, Dissolved	4.06	10	14.9	108		-	-		75-125	-		20
Manganese, Dissolved	1.360	0.5	1.820	92		-	-		75-125	-		20
Nickel, Dissolved	0.00699	0.5	0.5262	104		-	-		75-125	-		20
Potassium, Dissolved	9.84	10	19.1	93		-	-		75-125	-		20
Selenium, Dissolved	0.00825	0.12	0.131	102		-	-		75-125	-		20
Silver, Dissolved	ND	0.05	0.05224	104		-	-		75-125	-		20
Sodium, Dissolved	20.7	10	30.5	98		-	-		75-125	-		20
Thallium, Dissolved	ND	0.12	0.1161	97		-	-		75-125	-		20
Vanadium, Dissolved	ND	0.5	0.5179	104		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187724-3 QC Sample: L1849687-01 Client ID: MW-3									
Zinc, Dissolved	0.00996J	0.5	0.5555	111	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187977-3 QC Sample: L1849687-01 Client ID: MW-3									
Mercury, Dissolved	ND	0.005	0.00446	89	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187999-3 QC Sample: L1849634-05 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00475	95	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1188186-3 QC Sample: L1849687-01 Client ID: MW-3										
Aluminum, Total	4.54	2	8.16	**181**	Q	-	-	75-125	-	20
Antimony, Total	0.00075J	0.5	0.4736	95		-	-	75-125	-	20
Arsenic, Total	0.00160	0.12	0.1172	96		-	-	75-125	-	20
Barium, Total	0.07146	2	2.181	105		-	-	75-125	-	20
Beryllium, Total	0.00030J	0.05	0.05458	109		-	-	75-125	-	20
Cadmium, Total	0.00010J	0.051	0.05521	108		-	-	75-125	-	20
Calcium, Total	42.1	10	55.4	**133**	Q	-	-	75-125	-	20
Chromium, Total	0.01292	0.2	0.2189	103		-	-	75-125	-	20
Cobalt, Total	0.01444	0.5	0.5324	104		-	-	75-125	-	20
Copper, Total	0.01117	0.25	0.2661	102		-	-	75-125	-	20
Iron, Total	9.12	1	9.64	**52**	Q	-	-	75-125	-	20
Lead, Total	0.01100	0.51	0.5195	100		-	-	75-125	-	20
Magnesium, Total	5.12	10	16.3	112		-	-	75-125	-	20
Manganese, Total	1.628	0.5	2.186	112		-	-	75-125	-	20
Nickel, Total	0.01419	0.5	0.5299	103		-	-	75-125	-	20
Potassium, Total	9.61	10	20.5	109		-	-	75-125	-	20
Selenium, Total	0.00870	0.12	0.123	95		-	-	75-125	-	20
Silver, Total	ND	0.05	0.05282	106		-	-	75-125	-	20
Sodium, Total	21.0	10	31.0	100		-	-	75-125	-	20
Thallium, Total	0.00020J	0.12	0.1169	97		-	-	75-125	-	20
Vanadium, Total	0.01287	0.5	0.5296	103		-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1188186-3 QC Sample: L1849687-01 Client ID: MW-3									
Zinc, Total	0.02642	0.5	0.5386	102	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187724-4 QC Sample: L1849687-01 Client ID: MW-3						
Aluminum, Dissolved	0.0256	0.0265	mg/l	3		20
Antimony, Dissolved	0.00151J	0.00363J	mg/l	NC		20
Arsenic, Dissolved	0.00020J	0.00037J	mg/l	NC		20
Barium, Dissolved	0.03641	0.03619	mg/l	1		20
Beryllium, Dissolved	ND	ND	mg/l	NC		20
Cadmium, Dissolved	0.00011J	0.00017J	mg/l	NC		20
Calcium, Dissolved	43.7	41.1	mg/l	6		20
Chromium, Dissolved	0.00025J	0.00026J	mg/l	NC		20
Cobalt, Dissolved	0.01009	0.00992	mg/l	2		20
Copper, Dissolved	0.00146	0.00088J	mg/l	NC		20
Iron, Dissolved	0.0812	0.124	mg/l	**42**	Q	20
Lead, Dissolved	ND	ND	mg/l	NC		20
Magnesium, Dissolved	4.06	3.82	mg/l	6		20
Manganese, Dissolved	1.360	1.285	mg/l	6		20
Nickel, Dissolved	0.00699	0.00738	mg/l	5		20
Potassium, Dissolved	9.84	9.19	mg/l	7		20
Selenium, Dissolved	0.00825	0.00772	mg/l	7		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Sodium, Dissolved	20.7	20.0	mg/l	3		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187724-4 QC Sample: L1849687-01 Client ID: MW-3					
Thallium, Dissolved	ND	0.00032J	mg/l	NC	20
Vanadium, Dissolved	ND	ND	mg/l	NC	20
Zinc, Dissolved	0.00996J	0.00540J	mg/l	NC	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187977-4 QC Sample: L1849687-01 Client ID: MW-3					
Mercury, Dissolved	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1187999-4 QC Sample: L1849634-05 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1188186-4 QC Sample: L1849687-01 Client ID: MW-3					
Aluminum, Total	4.54	4.56	mg/l	0	20
Antimony, Total	0.00075J	0.00196J	mg/l	NC	20
Arsenic, Total	0.00160	0.00163	mg/l	2	20
Barium, Total	0.07146	0.07176	mg/l	0	20
Beryllium, Total	0.00030J	0.00031J	mg/l	NC	20
Cadmium, Total	0.00010J	0.00011J	mg/l	NC	20
Calcium, Total	42.1	43.5	mg/l	3	20
Chromium, Total	0.01292	0.01310	mg/l	1	20
Cobalt, Total	0.01444	0.01477	mg/l	2	20
Copper, Total	0.01117	0.01128	mg/l	1	20
Iron, Total	9.12	9.02	mg/l	1	20
Lead, Total	0.01100	0.01086	mg/l	1	20
Magnesium, Total	5.12	5.22	mg/l	2	20
Manganese, Total	1.628	1.652	mg/l	1	20
Nickel, Total	0.01419	0.01448	mg/l	2	20
Potassium, Total	9.61	9.86	mg/l	3	20
Selenium, Total	0.00870	0.00914	mg/l	5	20
Silver, Total	ND	ND	mg/l	NC	20
Sodium, Total	21.0	20.8	mg/l	1	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 438 UNION

Project Number: 438 UNION AVE

Lab Number: L1849687

Report Date: 12/12/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06 QC Batch ID: WG1188186-4 QC Sample: L1849687-01 Client ID: MW-3					
Thallium, Total	0.00020J	0.00034J	mg/l	NC	20
Vanadium, Total	0.01287	0.01253	mg/l	3	20
Zinc, Total	0.02642	0.02594	mg/l	2	20

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849687-01A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-01B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-01C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-01D	Plastic 250ml unpreserved	A	7	7	2.5	Y	Absent		-
L1849687-01E	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1849687-01F	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-01G	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-01H	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-01I	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-01J	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-LVI(7)
L1849687-01K	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-SIM-LVI(7)
L1849687-01X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.5	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1849687-02A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-02B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849687-02C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-02D	Plastic 250ml unpreserved	A	7	7	2.5	Y	Absent		-
L1849687-02E	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1849687-02F	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-02G	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-02H	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-02I	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-02J	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-LVI(7)
L1849687-02K	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-SIM-LVI(7)
L1849687-02X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.5	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1849687-03A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-03B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-03C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-03D	Plastic 250ml unpreserved	A	7	7	2.5	Y	Absent		-
L1849687-03E	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1849687-03F	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849687-03G	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-03H	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-03I	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-03J	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-LVI(7)
L1849687-03K	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-SIM-LVI(7)
L1849687-03X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.5	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1849687-04A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-04B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-04C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1849687-04D	Plastic 250ml unpreserved	A	7	7	2.5	Y	Absent		-
L1849687-04E	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1849687-04F	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-04G	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8082-LVI(7)
L1849687-04H	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-04I	Amber 120ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8081(7)
L1849687-04J	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-LVI(7)
L1849687-04K	Amber 250ml unpreserved	A	7	7	2.5	Y	Absent		NYTCL-8270-SIM-LVI(7)

*Values in parentheses indicate holding time in days

Project Name: 438 UNION
Project Number: 438 UNION AVE

Lab Number: L1849687
Report Date: 12/12/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1849687-04X	Plastic 120ml HNO3 preserved Filtrates	A	NA		2.5	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1849687-05A	Vial HCl preserved	B	NA		4.3	Y	Absent		NYTCL-8260(14)
L1849687-05B	Vial HCl preserved	B	NA		4.3	Y	Absent		NYTCL-8260(14)
L1849687-06A	Vial HCl preserved	B	NA		4.3	Y	Absent		NYTCL-8260(14)
L1849687-06B	Vial HCl preserved	B	NA		4.3	Y	Absent		NYTCL-8260(14)
L1849687-06C	Vial HCl preserved	B	NA		4.3	Y	Absent		NYTCL-8260(14)
L1849687-06D	Plastic 250ml unpreserved	B	7	7	4.3	Y	Absent		-
L1849687-06E	Plastic 250ml HNO3 preserved	B	<2	<2	4.3	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1849687-06F	Amber 120ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8082-LVI(7)
L1849687-06G	Amber 120ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8082-LVI(7)
L1849687-06H	Amber 120ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8081(7)
L1849687-06I	Amber 120ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8081(7)
L1849687-06J	Amber 250ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8270-LVI(7)
L1849687-06K	Amber 250ml unpreserved	B	7	7	4.3	Y	Absent		NYTCL-8270-SIM-LVI(7)
L1849687-06X	Plastic 120ml HNO3 preserved Filtrates	B	NA		4.3	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)

*Values in parentheses indicate holding time in days

Project Name:	438 UNION	**Lab Number:**	L1849687
Project Number:	438 UNION AVE	**Report Date:**	12/12/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: DU Report with 'J' Qualifiers

Project Name:	438 UNION	**Lab Number:**	L1849687
Project Number:	438 UNION AVE	**Report Date:**	12/12/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	438 UNION	**Lab Number:**	L1849687
Project Number:	438 UNION AVE	**Report Date:**	12/12/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab: 12/5/18

ALPHA Job #: L1849687

Client Information
Client: Teren Envi
Address:
Phone:
Fax:
Email: mahmed@teren-env.com

Project Information
Project Name: 438 Unio-
Project Location: Brooklyn
Project #
(Use Project name as Project #): X
Project Manager: Mahmed Ahmed
ALPHAQuote #:

Turn-Around Time
Standard: X
Rush (only if pre approved): ☐
Due Date:
# of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC	SVOC	Pesticides	PCB	Total & Dissolved TAL Metals				Sample Specific Comments	Total Bottle
49687 - 01	MW-3	12/5/18	1000	GW	CZ	X	X	X	X	X					11
- 02	MW-2		1250			X	X	X	X	X					11
- 03	MW-1		1330			X	X	X	X	X					11
- 04	Field Blank		1400			X	X	X	X	X					11
- 05	Trip Blank					X									2
- 06	MW-3 DUP		1005	GW		X	X	X	X	X					11

Container Type: V A A A P
Preservative: B A A A C

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	12/5/18		12-5-18 1450
	12-5-18 1740	D. Santos AAL	12/5/18 1830
D. Santos AAL	12/5/18 2230		12/5/18 2230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

APPENDIX E –
PROPOSED BUILDING PLANS

BUILDING DATA
438 UNION AVENUE,
BROOKLYN, NY 11211

BLOCK: 2761
LOT 5
ZONE: R7A/C2-4
MAP#: 13B

SCOPE OF WORK

VERTICAL AND HORIZONTAL ENLARGEMENT TO EXISTING 3 STORY BUILDING
PROPOSED 6 STORY + PENTHOUSE + CELLAR RESIDENTIAL BUILDING

CELLAR =	EQUIPMENT, MECHANICAL U AND ACCESSORY RESIDENTIAL R2
FIRST FLOOR. =	RESIDENTIAL R2 (QUALITY HOUSING)
SECOND FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)
THIRD FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)
FOURTH FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)
FIFTH FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)
SIXTH FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)
PENTHOUSE FLOOR =	RESIDENTIAL R2 (QUALITY HOUSING)

PERMITTED USE GROUPS: (ZR 22-10; ZR 32-00):	1-14
PROPOSED USE GROUP:	2 -OK

LOT AREA:	= 107'-0" X 25'-0" = 2675.0 S.F.

RESIDENTIAL USE

MAX F.A.R. ZR 23-154(b)	F.A.R. INCLUSIONARY HOUSING = L.A. (2675.0) X 3.45 = 9228.75 S.F.		
EXISTING F.A.	GROSS	NET	
CELLAR FLOOR	1671.25 S.F.	N/A	
FIRST FLOOR	1671.25 S.F.	1671.25 S.F.	
SECOND FLOOR	1256.15 S.F.	1256.15 S.F.	
THIRD FLOOR	1256.15 S.F.	1256.15 S.F.	
TOTAL EXIST. F.A.	5854.8 S.F.	4183.55 S.F.	
PROPOSED F.A.	GROSS F.A. [SF]	DEDUCTIONS [SF]	NET F.A. [SF]
CELLAR FLOOR	1738.33	N/A	N/A
FIRST FLOOR	1738.33	427.92	1310.36
2ND FLOOR	1738.33	249.01	1489.32
3RD FLOOR	1738.33	249.01	1489.32
4TH FLOOR	1738.33	249.01	1489.32
5TH FLOOR	1738.33	249.01	1489.32
6TH FLOOR	1738.33	249.01	1489.32
PH FLOOR	563.43	104.36	459.07
TOTAL PROP. F.A.	12731.76	1777.41	9216.02
TOTAL FLOOR AREA = 9216.02 S.F. < 9228.75 S.F. = OK			

LOT COVERAGE

RESIDENTIAL MAX L.C. 23-153	L.A. X 65 % =2675 X 65% = 1738.75 S.F.
PROPOSED	70'-0" X 24'-10"= 1538.33 S.F. < 1738.75 S.F.= OK
MAX DENSITY. ZR 23-22	F.A. /680 =9228.75 S.F. /680 =13.57 D.U.
EXISTING	4 D.U. = OK
PROPOSED.	13 D.U. = OK

HEIGHT REQUIREMENT'S

MAX HEIGHT ZR 23-662(a) tab.1	MIN. BASE HEIGHT PERMITTED = 40'-0" MAX BASE HEIGHT PERMITTED = 65-'0" MAX BUILDING HEIGHT PERMITTED 80'-0"
PROPOSED	PROPOSED BASE HEIGHT = 65'-0" PROPOSED BUILDING HEIGHT = 75'-'0"

STREET WALL LOCATION

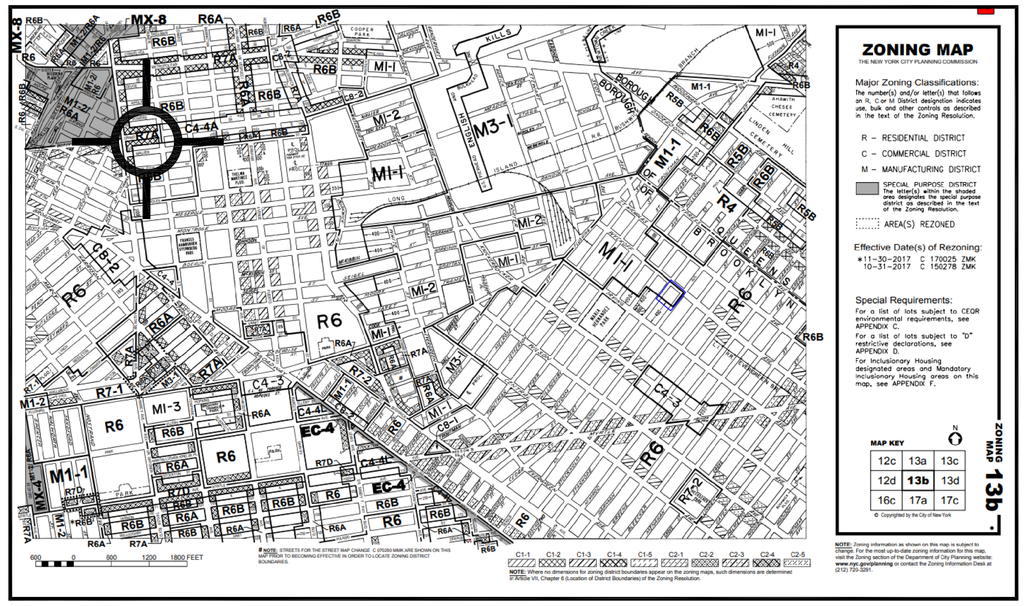
FRONT YARD. ZR: 23-661(a)(1)	THE STREET WALL SHALL BE LOCATED NO CLOSER TO THE STREET LINE THAN THE CLOSEST STREET WALL, OR PORTION THEREOF, OF AN EXISTING ADJACENT BUILDING ON THE SAME OR AN ADJOINING ZONING LOT LOCATED ON THE SAME STREET FRONTAGE, THAT IS BOTH WITHIN 10 FEET OF THE STREET LINE AND WITHIN 25 FEET OF SUCH QUALITY HOUSING BUILDING.
ADJACENT BUILDING'S	NO CHANGE TO EXISTING WALL

SETBACK REGULATIONS

FRONT SETBACK ZR23-662.C(1)	A SETBACK WITH A DEPTH OF AT LEAST 10 FEET SHALL BE PROVIDED FROM ANY #STREET WALL# FRONTING ON A #WIDE STREET#,
PROPOSED.	OK

YARD REGULATIONS

SIDE YARDS: ZR 23-462 (c)	NONE REQD, OR 8'0" SIDE YARD IF ANY OPEN AREA
PROPOSED	0 OVER 0 = O.K.
REAR YARD: ZR 23-47	30' REQ'D
PROPOSED	37'-0" PROVIDED



PARKING REQUIREMENT'S

ZR 25-241 30% X D.U.	=13 D.U. X 30% = 3.9 SPACES
PROPOSED	0 PROVIDED (PARKING WAIVED AS PER ZR 25-261) UP TO 15 SPACES
BICYCLE PARKING ZR 25-811	=13 D.U. X 50% = 6.5 SPACES
PROPOSED	7 BICYCLE PARKING PROVIDED AT CELLAR

PLANTING REQUIRMENTS

ZR 23-03 TREE PLANTING	REQ'D ; ONE TREE FOR EVERY 25' OF FRONTAGE
EXISITNG FRONTAGE	25'-0" / 25 = 1.0
PROPOSED TREE	1 TREE TO BE PAID INTO TREE FUND

BALCONY REGULATIONS

BALCONIES ZR: 23-132	AS PER ZR 23-132 PROVIDED THAT SUCH BALCONY SHALL: HAVE AN AGGREGATE WIDTH, AT THE LEVEL OF ANY #STORY#, NOT EXCEEDING 50 PERCENT OF THE WIDTH AT THAT LEVEL OF THE PLANE SURFACE OF THE #BUILDING# WALL FROM WHICH IT PROJECTS.
PROPOSED	2 BALCONIES X 6'-0" = 12'-0" PROPOSED STREET WALL WIDTH = 24'-10" X 50% = 12'-5" =OK

LEGAL WINDOW DISTANCE REQUIREMENTS

BULKHEAD ZR: 23-861	THE MINIMUM DISTANCE BETWEEN A #LEGALLY REQUIRED WINDOW# AND: (A) ANY WALL; (B) A #REAR LOT LINE#, OR VERTICAL PROJECTION THEREOF; OR (C) A #SIDE LOT LINE#, OR VERTICAL PROJECTION THEREOF; SHALL BE 30 FEET, MEASURED IN A HORIZONTAL PLANE AT THE SILL LEVEL OF, AND PERPENDICULAR TO, SUCH WINDOW FOR THE FULL WIDTH OF THE ROUGH WINDOW OPENING;
PROPOSED	=OK

QUALITY HOUSING ELMEMENT'S

ZR 28-11	ELEVATED GROUND FLOOR UNITS UP TO 100 S.F. OF ENTRYWAY MAY BE EXCLUDED FROM THE DEFINITION OF F.A. FOR EACH FOOT OF DIFFERENCE BETWEEN THE FLOOR LEVEL OF SUCH DWELLING UNITS AND CURB LEVEL
PROPOSED	N/A
ZR 28-21	REQ'D RECREATIONAL SPACE = F.A. X 3.3 % = 9216.02 X 3.3% = 304.13 S.F.
PROPOSED	PROVIDED AT ROOF FL. 306 S.F. > 304.13 S.F. =OK
ZR 28-12	REQUIRED REFUSE NOT LESS 12 S.F. AND STORAGE SPACE 2.9 C.F. /UNIT FOR 9 D.U. OR MORE
PROPOSED	PROVIDED AT EACH FLOOR = OK
ZR 28-13	LAUNDRY: ONE WASHING MACHINE PER 20 D.U. &ONE DRYER PER 40 D.U.
PROPOSED	LAUNDRY FACILITY PROVIDED IN CELLAR (2 WASHERS AND 2 DRYERS)
ZR 28-23 PLANTING	THE AREA OF THE #ZONING LOT# BETWEEN THE #STREET LINE# AND ALL #STREET WALLS# OF THE #BUILDING# AND THEIR PROLONGATIONS SHALL BE PLANTED AT GROUND LEVEL, OR IN RAISED PLANTING BEDS THAT ARE PERMANENTLY AFFIXED TO THE GROUND, EXCEPT THAT SUCH PLANTINGS SHALL NOT BE REQUIRED AT THE ENTRANCES TO AND EXITS FROM THE #BUILDING#, WITHIN DRIVEWAYS ACCESSING OFF-STREET PARKING SPACES
PROPOSED	N/A
28-14 DAYLIGHT CORRIDOR	50% OF THE SQUARE FOOTAGE OF A CORRIDOR MAY BE EXCLUDED FROM THE DEFINITION OF F.A. - SEE SHEET Z-004.00
28-31 DENSITY CORRIDOR	50% OF THE SQUARE FEET OF THE CORRIDOR MAY BE EXCLUDED FROM THE DEFINITION OF #FLOOR AREA#.- SEE SHEET Z-004.00

TO BE FILED UNDER SEPARATE APPLICATION:

	JOB#	WORK TYPES	SCOPE
PRIMARY JOB	###	OT- GEN. CONSTRUCTION	PARTITIONS, FIRE RATED ASSEMBLIES
RELATED JOB	###	OT- STRUCTURAL	SHORING, STEEL BEAMS, COLUMNS, FOOTINGS, MASONRY WALL
RELATED JOB	###	MH – MECHANICAL PL - PLUMBING	NEW HVAC SYSTEM PLUMBING FIXTURES AND PIPING
RELATED JOB	###	FA – FIRE ALARM	NEW FIRE ALARM SYSTEM
RELATED JOB	###	SP – SPRINKLER	MODIFICATION TO EXISTING SPRINKLER SYSTEM TO PROVIDE FULL COVERAGE
RELATED JOB	###	BPP	BUILDING PAVEMENT PLAN
RELATED JOB	###	SHED	SIDEWALK SHED

SPECIAL PROGRESS INSPECTION ITEMS:

- STRUCTURAL STEEL - WELDING	BC 1704.3.1
- STRUCTURAL STEEL - DETAILS	BC 1704.3.2
- STRUCTURAL STEEL - HIGH STRENGTH BOLTING	BC 1704.3.3
- STRUCTURAL COLD FORMED STEEL	BC 1704.3.4
- CONCRETE CAST-IN-PLACE	BC 1704.4
- MASONRY	BC 1704.5
- SUBGRADE INSPECTION/SOILS - SITE PREPARATION	BC 1704.7.1
- SUBSURFACE INVESTIGATIONS (BORINGS/TEST PITS)	BC 1704.7.4
- UNDERPINNING	BC 1704.20.3; BC 1814
- SPRAYED FIRE-RESISTANT MATERIALS	BC 1704.11
- MECHANICAL SYSTEMS	BC 1704.16
- EXCAVATION - SHEETING, SHORING, AND BRACING	BC 1704.20.2
- ON SITE PRIVATE STORM WATER DISP./DETENTION INSTALLATION	BC 1704.21.2
- FIRE-RESISTANCE PENETRATIONS AND JOINTS	BC 1704.27
- SEISMIC ISOLATION SYSTEMS	BC 1707.8
- FOOTING AND FOUNDATION	BC 110.3.1
- ENERGY CODE COMPLIANCE INSPECTION	BC 110.3.5
- FIRE-RESISTANCE RATED CONSTRUCTION	BC 110.3.4
- CONCRETE DESIGN MIX	BC 1905.3 1913.5
- CONCRETE SAMPLING AND TESTING	BC 1905.3 1913.

ENERGY CODE COMPLIANCE INSPECTIONS (TR8)

- PROTECTION OF EXPOSED FOUNDATION INSULATION
- INSULATION PLACEMENT AND R-VALUES
- FENESTRATION U-FACTOR AND PRODUCT RATING
- FENESTRATION AIR LEAKAGE
- FENESTRATION AREAS
- AIR SEALING AND INSULATION- VISUAL
- LIGHTING IN DWELLING UNITS
- INTERIOR LIGHTING POWER
- EXTERIOR LIGHTING POWER
- LIGHTING CONTROLS
- MAINTENANCE INFORMATION

ECCCNY COMPLIANCE STATEMENT
TO THE BEST OF MY KNOWLEDGE , BELIEF , AND PROFESSIONAL JUDGMENT , THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CODE (2016 NYCECC, CHAPTER C4.)

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

	REVISIONS:	DATE:
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

TAX MAP



PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

TITLE SHEET

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

Z-001.00

BUILDING CODE ANALYSIS (2014)

ITEM	REQUIREMENT
BC CHAPTER 3 USE & OCCUPANCY CLASSIFICATION	GROUP: USE: R-2 RESIDENTIAL
BC CHAPTER 5 GENERAL HEIGHTS & LIMITATIONS	CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS; SEPARATION OF OCCUPANCIES 501.2 Premises identification should be provided in accordance with BC 501.2 501.3 Fire Department access. 501.3,1 Frontage Total Frontage proposed adjoining the street: 25' 501.3,2 Building access. 501.3,2.1 Above grade. Above grade access is provided via windows at front faced 501.3.2.2 Below grade. Bellow grade access provided via stairs BC 503 GENERAL HEIGHT AND AREA LIMITATIONS TABLE 503 ALLOWABLE HEIGHT AND BUILDING AREAS CONSTRUCTION TYPE IB Hgt (feet) 160 - (PROPOSED = 66'-0" = OK) GROUP R-2 Hgt(S) 7 - (PROPOSED= 6 STORY = OK) AREA LIMITATION= UNLIMITED
	BC 504.2 HEIGHT MODIFICATIONS WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, THE VALUE SPECIFIED IN TABLE 503 FOR MAXIMUM HEIGHT IS INCREASED BY 20 FEET AND THE MAXIMUM NUMBER OF STORIES IS INCREASED BY ONE STORY
BC CHAPTER 6 TYPES OF CONSTRUCTION	Table 601 FIRE -RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I A	TYPE I B	TYPE II A[d]	TYPE II B	TYPE III A[d]	TYPE III B	TYPE IV HT
Primary structural frame [a,c] (see Section 202)	3[f]	2[f]	1	0	1	0	ht
Bearing walls							
Exterior [e,g,h]	3	2	1	0	2	2	2
Interior	3[f]	2[f]	1	0	1	0	1/2HT
Nonbearing walls and partitions Exterior	See Table 602						
Nonbearing walls and partitions							
Interior [g]	0	0	0	0	0	0	See section 602.4.6
Floor contruction and secondary members (see section 202)	2	2	1	0	1	0	HT
Roof contruction and secondary members (see section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[b,c]	1[b,c]	0	HT

TABLE 602 - FIRE RESISTANCE RATING REQUIREMENT FOR EXTERIOR WALL BASED ON FIRE SEPARATION DISTANCE

FIRE SEPARATION	TYPE OF CONSTRUCTION	OCCUPANCY GROUP A, B, E, F-2. I, R, S-2,U
< 5	ALL	1
> 5 TO < 10	IA	1
	OTHER	1
> 10 TO < 30	IA, IB	1
	IIB, VB	0
	OTHER	1
> 30	ALL	0

BC CHAPTER 10 MEAN OF EGRESS	BC1014.2.1 MIN. DISTANCE BETWEEN TWO EXITS **R-2 OCCUPANCIES.** IN GROUP‡ R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES: 3.1. THE EXIT DOORS TO SUCH STAIRS SHALL BE PLACED A DISTANCE APART EQUAL TO NO LESS THAN 15 FEET
BC CHAPTER 10 MEAN OF EGRESS	BC 1023 EXIT DISCHARGE IN BUILDINGS IN OCCUPANCY GROUP R-2, UP TO 100 PERCENT OF THE NUMBER AND CAPACITY OF THE EXIT ENCLOSURES IS PERMITTED TO EGRESS THROUGH A PROTECTED AREA ON THE LEVEL OF DISCHARGE. EGRESS REQUIREMENTS AND ANALYSIS 1018.2 Buildings with one exit. 5. The building is of construction Type I or II; and The building does not exceed 2,000 square feet (232 m2) per story; proposed building comply
BC CHAPTER 11 ACCESIBILITY	BC 1107.2.4 ALL OPERABLE WINDOWS IN ROOM OR SPACES IN TYPE B DWELLING UNIT OR SLEEPING UNIT SHALL HAVE OPERABLE PARTS COMPLYING WITH SECTION 309(OPERABLE PARTS) OF ICC A117.1
BC CHAPTER 12 INTERIOR ENVIRONMENT	NATURAL VENTILATION REQUIREMENTS AS PER BC 1203. NATURAL LIGHT AND VENTILATION HAS TO BE PROVIDED THROUGH LEGAL WINDOW. MAXIMUM DEPTH OF A ROOM IS 30 FEET FROM OUTER FACE OF THE WINDOW.
BC CHAPTER 12 INTERIOR ENVIRONMENT	**BC1207.2** ROOM CONTAINING HVAC UNITS ON EACH FLOOR HAS TO COMPLY WITH BC 1207.2. MINIMUM SOUND TRANSMISSION CLASS (STC) FOR AIR-BORN NOISE OF NOT LESS THAN 50. TYP.

ITEM	REQUIREMENT
MDL NOTES	COMPLY WITH THE FOLLOWING SECTIONS OF THE MDL: · MDL33- KITCHEN WALL-ONE HOUR RATED · MDL35- PROVIDE AT LEAST 5 SQUARE OF GLAZED SURFACE ENTRANCE HALL DOOR. · MDL51A-PEEPHOLES MDL57-MAIL BOXES
BC 2113. 1.6 ADJOINING CHIMNEYS AND VENTS.	ADJOINING CHIMNEYS AND VENTS SHALL BE IN ACCORDANCE WITH SECTIONS 2113.1.6.1 TO 2113.1.6.8. BC 2113.1.6.1 RESPONSIBILITY OF OWNER OF TALLER BUILDING. WHENEVER A BUILDING IS ERECTED, ENLARGED, OR INCREASED IN HEIGHT SO THAT ANY PORTION OF SUCH BUILDING, EXCEPT CHIMNEYS OR VENTS, EXTENDS HIGHER THAN THE TOP OF **ANY PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS WITHIN 100 FEET** (30 480 MM), THE OWNER OF SUCH NEW OR ALTERED BUILDING SHALL HAVE THE RESPONSIBILITY OF ALTERING SUCH CHIMNEYS OR VENTS TO MAKE THEM CONFORM WITH THE REQUIREMENTS OF THIS CHAPTER. BC 2113.1.6.5 REFUSAL OF CONSENT. IF CONSENT IS NOT GRANTED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING TO DO THE ALTERATION WORK REQUIRED BY THIS SECTION, SUCH OWNER SHALL SIGNIFY HIS OR HER REFUSAL IN WRITING TO THE OWNER OF THE NEW OR ALTERED BUILDING AND TO THE COMMISSIONER; AND THE OWNER OF THE NEW OR ALTERED BUILDING HAVING SUBMITTED PLANS THAT CONFORM TO THE REQUIREMENTS OF THIS SECTION, SHALL THEREUPON BE RELEASED FROM ANY RESPONSIBILITY FOR THE PROPER OPERATION OF THE EQUIPMENT DUE TO LOSS OF DRAFT AND FOR ANY HEALTH HAZARD OR NUISANCE THAT MAY OCCUR AS A RESULT OF THE NEW OR ALTERED BUILDING.
WIND LOADS AND EARTHQUAKE LOADS	1.27-569. WIND LOADS AND EARTHQUAKE LOADS, (A) WIND LOADS. THE STRUCTURAL FRAME AND EXTERIOR COMPONENTS OF ALL BUILDINGS, SIGNS, TANKS AND OTHER EXPOSED CONSTRUCTIONS SHALL BE DESIGNED TO RESIST THE PRESSURES DUE TO WIND AS PRESCRIBED IN REFERENCE STANDARD RS 9-5. WIND SHALL BE ASSUMED TO ACT FROM ANY DIRECTION. FOR CONTINUOUS FRAMING, THE EFFECTS OF PARTIAL LOADING CONDITIONS SHALL BE CONSIDERED. (B) EARTHQUAKE LOADS. EVERY BUILDING, STRUCTURE AND PORTION THEREOF SHALL, AT A MINIMUM, BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF SEISMIC GROUND MOTIONS AS PRESCRIBED IN REFERENCE STANDARD RS 9-6. 2. UBC - UNIFORM BUILDING CODE SECTION 2312-1990. THE FOLLOWING TYPES OF CONSTRUCTION SHALL, AT A MINIMUM BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF SEISMIC GROUND MOTIONS AS PROVIDED IN THIS SECTION: NEW STRUCTURES ON NEW FOUNDATIONS: NEW STRUCTURES ON EXISTING FOUNDATIONS; AND ENLARGEMENTS IN AND OF THEMSELVES ON NEW FOUNDATIONS. BUILDINGS CLASSIFIED IN NEW YORK CITY OCCUPANCY GROUP J-3 ACID NOT MORE THAUL THREE STORIES IN HEIGHT NEED NOT CONFORM TO THE PROVISIONS OF THIS SECTION. 3. B. LIQUEFACTION. (I) SOILS OF CLASSES 7-65,8-65,10-65 AND NON-COHESIVE CLASS 11-65 BELOW THE GROUND WATER TABLE AND LESS THAN FIFTY FEET BELOW THE GROUND SURFACE SHALL BE CONSIDERED TO HAVE POTENTIAL FOR LIQUEFACTION. 4. FOUNDATION PLATES AND SILLS. FOUNDATION PLATES OR SELLS SHALL BE BOLTED TO THE FOUNDATION OR FOUNDATION WALL WITH NOT LESS THAN ONE-HALF INCH NOMINAL DIAMETER STEEL BOLTS EMBEDDED AT LEAST SEVEN INCHES INTO THE CONCRETE OF MASONRY RUED SPACED NOT MORE THAN SIX FEET APART. THERE SHALL BE A MINIMUM OF TWO BOLTS PER PIECE WITH ONE BOLT LOCATED WITHIN TWELVE INCHES OF EACH END OF EACH PIECE, A PROPERLY SIZED NUT AND WASHER SHALL BE TIGHTENED ON EACH BOLT TO THE PLATE. 5. FOUNDATION INTERCONNECTION OF PILE CAPS AND CAISSONS. INDIVIDUAL PILE CAPS AND CAISSONS OF EVERY STRUCTURE SUBJECTED TO SEISMIC FORCES SHALL BE INTERCONNECTED BY TIES. SUCH TIES SHALL BE CAPABLE OF RESISTING, IN TENSION OR COMPRESSION, A MINIMUM HORIZONTAL FORCE EQUAL TO THE PRODUCT OF (ZV4) AND THE LARGER VERTICAL LOAD AT THE END OF EACH TIE.
BC CHAPTER 9 FIRE PROTECTION SYSTEMS	908.7.1 GROUP I-1 AND R OCCUPANCIES. LISTED CARBON MONOXIDE ALARMS OR DETECTORS SHALL BE INSTALLED AS FOLLOWS: 2. GROUPS I-1, R-2 AND R-3. CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN AFFECTED DWELLING UNITS AS PER SECTION 908.7.1.1. 1. UNITS ON THE SAME STORY WHERE CARBON MONOXIDE PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED. 2. UNITS ON THE STORIES ABOVE AND BELOW THE FLOOR WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED. 3. UNITS IN A BUILDING CONTAINING A CARBON MONOXIDE PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM. 4. UNITS IN A BUILDING SERVED BY A CARBON MONOXIDE PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM THAT IS LOCATED IN AN ADJOINING OR ATTACHED BUILDING. 908.7.1.1.1 REQUIRED LOCATIONS WITHIN DWELLING UNITS. CARBON MONOXIDE ALARMS OR DETECTORS SHALL BE LOCATED WITHIN DWELLING UNITS AS FOLLOWS: 1. OUTSIDE OF ANY ROOM USED FOR SLEEPING PURPOSES, WITHIN 15 FEET OF THE ENTRANCE TO SUCH ROOM. 2. IN ANY ROOM USED FOR SLEEPING PURPOSES. 3. ON ANY STORY WITHIN A DWELLING UNIT, INCLUDING BELOW-GRADE STORIES AND PENTHOUSES OF ANY AREA, BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS.

SPRINKLER PLAN FOR ENTIRE BUILDING (PER FIRE CODE 503-8-2 AND BC 903.2.7/ CURB TO CURB IS LESS THEN 30-0" (9144 MM)

ITEM	REQUIREMENT
BC CHAPTER 9 FIRE PROTECTION SYSTEMS	HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2014 B.C. SECTION 907 & 908 SMOKE AND CARBON MONOXIDE NOTES 907.2.6.2.3 SMOKE DETECTORS. AN APPROVED AUTOMATIC SMOKE DETECTION SYSTEM SHALL BE INSTALLED THROUGHOUT RESIDENT HOUSING AREAS, INCLUDING SLEEPING AREAS AND CONTIGUOUS DAY ROOMS, GROUP ACTIVITY SPACES AND OTHER COMMON SPACES NORMALLY ACCESSIBLE TO RESIDENTS. 907.2.8.3 SMOKE DETECTORS WITHIN DWELLING UNITS. SMOKE DETECTORS AND AUDIBLE NOTIFICATION APPLIANCES SHALL BE INSTALLED IN DWELLING UNITS AND SHALL BE ANNUNCIATED BY DWELLING UNIT AT A CONSTANTLY ATTENDED LOCATION FROM WHICH THE FIRE ALARM SYSTEM IS CAPABLE OF BEING MANUALLY ACTIVATED. SMOKE DETECTORS ARE REQUIRED IN THE FOLLOWING AREAS: 1. IN SLEEPING AREAS. 2. IN EVERY ROOM IN THE PATH OF THE MEANS OF EGRESS FROM THE SLEEPING AREA TO THE DOOR LEADING FROM THE DWELLING UNIT. 3. IN EACH STORY WITHIN THE UNIT, INCLUDING BELOW-GRADE STORIES. FOR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL. 907.2.10.1.1 SMOKE ALARMS IN GROUPS R-2, R-3, AND I-1. SINGLE- OR MULTIPLE-STATION SMOKE ALARMS SHALL BE INSTALLED AND MAINTAINED IN GROUPS R-2, R-3, AND I-1. REGARDLESS OF OCCUPANT LOAD AT ALL OF THE FOLLOWING LOCATIONS WITHIN A DWELLING UNIT: 1. ON THE CEILING OR WALL OUTSIDE OF EACH ROOM USED FOR SLEEPING PURPOSES WITHIN 15 FEET FROM THE DOOR TO SUCH ROOM. 2. IN EACH ROOM USED FOR SLEEPING PURPOSES. 3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BELOW-GRADE STORIES AND PENTHOUSES OF ANY AREA, BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL. 907.2.10.2 POWER SOURCE. REQUIRED SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM A DEDICATED BRANCH CIRCUIT OR THE UNSWITCHED PORTION OF A BRANCH CIRCUIT ALSO USED FOR POWER AND LIGHTING, AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. SMOKE ALARMS SHALL EMIT A SIGNAL WHEN THE BATTERIES ARE LOW. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVER-CURRENT PROTECTION. 907.2.10.3 INTERCONNECTION. WHERE MORE THAN ONE SMOKE ALARM OR DETECTOR IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT IN GROUP R-2, R-3, OR WITHIN AN INDIVIDUAL DWELLING UNIT OR SLEEPING UNIT IN GROUP R-1, THE SMOKE ALARMS OR DETECTORS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM OR DETECTOR WILL ACTIVATE ALL OF THE ALARMS OR DETECTORS IN THE INDIVIDUAL UNIT. THE ALARM OR DETECTOR SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED.

SPECIAL INSPECTION NOTES:

1. GENERAL (Section BC 109) EXCEPT AS OTHERWISE SPECIFICALLY PROVIDED, INSPECTIONS REQUIRED BY 2008 NYC BC OR BY DEPARTMENT DURING THE PROGRESS OF WORK MAY BE PERFORMED ON BEHALF OF THE OWNER BY APPROVED INSPECTION AGENCIES OR, IF APPLICABLE, BY SPECIAL INSPECTORS. HOWEVER, IN THE INTEREST OF PUBLIC SAFETY, THE COMMISSIONER MAY DIRECT THAT ANY OF SUCH INSPECTIONS BE PERFORMED BY THE DEPARTMENT. ALL INSPECTIONS SHALL BE PERFORMED AT THE SOLE COST AND EXPENSE OF THE OWNER.
REFER TO CHAPTER 1 OF TITLE 28 OF THE ADMINISTRATIVE CODE OF 2008 NYC BC, FOR ADDITIONAL PROVISIONS RELATING TO INSPECTIONS.

2. REQUIRED PROGRESS INSPECTIONS. (SECT. 109.3) THE INSPECTIONS SET FORTH 109.3.1 THROUGH 109.3.8 SHALL BE MADE DURING THE PROGRESS OF WORK TO VERIFY SUBSTANTIAL COMPLIANCE WITH THE CODE AND WITH APPROVED CONSTRUCTION DOCUMENTS.

3. A LOG OR OTHER DOCUMENTATION SHALL BE MAINTAINED AT THE JOB SITE INDICATING THE DATES WHEN CONTROLLED INSPECTIONS WERE PERFORMED, THE IDENTITY OF THE INSPECTOR, AND THE SCOPE OF THE WORK WHICH WAS PERFORMED.

4. WHEN A "TR-1" CONTROLLED INSPECTION FORM IS FILED AT THE BUILDING DEPARTMENT, SUCH FORM SHALL BE ACCOMPANIED BY A REPORT WHICH SHALL INCLUDE THE DATES OF INSPECTIONS, THE IDENTITY OF THE INSPECTOR, AND THE SCOPE OF WORK WHICH WAS OBSERVED.

5. WHEN A TRADE INSTALLING MECHANICAL WORK CAUSES STRUCTURAL MEMBERS OR RATED ASSEMBLIES TO LOSE THEIR INTEGRITY, REPAIRS SHALL BE PERFORMED UNDER THE SUPERVISION OF A DESIGNATED PERSON.

6. BUILDING DEPARTMENT INSPECTORS SHALL REVIEW RECORDS AT JOB SITES TO MAKE CERTAIN THAT THERE IS ADEQUATE SELF-INSPECTION.

7. AS PER CHAPTER 1 OF TITLE 28-116.2.3 OF THE ADMINISTRATIVE C ODE OF 2008 NYC BC THE PERMIT APPLICATION SHALL SET FORTH AN INSPECTION PROGRAM FOR THE JOB. SUCH INSPECTORS MAY BE MADE BY APPROVED AGENCIES OR BY THE DEPARTMENT AS PROVIDED IN THIS CODE OR IN THE RULES OF THE DEPARTMENT. SPECIAL INSPECTIONS SHALL BE PERFORMED ONLY BY INDIVIDUALS WHO ARE SPECIAL INSPECTORS. THE PERMIT HOLDER SHALL NOTIFY THE RELEVANT SPECIAL
INSPECTORS IN WRITING AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK REQUIRING SPECIAL INSPECTION.
-THE NAME AND BUSINESS ADDRESSES OF SPECIAL INSPECTORS AND APPROVED AGENCIES SHALL BE SET FORTH IN THE WORK PERMIT APPLICATION.
-A RECORD OF ALL INSPECTIONS SHALL BE KEPT BY THE PERSON PERFORMING THE INSPECTION.
-THE COMMISSIONER MAY REQUIRE INSPECTION REPORTS TO BE FILED WITH THE DEPARTMENT.
- RECORDS OF INSPECTIONS MADE BY APPROVED AGENCIES AND SPECIAL INSPECTORS SHALL BE MAINTAINED BY SUCH PERSONS FOR A PERIOD OF SIX YEARS AFTER SIGN-OFF OF THE JOB OR FOR SUCH OTHER PERIOD OF TIME AS THE COMMISSIONER MAY REQUIRE AND SHALL BE MADE AVAILABLE TO THE DEPARTMENT UPON REQUEST.

706.3 Fire-resistance rating. The fire-resistance rating of the walls and floor assemblies shall comply with this section.
--706.3.1 Shaft enclosures. = 2 HR = PROPOSED 2HR
--706.3.2 Exit enclosures. = 2 HR = PROPOSED 2HR PER BC1019.1
--706.3.3 Exit passageway. = 2 HR = PROPOSED 2HR PER BC 1020.1
--706.3.6 Separation of mixed occupancies. = N/A.
--706.3.7 Single-occupancy fire areas.
TABLE 706.3.7 FIRE-RESISTANCE RATING REQUIREMENTS FOR FIRE BARRIER ASSEMBLIES BETWEEN FIRE AREAS
OCCUPANCY GROUPFIRE-RESISTANCE RATING (hours) R, = 2 HR = PROPOSED = 2 HR

NOTE: NO CONFLICT WITH THE SUBWAY LINES

NOTES:
1) STRUCTURAL DESIGN COMPLIES WITH EARTHQUAKE REQUIREMENTS AS PER LL 17/95

2) DESIGN NOTES AND DETAILS INCLUDED HEREIN ARE IN COMPLIANCE WITH TPPN 2 OF 96

3) ALL DOORS THROUGH THE BUILDING SHALL BE PROVIDED WITH DISABLED PERSON COMPLIANT DOOR HARDWARE, AND DOOR SADDLES

SAFETY NOTES

1. THIS WORK WILL BE PERFORMED IN COMPLETE COMPLIANCE WITH FEDERAL OSHA STANDARDS THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK, DEP REGULATIONS REGARDING DISPOSAL OF SOIL, THE NEW YORK CITY FIRE, AND THOSE OF ALL OTHER AGENCIES HAVING JURISDICTION OVER THIS PROJECT.

2. SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION:
THE PROVISIONS OF CHAPTER 33 OF THE 2008 NYC BUILDING CODE SHALL GOVERN THE CONDUCT OF ALL CONSTRUCTION OR DEMOLITION OPERATIONS WITH REGARD TO THE SAFETY OF THE PUBLIC & PROPERTY. FOR REGULATIONS RELATING TO THE SAFETY OF PERSONS EMPLOYED IN CONSTRUCTION OR DEMOLITION OPERATIONS, OSHA STANDARDS SHALL APPLY & IN CONFORMANCE WITH THE NEW YORK CITY FIRE.

3. RESPONSIBILITY FOR SAFETY (BC 3301.1.1)
AS PER THIS chapter 33, "NOTHING IN THIS CHAPTER SHALL BE CONSTRUED TO RELIEVE PERSON ENGAGED IN CONSTRUCTION OR DEMOLITION OPERATIONS FROM *COMPLYING WITH OTHER APPUCABLE PROVISIONS OF LAW*, NOR IS IT INTENDED TO ALTER
OR DIMINISH ANY OBLIGATION OTHERWISE IMPOSED BY LAW ON THE OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR, CONTRACTORS, MATERIAL MEN, REGISTERED DESIGN PROFESSIONALS, OR OTHER PARTY INVOLVED IN A CONSTRUCTION OR DEMOLITION PROJECT TO ENGAGE IN SOUND DESIGN & ENGINEERING, SAFE CONSTRUCTION OR DEMOLITION PRACTICES, INCLUDING BUT NOT LIMIT TO DEBRIS REMOVAL, & TO ACT IN A REASONABLE & RESPONSIBLE MANNER TO MAINTAIN A SAFE CONSTRUCTION OR DEMOLITION SITE."

4. CONTRACTORS: (BC 3301.2)
CONTRACTORS, CONSTRUCTION MANAGERS, & SUBCONTRACTORS ENGAGED IN BUILDING WORK SHALL INSTITUTE AND MAINTAIN SAFETY MEASURES & PROVIDE ALL EQUIPMENT OR TEMPORARY CONSTRUCTION NECESSARY TO SAFEGUARD ALL PERSONS & PROPERTY AFFECTED BY SUCH CONTRACTOR'S OPERATIONS.

5. SAFETY IN EXCAVATIONS: (BC 3304)
NOTIFICATION OF DEPARTMENT (BC3304.3.1)
Via Phone or Electronically, by the Permit Holder.
- NOTIFICATION TO DOB REQUIRED AT LEAST 24 HOURS IN ADVANCE, BUT NO MORE THAN 48 HOURS PRIOR TO COMMENCEMENT OF EARTHWORK OPERATIONS.
EXCEPTIONS:
-HAND EXCAVATION 5 FEET OR LESS, & 2 FEET OR MORE FROM AN EXISTING FOOTING, AND NOT IN A BASEMENT OR CELLAR THAT ADJOIN AN EXISTING FOUNDATION.
- GEOTECHNICAL TEST PITS 1 0 FEET OR LESS IN PLAN
- BURIAL IN CEMETERIES .
- HPD EMERGENCY WORK NOTIFICATION OF ADJACENT BUILDING OWNERS (3304.3.2)

by writing.
. NOTIFICATION TO ADJACENT BUILDINGS OWNERS ARE REQUIRED NOT LESS THAN 10 DAYS IN ADVANCE OF CERTAIN EARTHWORK
OPERATIONS:
- EXCAVATIONS BETWEEN 5 FEET & 10 FEET DEEP, & WITHIN 10 FEET OF AN ADJACENT BUILDINGS
. NOTIFICATION MUST PROVIDE:
- DESCRIPTION OF WORK.
- TIMEFRAME & SCHEDULE.
- CONTACT INFORMATION OF PERSON CAUSING EXCAVATION & DOB.

EACH SUBCONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION OF EXCAVATION SITES.

PROTECTION OF EXCAVATION SITES (BC 3304.4)
PROTECTION OF SIDES OF EXCAVATION:
EXCAVATIONS 5 FEET OR GREATER IN DEPTH REQUIRE PROTECTION METHODS, INCLUDING:
-SHORING
-BRACING
-SHEETING
-SHEETING PILING

SPECIAL INSPECTION REQUIRED WHEN PROTECTION METHODS EMPLOYED.
-ALTERNATIVE: SLOPE SIDE OF EXCAVATION PER SOILS REPORT WITH DOB APPROVAL.

6. PROTECTION OF ADJOINING PROPERTY (3309.4 NYC BC)
. RESPONSIBILITY FOR PROTECTION:
-THE PERSON CAUSING THE EXCAVATION OR FILL IS RESPONSIBLE TO PROTECT ADJOINING PROPERTIES, REGARDLESS OF DEPTH.
-IF THE ADJOINING PROPERTY OWNER REFUSES ACCESS TO PERSON CAUSING EXCAVATION, ADJACENT PROPERTY OWNER IS RESPONSIBLE FOR PROTECTION AND CAN BE ISSUED VIOLATIONS FOR FAILING TO DO SO.

PROTECTION REQUIRED (BC 3309.1)
"ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION OR DEMOLITION WORK. PROTECTION MUST BE PROVIDED FOR FOOTINGS, FOUNDATIONS, PARTY WALL, CHIMNEYS, SKYLIGHTS AND ROOFS. PROVISIONS SHALL BE MADE TO CONTROL WATER RUN-OFF AND EROSION DURING CONSTRUCTION OR DEMOLITION ACTIVITIES."

PHYSICAL EXAMINATION OF ADJOINING PROPERTIES IS REQUIRED: (BC 3309.3):
- PRIOR TO COMMENCEMENT OF WORK
- DURING THE PROGRESS OF WORK CONDITIONS OBSERVED ARE REQUIRED TO BE DOCUMENTED & MADE AVAILABLE TO DOB UPON REQUEST.

PRE-CONSTRUCTION SURVEY (BC 3309.4):
PRE-CONSTRUCTION SURVEYS OF ADJOINING PROPERTIES ARE REQUIRED TO BE SUBMITTED TO DOB PRIOR TO COMMENCEMENT FOR :
-EXCAVATIONS BETWEEN 5 & 10 FEET DEEP WITHIN 10 FEET OF AN ADJACENT BUILDING.
-ALL EXCAVATION> 10 FEET DEEP.
ENHANCED DEMOLITION REQUIREMENTS
Categories:
- FULL DEMOLITION: THE DISMANTLING. RAZING. OR REMOVAL OF ALL OF A BUILDING OR STRUCTURE, & ALL OPERATIONS INCIDENTAL THERETO.
-PARTIAL DEMOLITION: THE DISMANTLING, RAZING, OR REMOVAL OF STRUCTURAL MEMBERS, FLOORS, INTERIOR BEARING WALLS, AND/OR EXTERIOR WALLS OR PORTIONS THEREOF, INCLUDING ALL OPERATIONS INCIDENTAL THERETO.

THE DEMOLITION SAFETY REQUIREMENTS APPLY WHENEVER ANY DEMOLITION OPERATIONS ARE BEING PERFORMED, REGARDLESS OF THE PERMIT TYPE ISSUED.

DEMOLITION NOTIFICATION
-DEPARTMENT NOTIFICATION
-AT LEAST 24 HOURS IN ADVANCE, BUT NOT MORE THAN 48 HOURS PRIOR TO COMMENCING EITHER FULL OR PARTIAL DEMOLITION OPERATIONS.

ADJACENT PROPERTY OWNERS
-WRITTEN NOTICE AT LEAST 10 DAYS IN ADVANCE OF FULL OR PARTIAL DEMOLITION OPERATIONS.
-EXCEPTION: PARTIAL INTERIOR DEMOLITION OPERATIONS, WHERE ONLY HAND-HELD MECHANICAL DEMOLITION EQUIPMENT IS USED. MECHANICAL DEMOLITION THE USE OF MECHANICAL DEMOLITION EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, IN FULL AND PARTIAL DEMOLITION OPERATIONS.
- CONSTRUCTION DOCUMENTS SHALL BE FILED BY A REGISTERED PROFESSIONAL ENGINEER.
- MECHANICAL PARTIAL & FULL DEMOLITION WITHIN THE BUILDING ARE SUBJECT TO SPECIAL INSPECTION.

INCLUDED IN THIS AGREEMENT IS THE RESPONSIBILITY OF THIS CONTRACTOR IN THE OBSERVANCE OF RELEVANT PROVISIONS OF THE FOLLOWING:
A. FEDERAL OSHA REGULATIONS.
B. NEW YORK CITY BUILDING DEPARTMENT AND CODE REGULATIONS.
C. ENVIRONMENTAL PROTECTION AGENCY REGULATIONS.
D. ANSI-A10.5-1975 SAFETY REQUIREMENTS FOR MATERIAL HOISTS.
E. A 10.6-1969AMERICAN NATIONAL STANDARD SAFETY REQUIREMENTS FOR DEMOLITION.
F. A 10.10-1970 SAFETY REQUIREMENTS FOR TEMPORARY AND PORTABLE SPACEHEATING DEVICES AND EQUIPMENT USED IN THE CONSTRUCTION INDUSTRY.
G. Z 49.2 STANDARD FOR SAFEGUARDING BUILDING CONSTRUCTION AND DEMOLITION OPERATIONS.

THIS CONTRACTOR SHALL INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE ALL SCAFFOLDING AS REQUIRED. SCAFFOLDING SHALL CONFORM TO ALL APPLICABLE OSHA AND NEW YORK CITY BUILDING DEPARTMENT REGULATIONS. ALL COSTS FOR SCAFFOLDING ARE INCLUDED IN THE CONTRACT AMOUNT.

CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS GENERATED BY THE OPERATION IN A SAFE AND LEGAL MANNER.

THE CONTRACTOR SHALL BE RESPONSIBLE, AT NO ADDITIONAL COST FOR PROVISION, UPKEEP, MAINTENANCE AND SUBSEQUENT REMOVAL OF THE FOLLOWING TEMPORARY FACILITIES:
A. TOILETS FOR PERSONNEL.
B. BARRIERS AND RAILINGS ON-SITE AND WITHIN THE BUILDING FOR SAFETY OF PERSONNEL.
C. ALL SUCH PROTECTION AND TEMPORARY FACILITIES MENTIONED ABOVE SHALL MEET OSHA AND/OR NEW YORK CITY REGULATIONS.

7. PROVIDE FOR CONSTRUCTION OF A JOB FENCE, EIGHT (8) FEET TALL, WITH TOP AND BOTTOM RAILS. INSTALL A GATE WITH HASPS AND LOCKS OF SUFFICIENT STRENGTH TO WITHSTAND CONSTANT USE WHERE SHOWN ON THE DRAWINGS AND IN LOCATION(S) AGREED UPON JOINTLY BY OWNERS' REPRESENTATIVE AND THE CONTRACTORS.

8. THIS CONTRACTOR WARRANTS THAT HE HAS INSPECTED THE SITE AND HAS CAREFULLY EXAMINED THE WORK FOR SCOPE AND DIFFICULTY OF EXECUTION, AND HAS REVIEWED THE SITE SURVEYS ATTACHED HERETO, SPECIFICATIONS AND BORING DATA.

9. THIS CONTRACTOR SHALL CLEAN AND BROOM SWEEP SIDEWALKS UPON THE COMPLETION OF EACH DAY'S WORK.

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

	REVISIONS:	DATE:
1		
2		
3		
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TAX MAP

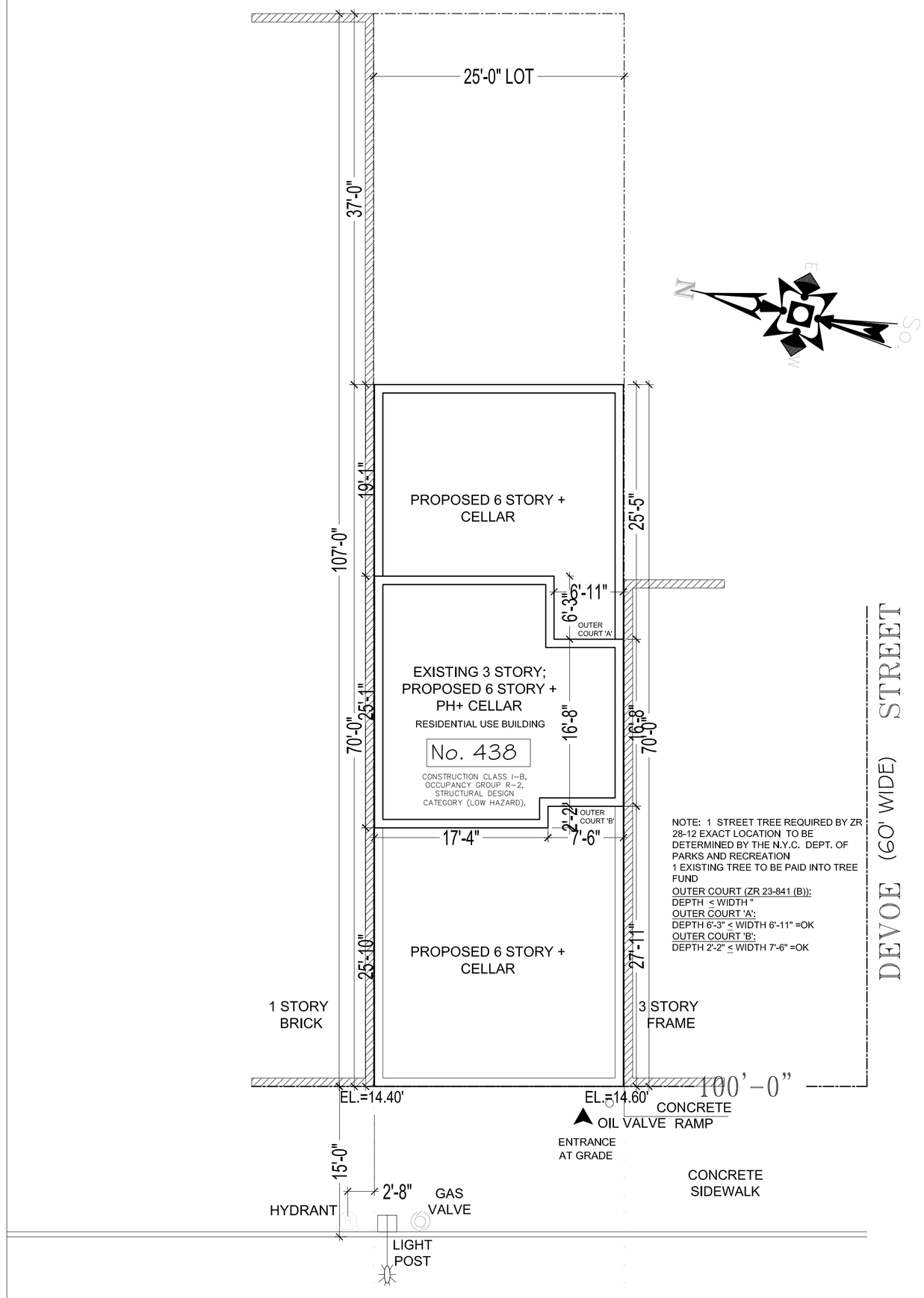
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

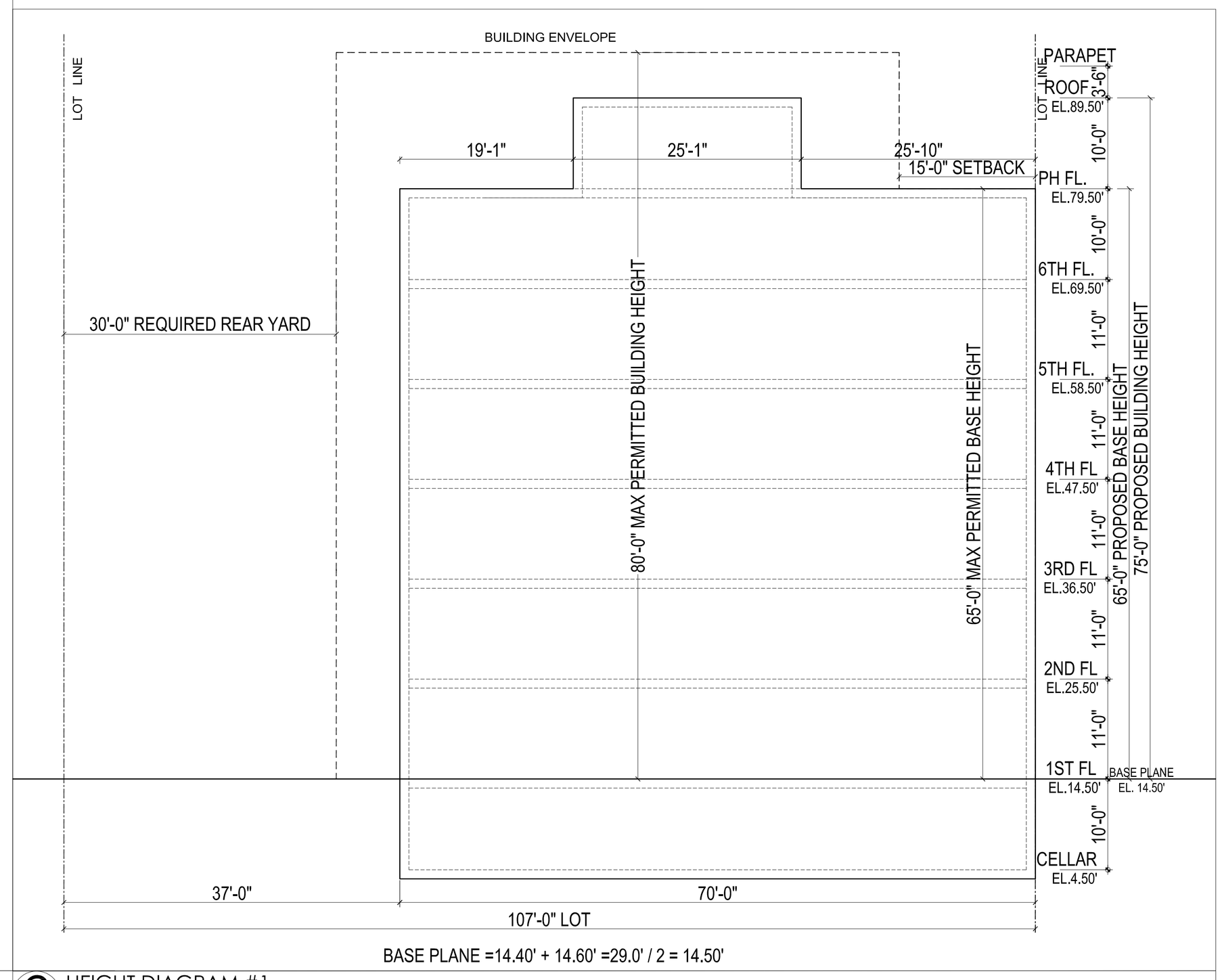
NYC 2014 BUILDING CODE ANALYSIS

DATE: 8/13/2018
JOB No.
DRAWING BY: NJ
CHK BY:
DWG No.

Z-002.00



1 PLOT PLAN
SCALE: 1/8 " = 1'-0"

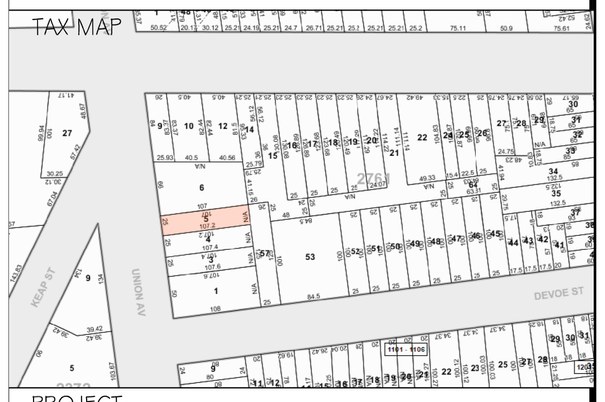


2 HEIGHT DIAGRAM #1
SCALE: 1/8 " = 1'-0"

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	REVISIONS:	DATE:
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TAX MAP



PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PLOT PLAN AND HEIGHT DIAGRAM

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

Z-003.00

GROSS FLOOR AREA OF 1ST FL.= 61'-8" X 24'-10"=1738.33 S.F.

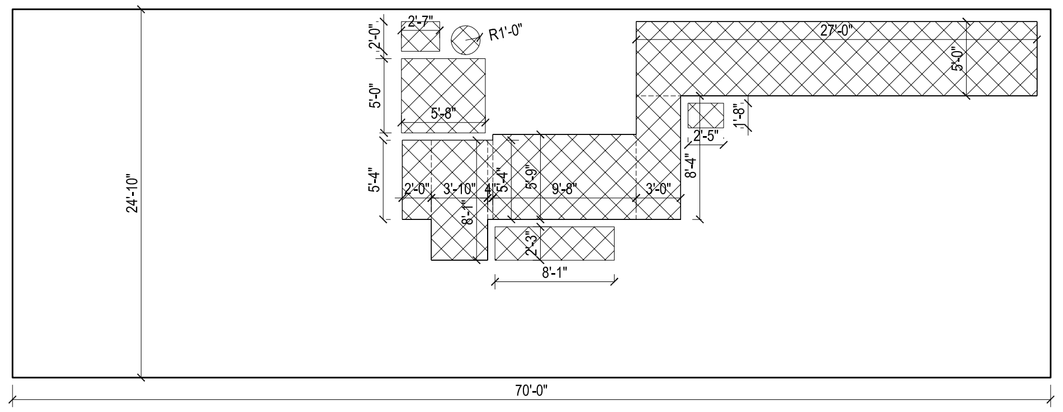
DEDUCTIONS:
-DENSITY AND DAYLIGHT CORRIDOR DEDUCTION AS PER
28-31 AND 28-14 = 100% DEDUCTIBLE =
(2'-0" X 5'-4"=)10.67 + (8'-1' X 3'-10" =)30.97 + (5'-4" X 0'-4"=)1.78 + (9'-8" X 5'-9"=)55.58 + (3'-0" X 8'-4"=)25.0 + (27'-0" X 5'-0"=)135.0 = 259.0 S.F.

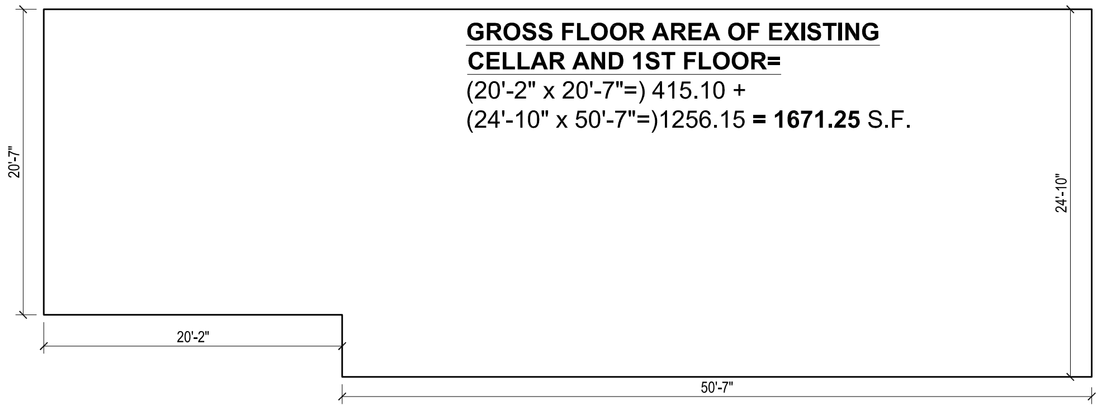
- SHAFTS AND MECH. CLO:
(2'-7" X 2'-0"=)5.17 + [(π=3.14)X 1.0^2=]3.14 + (8'-1" X 2'-3"=)18.19 + (1'-8" X 2'-5"=)4.03 = 30.53 S.F.

- REFUSE DEDUCTION AS PER 28-12
(5'-0" X 5'-8"=) 28.33 DEDUCTIBLE 12.0 S.F.

- EN. WALL (WALL PERIMETER X 0'-8")
(24'-10" + 70'-0") X 2 X 0'-8"=126.44 S.F.

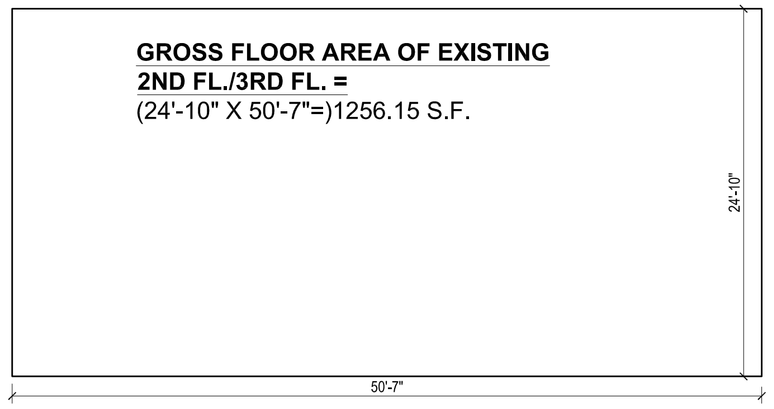
RESIDENTIAL NET FLOOR AREA OF 1ST FL:
1738.33 - 259.0 - 30.53 -12- 126.44 =1310.36 S.F.





GROSS FLOOR AREA OF EXISTING CELLAR AND 1ST FLOOR=
(20'-2" x 20'-7"=) 415.10 +
(24'-10" x 50'-7"=)1256.15 **= 1671.25** S.F.

GROSS FLOOR AREA OF EXISTING 2ND FL./3RD FL. =
(24'-10" X 50'-7"=)1256.15 S.F.



DENSITY AND DAYLIGHT CORRIDOR ANALYSIS AS PER 28-31 AND 28-14:
If the number of #dwelling units# served by a #vertical circulation core# and corridor on each #story# does not exceed the number set forth in the following table, 50 percent of the square feet of the corridor serving such #dwelling units# on such #story# may be excluded from the definition of #floor area#.
Fifty percent of the square footage of a corridor may be excluded from the definition of #floor area# if a window with a clear, non-tinted, glazed area of at least 20 square feet is provided in such corridor.

R7A: Number of D.U. Served by a Corridor per Story = 11
NUMBER OF D.U. = 2 < 11

AREA OF THE FULL CORRIDOR
(2'-0" X 5'-4"=)10.67 + (8'-1' X 3'-10" =)30.97 + (5'-4" X 0'-4"=)1.78 + (9'-8" X 5'-9"=)55.58 + (3'-0" X 8'-4"=)25.0 + (27'-0" X 5'-0"=)135.0 = 259.0 S.F.

DENSITY CORRIDOR DEDUCTION AS PER 28-31 = 50% DEDUCTIBLE
(2'-0" X 5'-4"=)10.67 + (8'-1' X 3'-10" =)30.97 + (5'-4" X 0'-4"=)1.78 + (9'-8" X 5'-9"=)55.58 + (3'-0" X 8'-4"=)25.0 = 124.0 S.F.

259 X 50% = 129.5 S.F. > 124.0 S.F.

FULL CORRIDOR CAN BE CONSIDER AS DENSITY AND DAYLIGHT CORRIDOR

GROSS FLOOR AREA OF 2ND THRU 6TH FL.=
61'-8" X 24'-10"=1738.33 S.F.

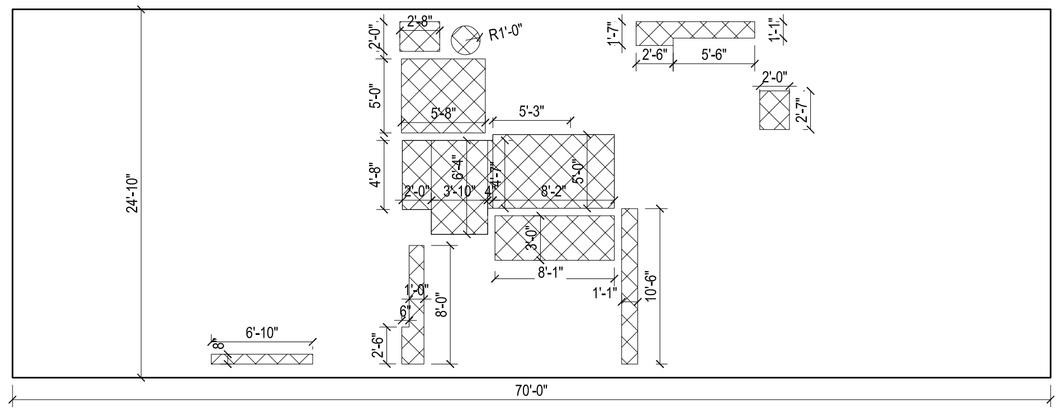
DEDUCTIONS:
-DENSITY CORRIDOR DEDUCTION AS PER 28-31=50% DEDUCTIBLE =
(2'-0" X 4'-8"=)9.33 + (3'-10" X 6'-4"=)24.28 + (0'-4" X 4'-7"=)1.53 + (5'-0" X 8'-2"=)40.83 = 75.97 S.F. X 50%= 37.99 S.F.

- SHAFTS AND MECH. CLO:
(1'-1" X 10'-6"=)11.38 + (2'-7" X 2'-0"=)5.17 + (5'-6" X 1'-1"=)5.96 + (2'-6" X 1'-7"=)3.96 + (3'-0" X 8'-1"=)24.25 + (6'-10" X 0'-8"=)4.56 + (2'-0" X 2'-8"=)5.33+ [(π=3.14)X 1.0^2=]3.14 + (0'-4" X 2'-6"=)0.83 + (8'-0" x 1'-0"=)8.0 = 72.58 S.F.

- REFUSE DEDUCTION AS PER 28-12
(5'-0" X 5'-8"=) 28.33 DEDUCTIBLE 12.0 S.F.

- EN. WALL (WALL PERIMETER X 0'-8")
(24'-10" + 70'-0") X 2 X 0'-8"=126.44 S.F.

RESIDENTIAL NET FLOOR AREA OF 2ND THRU 6TH FL:
1738.33 - 37.99 - 72.58 -12- 126.44 =1489.32 S.F.



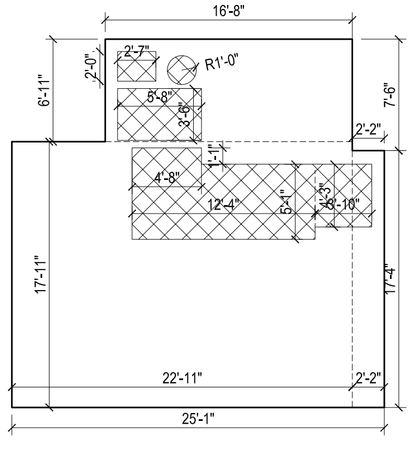
GROSS FLOOR AREA OF PH FL.=
(16'-8" X 6'-11"=)115.28 +(17'-4" X 2'-2"=)37.56 + (22'-11"x 17'-11"=)410.59 = 563.43 S.F.

DEDUCTIONS:
-DENSITY AND DAYLIGHT CORRIDOR DEDUCTION AS PER
28-31 AND 28-14 = 100% DEDUCTIBLE =
(4'-8" X 1'-1"=)5.06+ (12'-4" X 5'-1"=)62.69 + (3'-10" X 4'-3"=)16.30 =84.05 S.F.

- SHAFTS AND MECH. CLO:
(2'-7" X 2'-0"=)5.17 + [(π=3.14)X 1.0^2=]3.14 = 8.31 S.F.

- REFUSE DEDUCTION AS PER 28-12
(5'-0" X 3'-6"=) 17.5DEDUCTIBLE 12.0 S.F.

RESIDENTIAL NET FLOOR AREA OF PH FL:
563.43 - 84.05- 8.31 - 12 = 459.07 S.F.



FENESTRATION AREA						
ELEVATION	WINDOW TAG	WINDOW SIZE (W X H)	AREA (SQ.F.)	QUANTITY	U-FACTOR	SHGC VALUE
RIGHT		-	-	-	-	-
LEFT		-	-	-	-	-
FRONT	W-1	2'-0" x 7'-6"	15.0	12	0.27	0.24
	W-06	5'-4" x 7'-6"	40.0	3	0.27	0.24
	WD-6	5'-4" x 7'-6"	40.0	8	0.27	0.24
	DOOR	3'-2" X 7'-0"	22.2	2	0.25	0.13
BACK	W-1	2'-0" x 7'-6"	15.0	13	0.27	0.24
	W-06	5'-4" x 7'-6"	40.0	2	0.27	0.24
	WD-6	5'-4" x 7'-6"	40.0	11	0.27	0.24
TOTAL			1379.3			S.F.

AVERAGE U-FACTOR FOR FENESTRATION = 0.27

OPAQUE WALL AREA (GROSS WALL AREA)					
ELEVATION	TYPE	AREA [A]		FENESTRATION	AREA NET C= A-B
RIGHT	Metal framed	70'-0" X 65'-0" +25'-1" X 10'-0"	4800.83	0.00	4800.83
LEFT	Metal framed	70'-0" X 65'-0" +25'-1" X 10'-0"	4800.83	0.00	4800.83
FRONT	Metal framed	24'-10" x 75'-0"	1862.48	664.34	1198.14
BACK	Metal framed	24'-10" x 75'-0"	1862.48	715.00	1147.48
		TOTAL	9601.66	1379.34	8222.32

WALL PERFORMANCE ANALYSIS FOR EXTERIOR WALL DEDUCTION ALLOWANCE OF ZR.12-10 (12) (ii) (1,2)							
ELEVATION	TYPE	AREA [A]	R-VALUE (PROPOSED)	U-FACTOR (PROPOSED) [B]	UA (PROPOSED) [C= A X B]	U-FACTOR (CODE) [D]	UA (CODE) [E= A X D]
RIGHT	Metal framed	4800.83	R-7.5 RIGID + R-13 BATT INSULATION	0.051	244.84	0.064	307.25
LEFT	Metal framed	4800.83	R-7.5 RIGID + R-13 BATT INSULATION	0.051	244.84	0.064	307.25
FRONT	Metal framed	1862.48	R-7.5 RIGID + R-13 BATT INSULATION	0.051	94.99	0.064	119.20
BACK	Metal framed	1862.48	R-7.5 RIGID + R-13 BATT INSULATION	0.051	94.99	0.064	119.20
TOTAL OPAQUE WALL (NET)		9601.66			679.66		852.90
FENESTRATION TOTAL (see		1379.3		0.27	372.4218	0.45	620.703
TOTAL OPAQUE WALL (GROSS)		10981.0			1052.08		1473.61

ENERGY EFFICIENCY OF OPAQUE WALLS COMPARING PROPOSED VS CODE U-FATORS (IN %)
[TOTAL UA (PROPOSED) / TOTAL UA (CODE)] X 100 = %
ENERGY EFFICIENCY ALLOWABLE PER ZR.12-10 (12) (ii) (1,2) = MAX 80%
679.66/852.90X100 = 79.69% OK

ENERGY EFFICIENCY OF GROSS WALLS INCLUDING FENESTRATION COMPARING PROPOSED VS CODE U-FATORS (IN %)
[TOTAL UA (PROPOSED) / TOTAL UA (CODE)] X 100 = %
ENERGY EFFICIENCY ALLOWABLE PER ZR.12-10 (12) (ii) (1,2) = MAX 90%
1052.08/1473.61X 100 71.39% OK

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TAX MAP



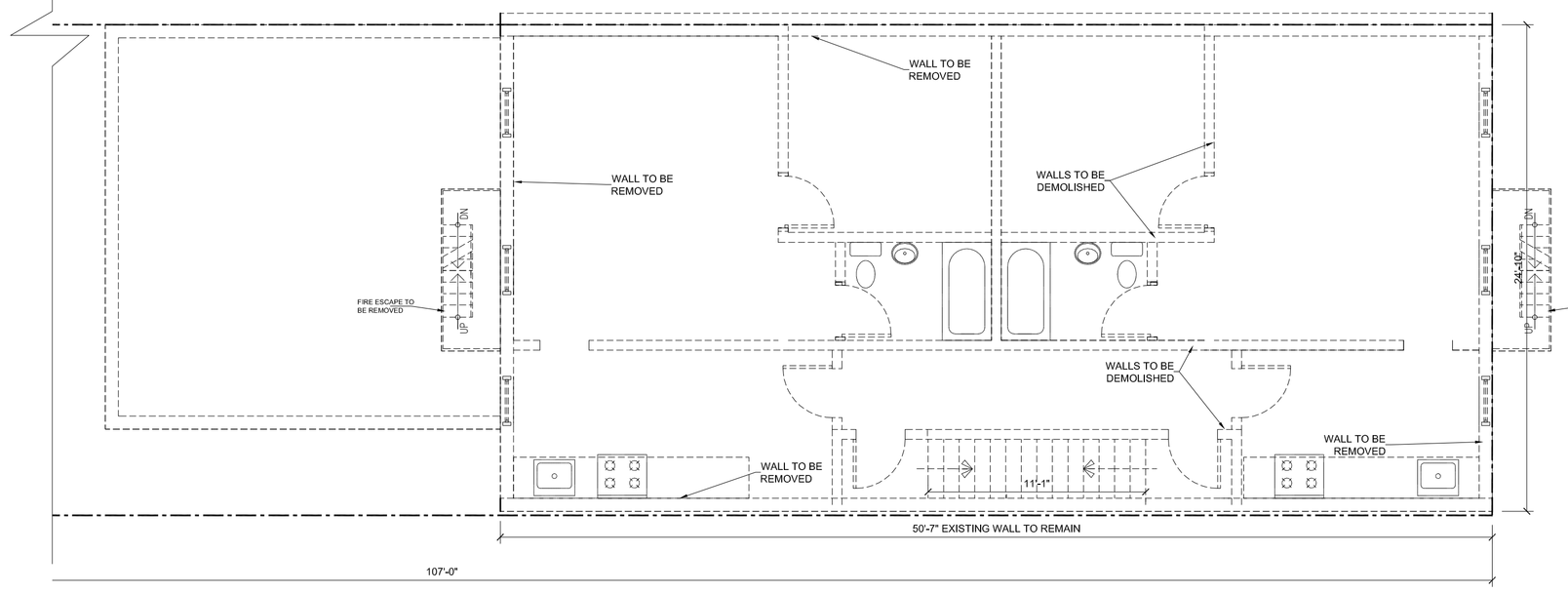
PROJECT:

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BROOKLYN, NY 11211

ZONING DIAGRAMS

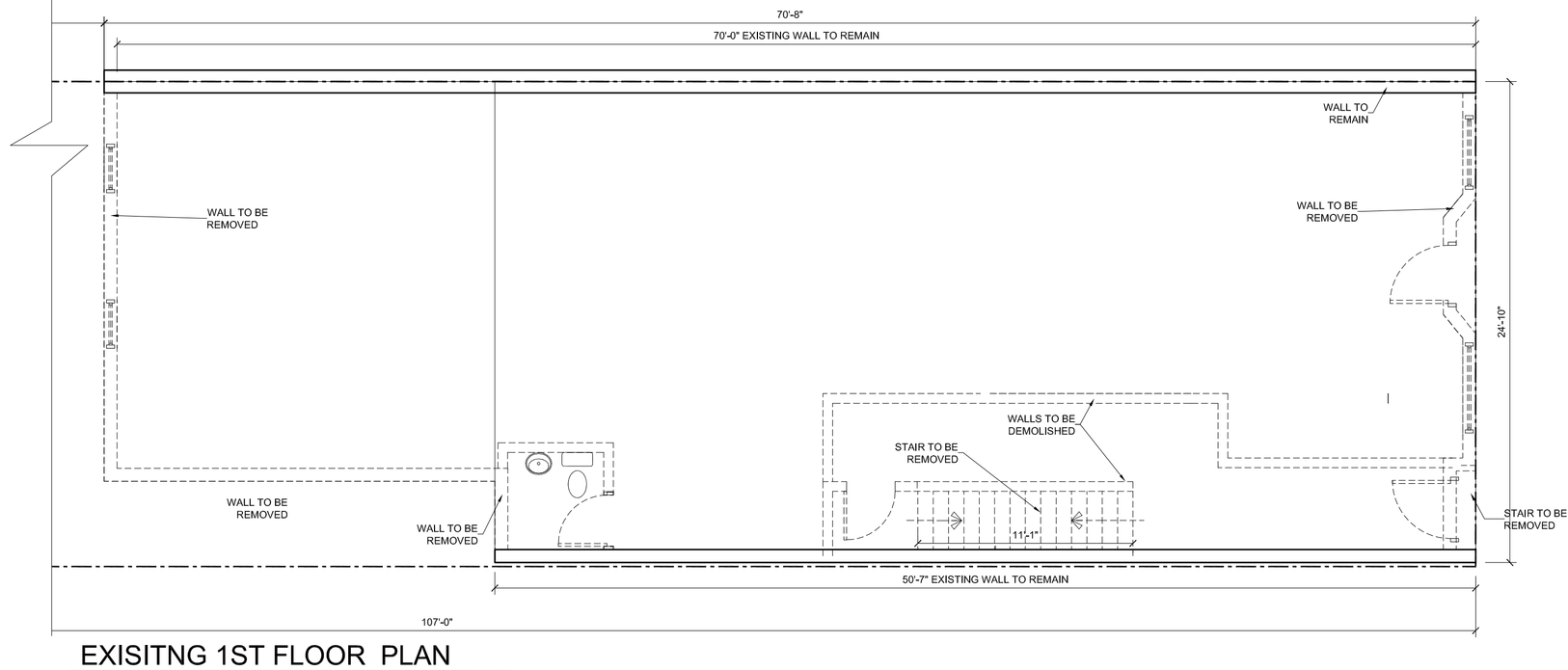
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JOB No.
DRAWING BY: NJ
CHK BY:
DWG No.

Z-004.00



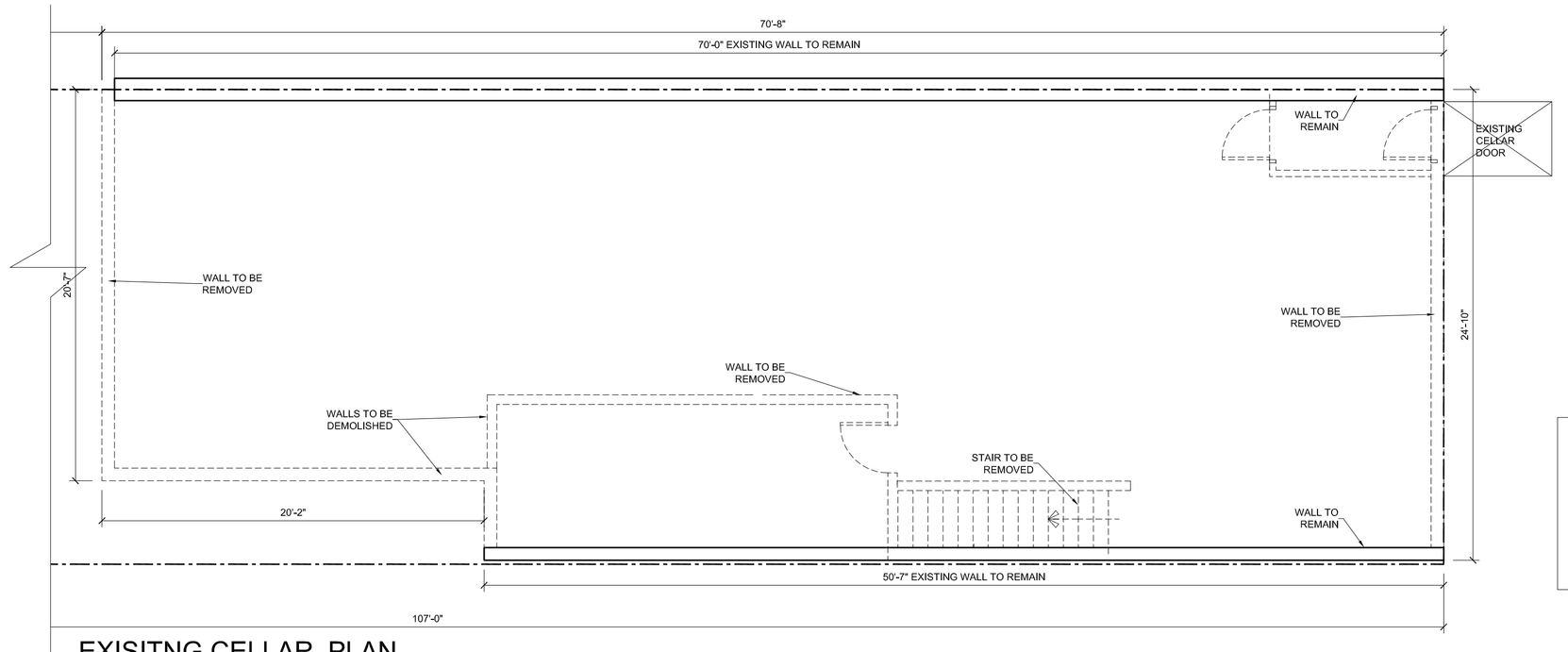
EXISITNG 2ND &3RD FLOOR PLAN

SCALE : 3/16" = 1'-0"



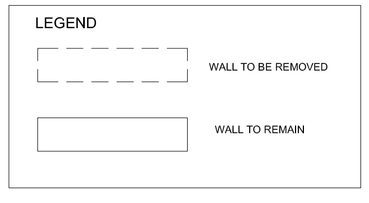
EXISITNG 1ST FLOOR PLAN

SCALE : 3/16" = 1'-0"



EXISITNG CELLAR PLAN

SCALE : 3/16" = 1'-0"



TENANT SAFETY NOTES:

1. CONSTRUCTION WORK SHALL BE DEFINED TO THE APARTMENT INTERIOR. AND WILL NOT CREATE DUST , DIRT, OR OTHER INCONVENIENCES TO OTHER APARTMENT UNIT'S WITHIN THE BUILDING.

2. CONSTRUCTION OPERATION SHALL NOT BLOCK HALLWAYS OR MEANS OF EGRESS FOR TENETS OF THE BUILDING.

3. CONSTRUCTION OPERATION SHALL NOT INVOLVE INTERRUPTION OF HEATING, WATER OR ELECTRICAL SERVICES TO OTHER TENANTS OF THEE BUILDING.

4. CONSTRUCTION OPERATION SHALL BE CONFINED TO NORMAL HOURS: 8 A.M. TO 5 P.M. MONDAY'S THROUGH FRIDAY'S, EXCEPT ON LEGAL HOLIDAY'S.

5. THERE SHALL BE NONE OCCUPYING THE APARTMENT TO BE RENOVATED DURING THE COURSE OF CONSTRUCTION WORK.

TENANT'S SAFETY NOTES

1. GENERAL:
ALL WORK TO BE DONE IN ACCORDANCE WITH NEW YORK BUILDING CODES, ARTICLE 19, & REGULATIONS OF OTHER AGENCIES HAVING JURISDICTION.

2. STRUCTURAL:
ALL DEMOLITION OPERATIONS, REPAIR OPERATIONS, & ALTERATION OPERATIONS TO BE DONE IN ACCORDANCE WITH THE NYC BUILDING CODE, ARTICLE 19, SUB ARTICLE 1905.0 & 1906.0.

3. MEANS OF EGRESS:
ALL EXISTING MEANS OF EGRESS FOR TENANTS OF THE BUILDING TO BE MAINTAINED CLEAR AND FREE OF ALL OBSTRUCTIONS, SUCH AS BUILDING MATERIALS, TOOLS, ETC. CONSTRUCTION OPERATION WILL NOT BLOCK HALLWAYS OR MEANS OF EGRESS FOR TENANTS OF THE BUILDING.

4. FIRE SAFETY:
A. BUILDING MATERIAL STORED AT CONSTRUCTION ARE, AND/OR IN ANY AREA OF THE BUILDING SECURE IN A LOCKED AREA, ACCESS TO SUCH AREAS TO BE CONTROLLED BY OWNER AND/OR GENERAL CONTRACTOR.
B. ALL MATERIALS TO BE STORED IN AN ORDERLY FASHION.
C. ALL FLAMMABLE MATERIALS TO BE KEPT TIGHTLY SEALED IN THEIR RESPECTIVE MANUFACTURES CONTAINERS, SUCH MATERIALS ARE TO BE KEPT AWAY FROM HEAT.
D. ALL FLAMMABLE MATERIALS TO BE USED & STORED IN AN ADEQUATELY VENTILATED SPACE.
E. ALL ELECTRICAL POWER TO BE SHUTOFF WHERE THERE IS EXPOSED CONDUIT.
F. ALL ELECTRICAL POWER IN THE CONSTRUCTION AREA TO SHUT-OFF AFTER WORKING HOURS.
G. CONTRACTOR, AT ALL TIMES, TO MAKE SURE THERE IS NO LEAKS OF NATURAL GAS IN BUILDING, OR ANY FLAMMABLE GAS USED IN CONSTRUCTION.
5. DUST CONTROL:
CONSTRUCTION WORK WILL BE CONFINED TO AREAS FILED FOR ONLY, AND WILL NOT CREATE DUST, DIRT OR OTHER SUCH INCONVENIENCES TO THE OCCUPIED APARTMENT UNITS WITHIN THE BUILDING. DEBRIS, DIRT AND DUST TO BE KEPT TO A MINIMUM, AND BE CONFINED TO THE IMMEDIATE CONSTRUCTION ARE. CONTRACTOR TO ISOLATE CONSTRUCTION AREA FROM OCCUPIED BUILDING BY MEANS OF TEMPORARY PARTITIONS OR HEAVY WEIGHT DROP CLOTHS, DEBRIS, DIRT AND DUST TO BE CLEANED UP AND CLEARED FROM BUILDING PERIODICALLY TO AVOID ANY EXCESSIVE ACCUMULATION.

6. NOISE AFTER HOURS:
CONSTRUCTION OPERATION WILL BE CONFINED TO NORMAL WORKING HOURS: 8AM TO 5PM, MONDAYS THROUGH FRIDAYS, EXCEPT LEGAL HOLIDAYS. CONTRACTOR TO RECEIVED THE WRITTEN CONSENT OF ALL PARTIES AFFECTED BY THIS WORKING DURING OTHER THAN REGULAR HOURS.

7. INTERRUPTIONS:
CONSTRUCTION OPERATION WILL NOT INVOLVE INTERRUPTION OF HEATING, WATER, OR ELECTRICAL SERIES TO OTHER TENANTS OF THE BUILDING.

DEMOLITION NOTES.

1.01 DESCRIPTION WORK
A. PROVIDE ALL LABOR EQUIPMENT AND MATERIAL AS REQUIRED FOR THE INTERIOR DEMOLITION
1, DEMOLITION OF INFERIOR NON-BEARNING PARTITIONS
2, REMOVE ALL FIXTURE AND EQUIPMENT E.G. EXPOSED PIPING CONDUITS
3. REMOVE AND DISPOSE BOG ALL DEMOLISHED MATERIALS RUBBISH AND DEBRIS,
B.ALL DEMOLISHMENT REMOVAL AND DISPOSAL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE 2008 BUILDING CODE OF THE CITY OF NEW YORK AND WITH ALL STATE AND FEDERAL REGULATIONS
C. ASBESTOS TESTING WAS PREFORMED , NO ASBESTOS MATERIAL WAS FOUND IN THIS PROPERTY (SEE ATTACHED ASP5)
1.02 SEQUENCE SCHEDULE
A. SCHEDULE INDICATING PROPOSED SEQUENCE OF OPERATION FOR DEMOLITION AND REMOVALS, INCLUDES DETAILS FOR DUST AND NOISE CONTROL PROTECTION
B. DEMOLISHMENT OPERATION SHALL BE PREFORMED IN A SYSTEMATIC MANNER IN ACCORDANCE WITH PARA 27-1039 OF THE N.Y.C. BUILDING CODE
(1) DEMOLISHMENT OF WALLS $ PARTITIONS SHALL PROCEED IN A SYSTEMATIC MANNER
(2) SECTIONS OF MASONRY WALLS SHALL NOT BE LOOSENED OR PERMITTED TO FALL IN SUCH MASSES OF THE EFFECT OF THE CARRYING CAPACITY OF FLOORS OR THE STABILITY OF STRUCTURAL SUPPORTS.
(3) NO WALL, CHIMNEY, OR OTHER STRUCTURAL PART SHALL BE LEFT IN SUCH CONDITION THAT IT MAY COLLAPSE OR BE TOPPLED BY WIND. VIBRATION OR ANY OTHER CAUSE
(4) NO SECTION OF WALL WITH A HEIGHT MORE THEN 22 TIMES ITS THICKNESS SHALL BE PERMITTED TO STAND WITHOUT BRACING.
(5) WHERE BRICK OR MASONRY CHIMNEYS CANNOT BE SAFELY TOPPLED OR DROPPED. ALL MATERIALS SHALL BE DROPPED DOWN ON TOPPLED OR DROPPED. ALL MATERIALS SHALL BE DROPPED DOWN ON THE INSIDE OF SUCH CHIMNEYS.
(6) ALL ENCLOSED VERTICAL SHAFTS SHALL BE MAINTAINED ENCLOSED AT ALL FLOORS EXCEPT THE UPPERMOST FLOOR BEING DEMOLISHED AND ALL WORK ON THE UPPERMOST FLOOR SHALL BE COMPLETED BEFORE STAIRAND SHAFT ENCLOSURES OF THE FLOOR BELOW ARE DISTURBED. ALL HAND RAILS AND BANISTERS SHALL BE LEFT IN PLACE UNTIL ACTUAL DEMOLISHMENT OF SUCH FLOOR IS IN PROGRESS

1.03 CONDITION OF PREMISES
A. THE CONTRACTOR SHALL ACCEPT THE EXISTING CONDITIONS OF THE PREMISES AND SHALL CLEAR THE SITE AS SPECIFIED THE ENGINEER AND OWNER ASSUMES TO RESPONSIBILITY FOR THE CONDITION OF THE CONTENTS OF THE BUILDING OF THE PREMISES COVERED BY THESE SPECIFICATIONS , NOR THE CONTINUANCE IN THE CONDITION EXISTING AT THE TIME OF THE INVITATION FOR BIDS OR THEREAFTER , ALL DAMAGE OR LOSS, WHETHER BY REASON OF FIRE, THEFT, OR BY OTHER CASUALTY OR HAPPENING, TO WE BUILDING COVERED BY THE SPECIFICATIONS SHALL BE AT THE RISK OF THE BIDDER FROM AND AFTER THE DATE OF AWARD OF CONTRACT, AND NO SUCH DAMAGE OR LOSS SHALL RELIEVE THE SUCCESSFUL BIDDER FROM ANY OBLIGATION UNDER THIS CONTRACT TO COMPLETE ALL WORK AS HEREIN PROVIDED.

1.04 REMOVALS
A. DO NOT BRING EXPLOSIVES TO SITE OR USE EXPLOSIVES
B. REMOVAL, TRANSMUTATION, STORAGE AND DISPOSAL OF FLAMMABLE EXPLOSIVE, TOXIC. AND CORROSIVE SUBSTANCE, IF ANY SHALL BE DONE IN STRICT COMPLIANCE WITH GOVERNING REGULATIONS BEFORE PROCEEDING WITH BUILDING DEMOUTION.
C. PROTECT MATERIALS AND SURFACES OF ADJACENT STRUCTURES; IF DAMAGE OCCURS. REPAIR OR REPLACEMENT SHALL BE MADE BY THE CONTRACTOR, TO THE SATISFACTION OF THE OWNER , AND AT THE EXPENSE OF THE CONTRACTOR.
D.THE WORK OF DEMOLISHING SHALL BE CARRIED IN A MANNER THAT WILL ENSURE ADJACENT PROPERTY AGAINST ANY DAMAGE THAT MIGHT OCCUR FROM FALLING DEBRIS OR OTHER CAUSE AND SO AS NOT TO INTERFERE WITH USE OF ADJACENT BUILDINGS AND STRUCTURES OR THE FREE AND SAFE PASSAGE TO END FROM THE BUILDINGS AND STRUCTURES
E. THE CONTRACTOR SHALL TAKE ANY PRECAUTION TO GAUD AGAINST ANY MOVEMENT AND SETTLEMENT OF ADJACENT BUILDINGS, STREETS, SIDEWALKS CAUSED OF A RESULT OF THIS WORK THE CONTRACTOR SHALL BE SOLELY AND ENTIRELY LIABLE FOR ANY INJURY CAUSED AS A RESULT OF THIS WORK.

1.05 INSTALLATION

A. MAINTAINS BRACING UNTIL STRUCTURAL ELEMENTS ARE EMBRACED BY OTHER BRACING OR UNTIL PERMANENT CONSTRUCTION IS ABLE TO WATCHSTRAPS LATERAL EARTH AND HYDROSTATIC PRESSURES.

1.06 REMOVE MATERIAL

A. ALL REMOVE MATERIAL, ITEM AND EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE EXPENSE OF REMOVING SUCH MATERIAL AND THE VALUE THEREOF SHALL BE TAKING IN CONSIDERATION BY THE TIME MAKING THE BID.
B. TRANSPORT AND LEGALLY DISPOSE OF MATERIALS IF HAZARDOUS MATERIALS ARE ENCOUNTER DURING DEMOLISHMENT OPERATIONS, COMPLY WITH APPLICABLE REGULATIONS, LAWS, AND ORDINANCES CONCERTING REMOVAL, HANDLING, AND PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION.

PART 2 - EXECUTION
2.01 PRECAUTIONS
A. THE WORK OF DEMOLISHMENT SHALL BE CARRIED ON IN EVERY RESPECT IN A THOROUGH AND WORKMANLIKE, MANNER. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND MACHINERY NECESSARY THEREFOR, AND SHALL PLACE PROPER AND SUFFICIENT GUARD AND FENCES AND WARNING SIGNALS BY DAY AND BY NIGHT FOR THE PREVENTION OF ACCIDENTS. THE CONTRACTOR WILL SAVE HARMLESS THE ENGINEERS AND OWNER AGAINST ANY ANISI ALL SUITES AND ACTIONS CLAIMS AND DEMANDS OF EVERY NAME AND DESCRIPTION BROUGHT AGAINST THEM. OR ANY OF THEM AGAINST AND FROM ALL DAMAGE AND COSTS TO WHICH IT , THEY OR ANY OF THEM MAY BE PUT BY REASON OF INJURY TO THE PERSON OR PROPERTY OF ANOTHER , RESULTING FROM NEGLIGENCE OR CARELESSNESS IN THE PERFORMANCE OF THE WORK OR IN GUARDING THE SAME. OR FROM ANY IMPROPER OR DEFECTIVE MATERIAL OR MACHINERY. IMPLEMENTS. OR APPLIANCE USED IN THE REMOVAL OF SAID BUILDINGS.

B. REASONABLE PRECAUTIONS SHALL BE TAKEN AGAINST FIRE THROUGHOUT ALL THE CONTRACTORS OPERATIONS THE AMOUNT OF INFLAMMABLE MATERIAL SHALL BE REDUCED TO A MINIMUM CONSIST WITH THE PROPER HANDLING AND STORING OF MATERIALS. PROVISIONS SHALL BE MADE FOR THE EXTII%UISHING OF FIRES. AS REQUIRED BY THE FIRE DEPARTMENT. THE CONTRACTOR SHALL NOT PERMITTED ANY FIRES TO BE BUILD EXCEPT OTHERWISE PROVIDENT HERE IN OR OPEN SALAMANDERS TO BE USED IN ANY PART OF THE WORK. EXCEPT THOSE THAT MIGHT BE REQUIRED DARNING WORK IN WINTER WEATHER IN APPROVED SALAMANDERS. AND THEN ONLY UNDER THE CONTRACTORS SUPERVISION.

2.02 CLEAN UP

A. UPON COMPILATION OF WORK UNDER THIS CONTRACT THE CONTRACTOR SHALL REMOVE ALL TOOLS AND MATERIALS, PLANT. APPARATUS, RUBBISH AND DEBRIS AND SHALL LEAVE THE PREMISES CLEAN. NEAT AND ORDERLY.

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

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TAX MAP



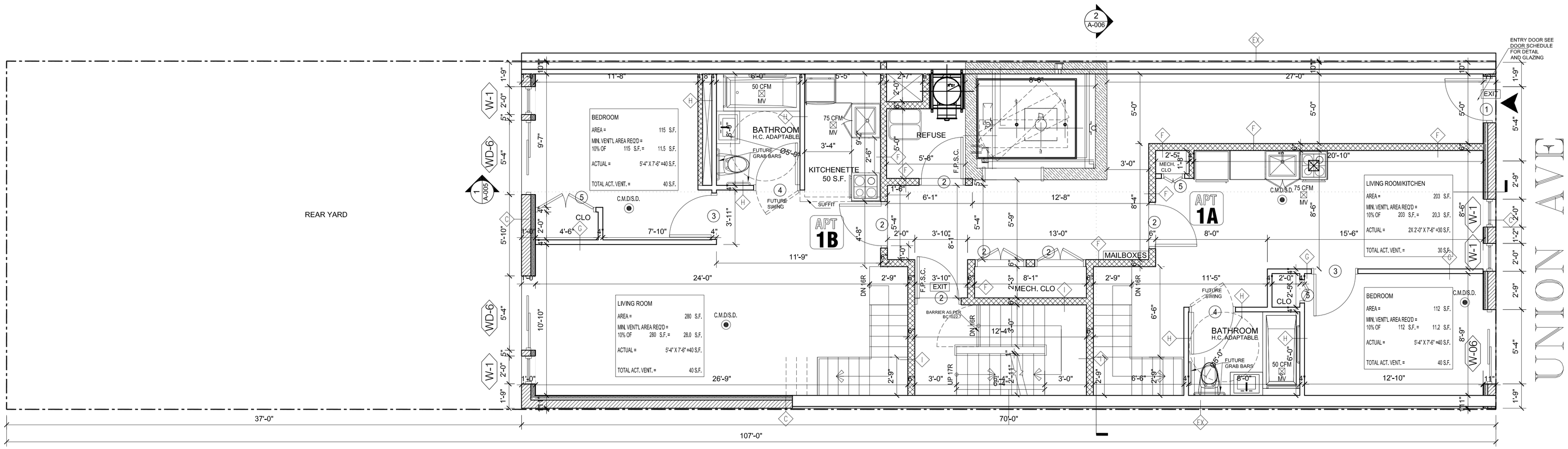
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

DEMO PLANS

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

DM-001.00



PROPOSED 1ST FLOOR PLAN

SCALE 1/4" = 1'-0"

LEGEND

- HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2008 B.C. SECTION 907 & 908 SEE SHEET A-005.00 FOR NOTES (C.M.D.)
- FD FLOOR DRAIN
- AD AREA DRAIN
- RD ROOF DRAIN
- EXIT EXIT SIGN

NOTES:

SPRINKLER PLAN FOR ENTIRE BUILDING (PER FIRE CODE 903.3.1.1 AND BC 903.3.1.2 / CURB TO CURB IS LESS THEN 38'-0" TO BE FILED

AIR CONDITIONING DEVICES WILL BE INSTALLED AT THE WINDOWS

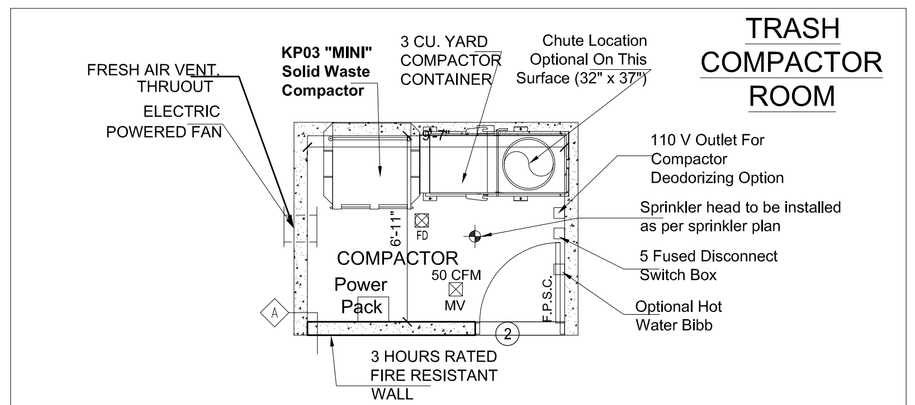
1014.2.1 3. **R-2 OCCUPANCIES.** IN GROUP‡ R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES

NOTES:
1) STRUCTURAL DESIGN COMPLIES WITH EARTHQUAKE REQUIREMENTS AS PER LL 17/95

2) DESIGN NOTES AND DETAILS INCLUDED HEREIN ARE IN COMPLIANCE WITH TPPN 2 OF 96

3) ALL DOORS THROUGH THE BUILDING SHALL BE PROVIDED WITH DISABLED PERSON COMPLIANT DOOR HARDWARE, AND DOOR SADDLES

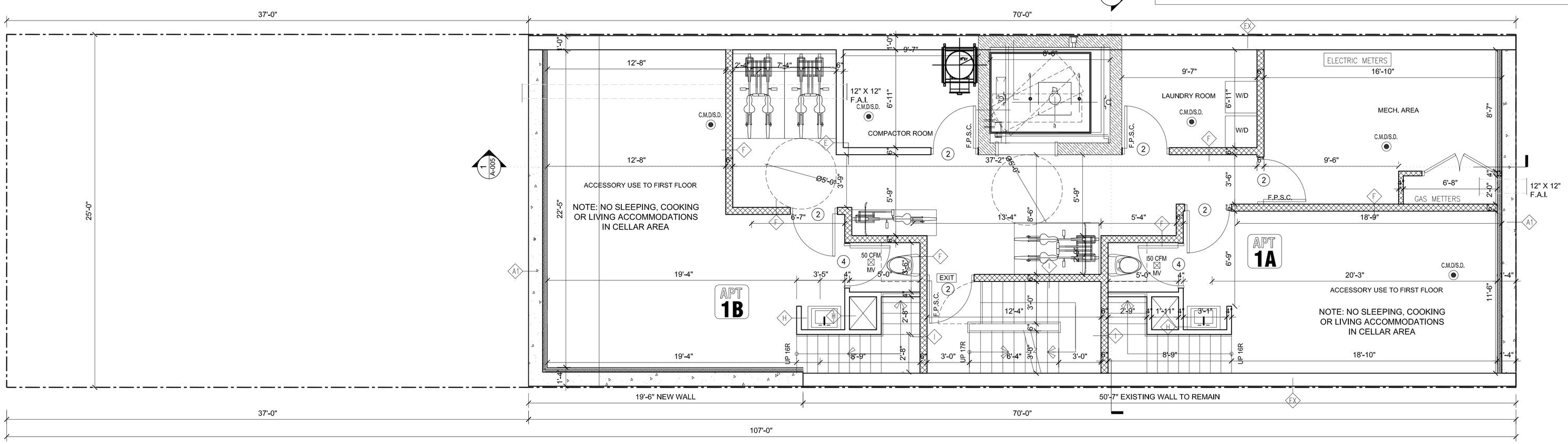
AS PER BC 908 EMERGENCY ALARM SYSTEMS
908.7.1.1 AFFECTED DWELLING UNITS. CARBON MONOXIDE ALARMS OR DETECTORS SHALL BE REQUIRED WITHIN THE FOLLOWING DWELLING UNITS:
1. UNITS ON THE SAME STORY WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED.
2. UNITS ON THE STORIES ABOVE AND BELOW THE FLOOR WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED.
3. UNITS IN A BUILDING CONTAINING A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM.
4. UNITS IN A BUILDING SERVED BY A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM THAT IS LOCATED IN AN ADJOINING OR ATTACHED BUILDING.



NOTE: STC RATING OF 50 WITH IMPACT INSULATION AND A 3 HR FIRE RATED CEILING REQUIRED FOR FLOOR CONSTRUCTION ABOVE COMPACTOR ROOM

TRASH COMPECTER ROOM DETAILED

SCALE 1/4" = 1'-0"



PROPOSED CELLAR FLOOR PLAN

SCALE 1/4" = 1'-0"

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

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TAX MAP



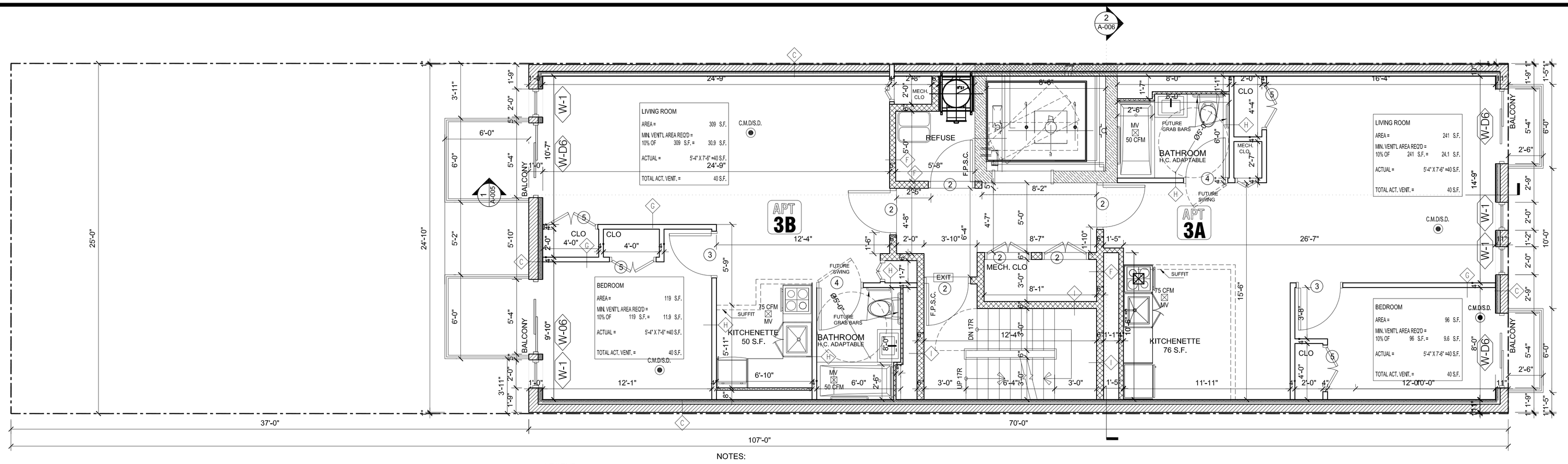
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED CELLAR FL. AND FIRST FL. FLOOR PLANS

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-001.00

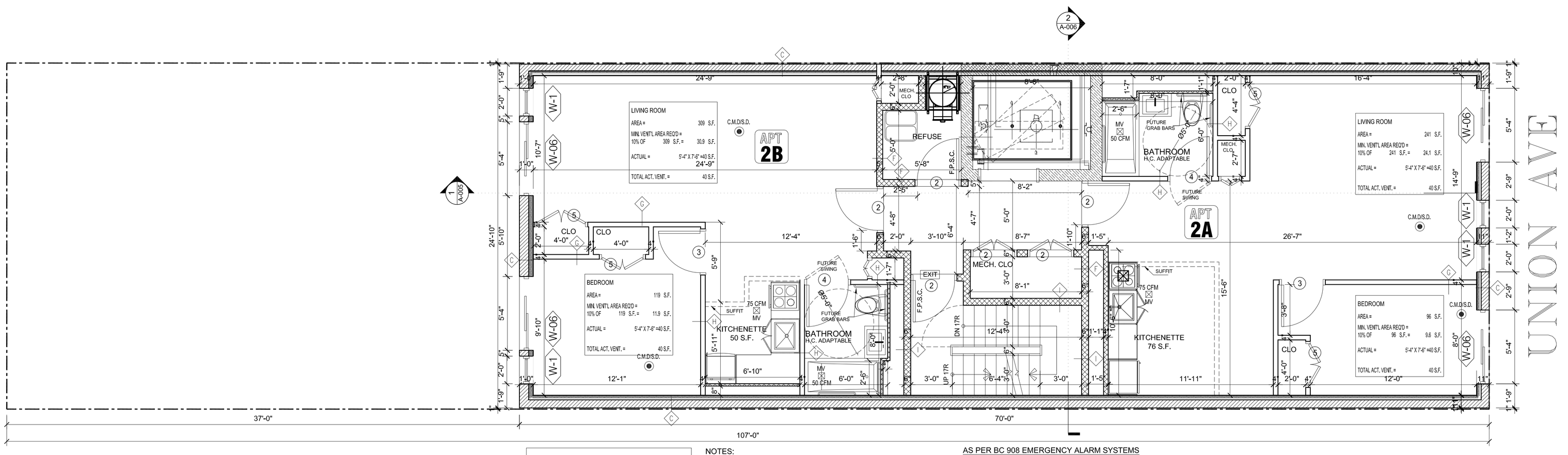


NOTES:

LEGEND

PROPOSED 3RD THRU 6TH FLOOR PLAN

SCALE 1/4" = 1'-0"



PROPOSED 2ND FLOOR PLAN

SCALE 1/4" = 1'-0"

LEGEND

- HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2008 B.C. SECTION 907 & 908 SEE SHEET A-005.00 FOR NOTES
- FD FLOOR DRAIN
- AD AREA DRAIN
- RD ROOF DRAIN
- EXIT EXIT SIGN

NOTES:

SPRINKLER PLAN FOR ENTIRE BUILDING (PER FIRE CODE 903.3.1.1 AND BC 903.3.1.2 / CURB TO CURB IS LESS THEN 38'-0"

TO BE FILED

AIR CONDITIONING DEVICES WILL BE INSTALLED AT THE WINDOWS

1014.2.1 3. **R-2 OCCUPANCIES.** IN GROUP‡ R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES

AS PER BC 908 EMERGENCY ALARM SYSTEMS
908.7.1.1 AFFECTED DWELLING UNITS. CARBON MONOXIDE ALARMS OR DETECTORS SHALL BE REQUIRED WITHIN THE FOLLOWING DWELLING UNITS:
1. UNITS ON THE SAME STORY WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED.
2. UNITS ON THE STORIES ABOVE AND BELOW THE FLOOR WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED.
3. UNITS IN A BUILDING CONTAINING A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM.
4. UNITS IN A BUILDING SERVED BY A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM THAT IS LOCATED IN AN ADJOINING OR ATTACHED BUILDING.

PETER PIZZIMENTI, R.A.
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TAX MAP



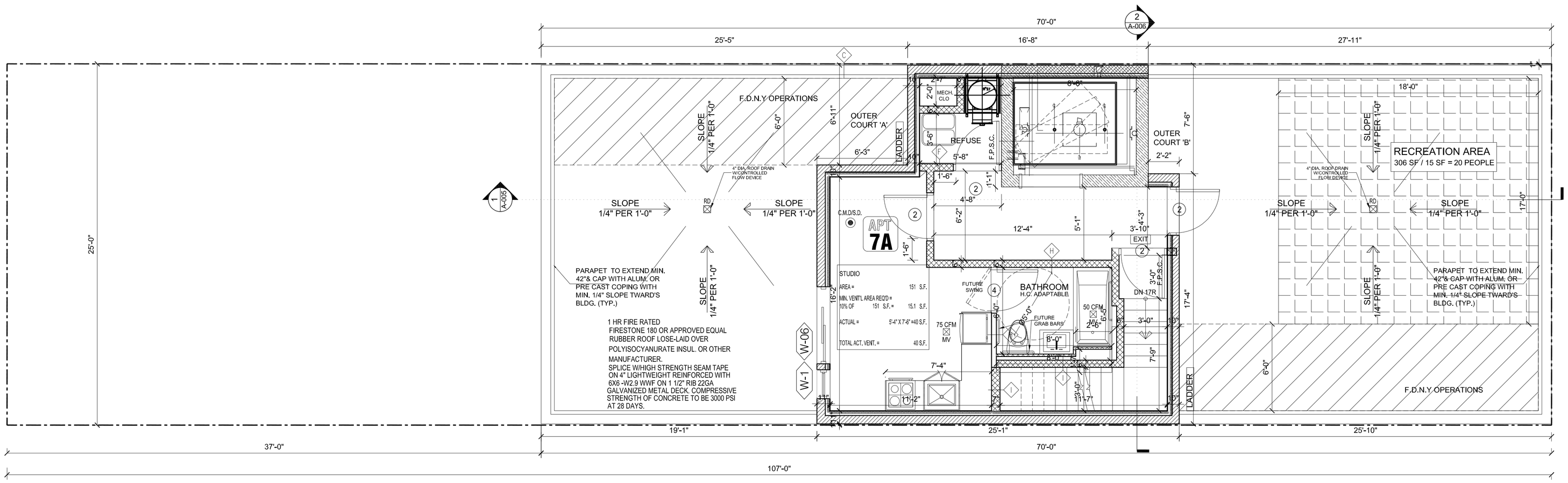
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED 2ND AND 3RD THRU 6TH. FL. FLOOR PLANS

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-002.00



PROPOSED PENTHOUSE FLOOR PLAN

SCALE 1/4" = 1'-0"

LEGEND

- S.D. C.M.D. HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2008 B.C. SECTION 907 & 908 SEE SHEET A-005.00 FOR NOTES
- FD FLOOR DRAIN
- AD AREA DRAIN
- RD ROOF DRAIN
- EXIT EXIT SIGN

NOTES:

SPRINKLER PLAN FOR ENTIRE BUILDING (PER FIRE CODE 903.3.1.1 AND BC 903.3.1.2 / CURB TO CURB IS LESS THEN 38'-0" TO BE FILED

AIR CONDITIONING DEVICES WILL BE INSTALLED AT THE WINDOWS

1014.2.1 3. **R-2 OCCUPANCIES.** IN GROUP‡ R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES

OUTER COURT (ZR 23-841 (B)):
DEPTH < WIDTH "
OUTER COURT 'A':
DEPTH 6'-3" < WIDTH 6'-11" =OK
OUTER COURT 'B':
DEPTH 2'-2" < WIDTH 7'-6" =OK

AS PER BC 908 EMERGENCY ALARM SYSTEMS
908.7.1.1 AFFECTED DWELLING UNITS. CARBON MONOXIDE ALARMS OR DETECTORS SHALL BE REQUIRED WITHIN THE FOLLOWING DWELLING UNITS:
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2. UNITS ON THE STORIES ABOVE AND BELOW THE FLOOR WHERE CARBON MONOXIDE-PRODUCING EQUIPMENT OR ENCLOSED PARKING IS LOCATED.
3. UNITS IN A BUILDING CONTAINING A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM.
4. UNITS IN A BUILDING SERVED BY A CARBON MONOXIDE-PRODUCING FURNACE, BOILER, OR WATER HEATER AS PART OF A CENTRAL SYSTEM THAT IS LOCATED IN AN ADJOINING OR ATTACHED BUILDING.

PENTHOUSE FLOOR AREA
(16'-8" X 6'-11"=)115.28 +(17'-4" X 2'-2"=)37.56 + (22'-11"x 17'-11"=)410.59 = 563.43 S.F.

6TH FLOOR AREA =
70'-0" X 24'-10"=1738.33S.F.

BC3002.4, BC 504.3: NO ELEVATOR REQUIRED
1738.33 X 33 % = 579.44 S.F.
PENTHOUSE FLOOR AREA = 563.43 S.F. < 579.44 S.F. = OK

PETER PIZZIMENTI, R.A.
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TAX MAP



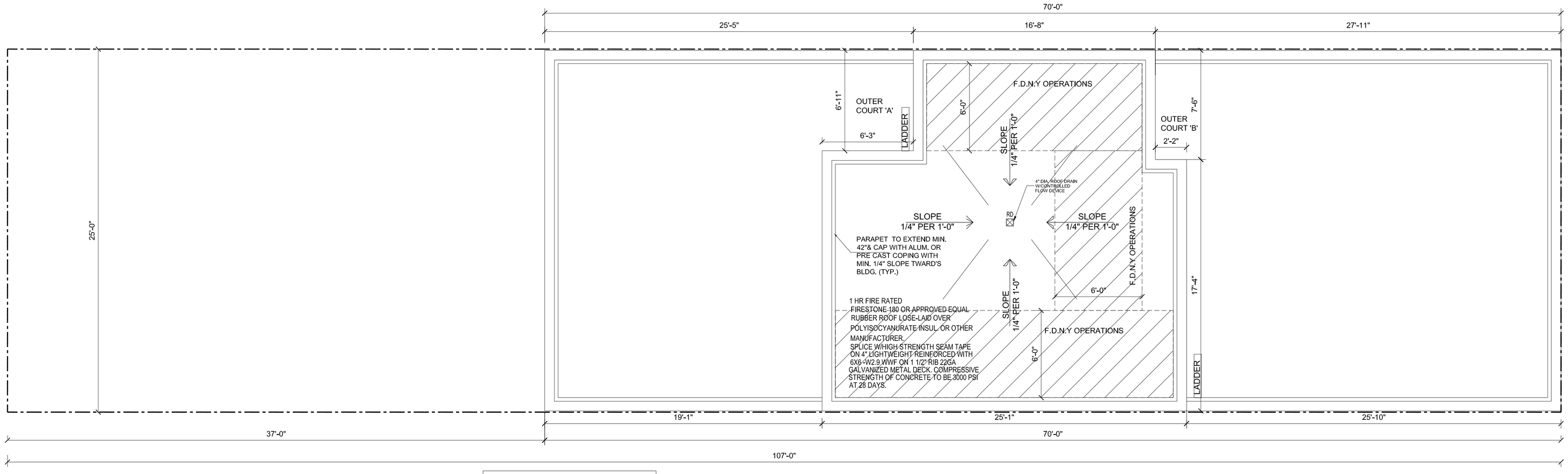
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED PENTHOUSE FLOOR PLAN

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-003.00



PROPOSED ROOF FLOOR PLAN

SCALE :1/4" = 1'-0"

◉ S.D. C.M.D. HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2008 B.C. SECTION 907 & 908 SEE SHEET A-005.00 FOR NOTES

FD FLOOR DRAIN

AD AREA DRAIN

RD ROOF DRAIN

EXIT EXIT SIGN

SPRINKLER PLAN FOR ENTIRE BUILDING (PER FIRE CODE 903.3.1.1 AND BC 903.3.1.2 / CURB TO CURB IS LESS THEN 38'-0" TO BE FILED

AIR CONDITIONING DEVICES WILL BE INSTALLED AT THE WINDOWS

1014.2.1 3. **R-2 OCCUPANCIES.** IN GROUP‡ R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES

OUTER COURT (ZR 23-841 (B)):
DEPTH < WIDTH "
OUTER COURT 'A':
DEPTH 6'-3" < WIDTH 6'-11" =OK
OUTER COURT 'B':
DEPTH 2'-2" < WIDTH 7'-6" =OK

2113.1.6 ADJOINING CHIMNEYS AND VENTS. ADJOINING CHIMNEYS AND VENTS SHALL BE IN ACCORDANCE WITH SECTIONS 2113.1.6.1 THROUGH‡ 2113.1.6.8.
2113.1.6.1 RESPONSIBILITY OF OWNER OF TALLER BUILDING. WHENEVER A BUILDING IS ERECTED, ENLARGED, OR INCREASED IN HEIGHT SO THAT ANY PORTION OF SUCH BUILDING, EXCEPT CHIMNEYS OR VENTS, EXTENDS HIGHER THAN THE TOP OF ANY PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS WITHIN 100 FEET (30 480 MM), THE OWNER OF SUCH NEW OR ALTERED BUILDING SHALL HAVE THE RESPONSIBILITY OF ALTERING SUCH CHIMNEYS OR VENTS TO MAKE THEM CONFORM WITH THE REQUIREMENTS OF THIS CHAPTER. A CHIMNEY OR VENT THAT IS NO LONGER CONNECTED WITH A FIREPLACE OR COMBUSTION OR OTHER EQUIPMENT FOR WHICH A CHIMNEY OR VENT WAS REQUIRED, SHALL BE EXEMPT FROM THIS REQUIREMENT. SUCH ALTERATIONS SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MEANS OR A COMBINATION THEREOF:
1. CARRY UP THE PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS TO THE HEIGHT REQUIRED IN THIS CHAPTER.
2. OFFSET SUCH CHIMNEYS OR VENTS TO A DISTANCE BEYOND THAT REQUIRED IN THIS CHAPTER FROM THE NEW OR ALTERED BUILDING PROVIDED THAT THE NEW LOCATION OF THE OUTLET OF THE OFFSET CHIMNEY OR VENT SHALL OTHERWISE COMPLY WITH THE REQUIREMENTS OF THIS CHAPTER.
3. SUCH REQUIREMENTS SHALL NOT DISPENSE WITH OR MODIFY ANY ADDITIONAL REQUIREMENTS THAT MAY BE APPLICABLE PURSUANT TO RULES OF THE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION.

PETER PIZZIMENTI, R.A.
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TAX MAP



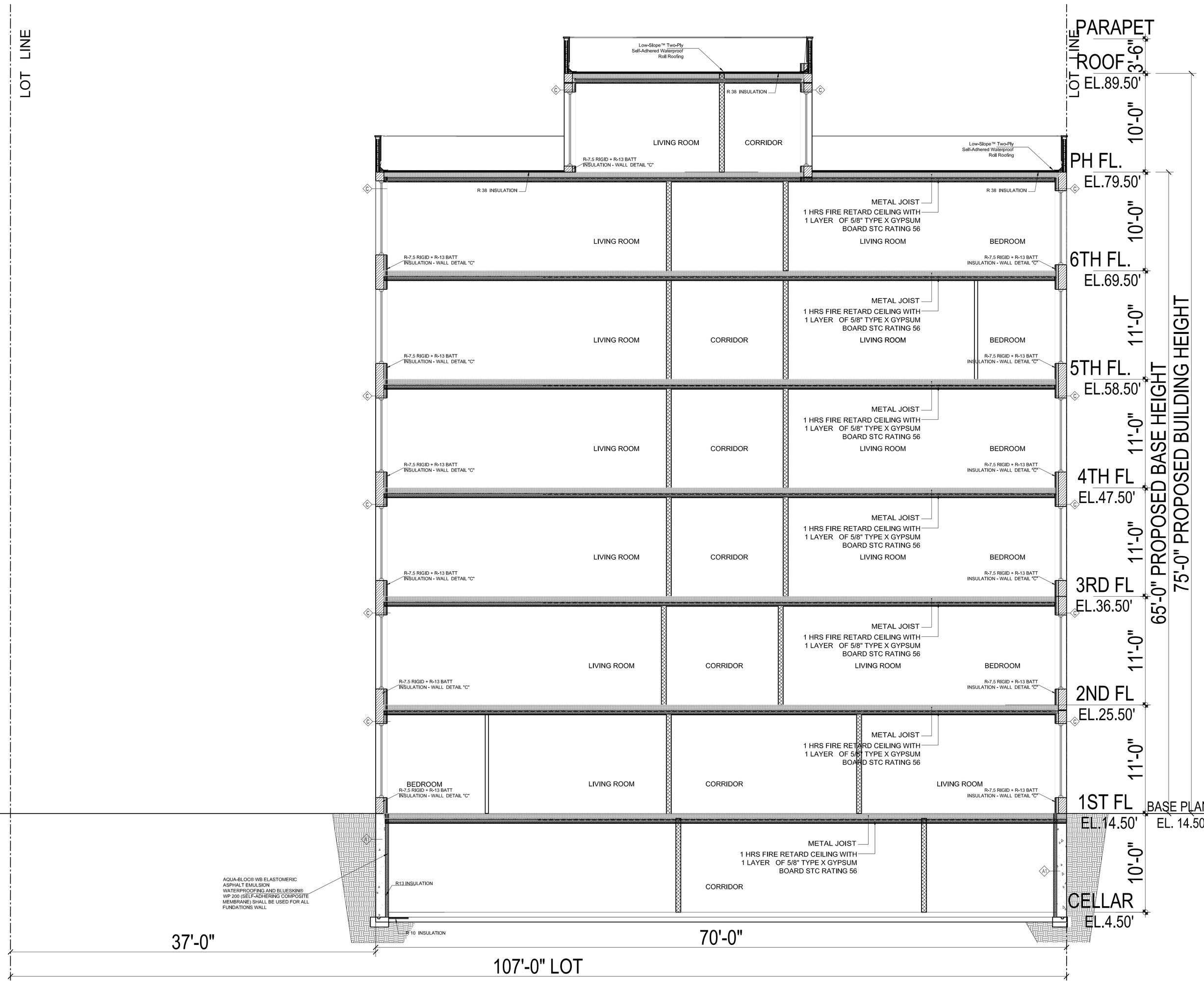
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED ROOF FLOOR PLAN

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-004.00



LONGITUDINAL SECTION#1

SCALE : 3/16" = 1'-0"

PETER PIZZIMENTI, R.A.

ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
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TAX MAP



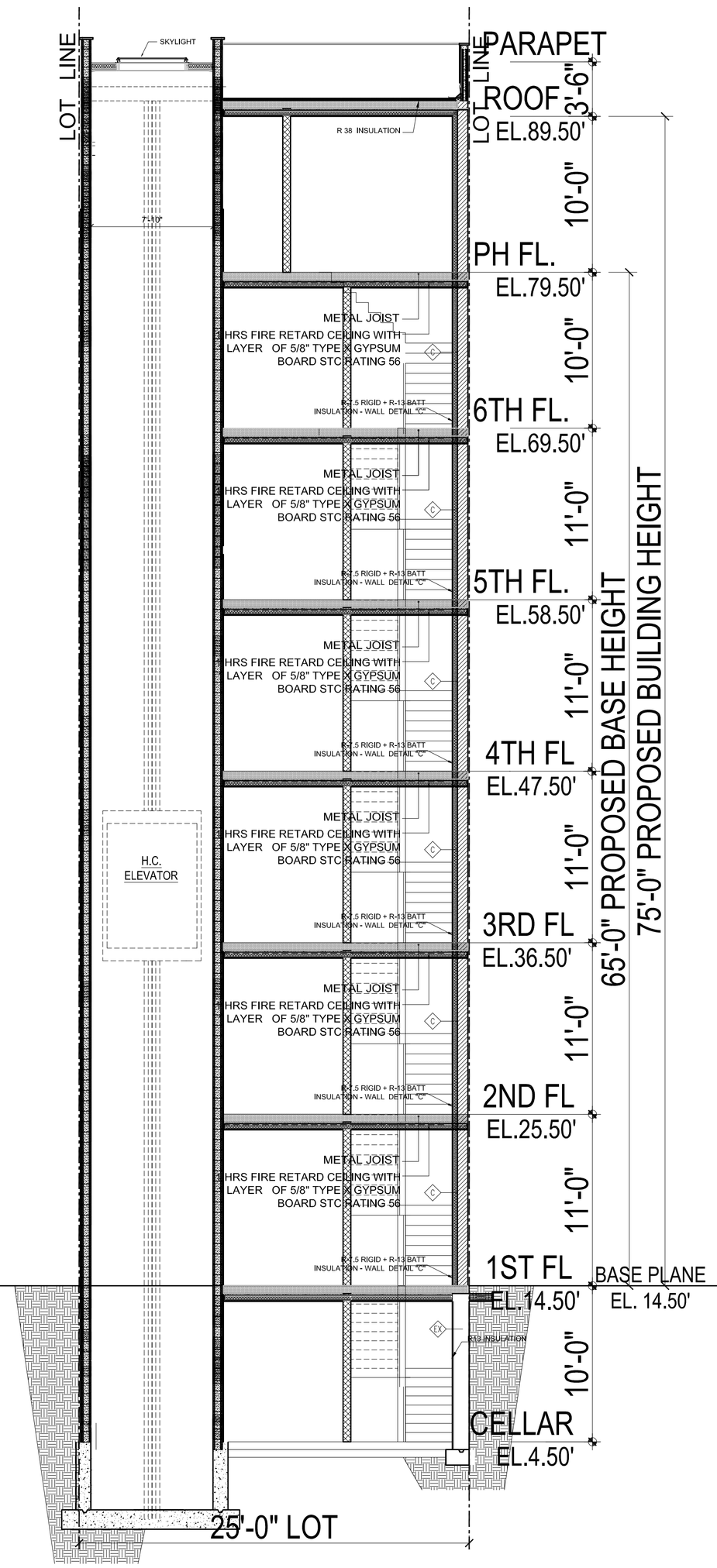
PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED LONGITUDINAL SECTION

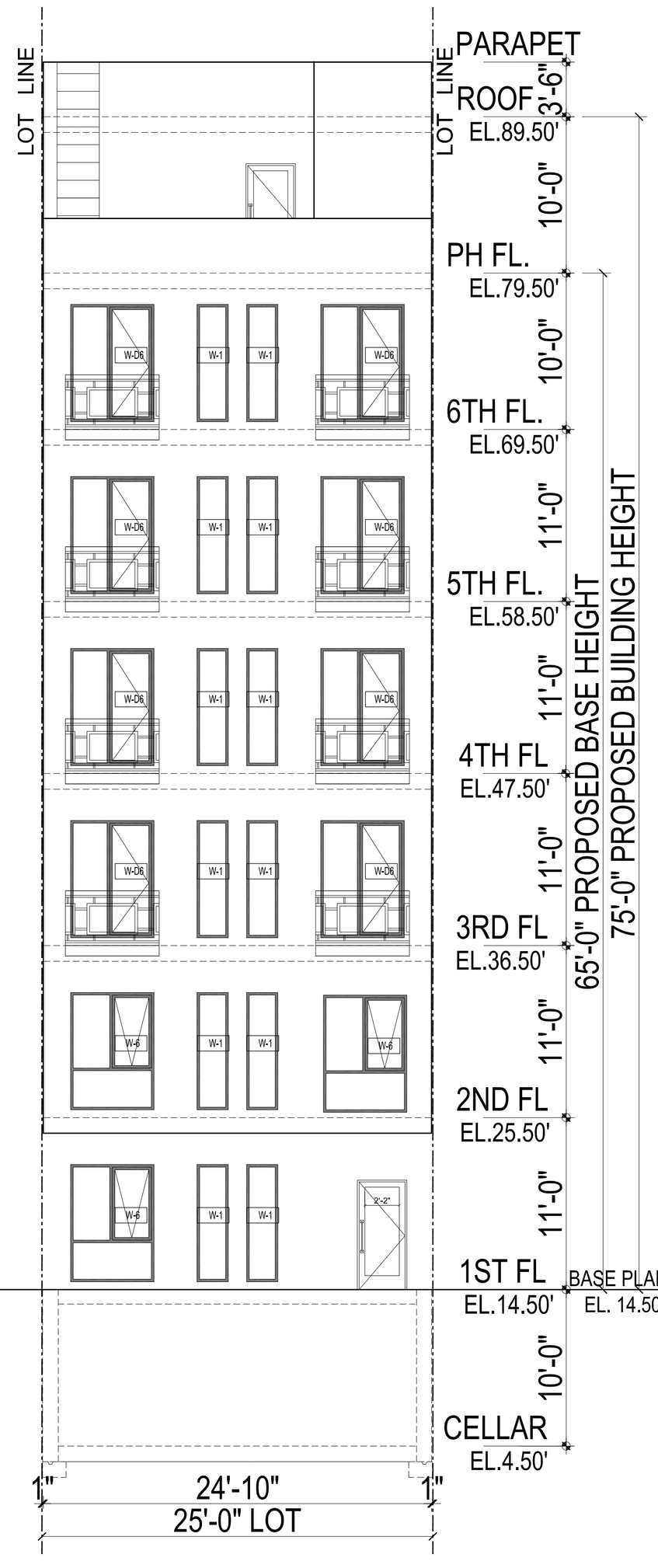
DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-005.00



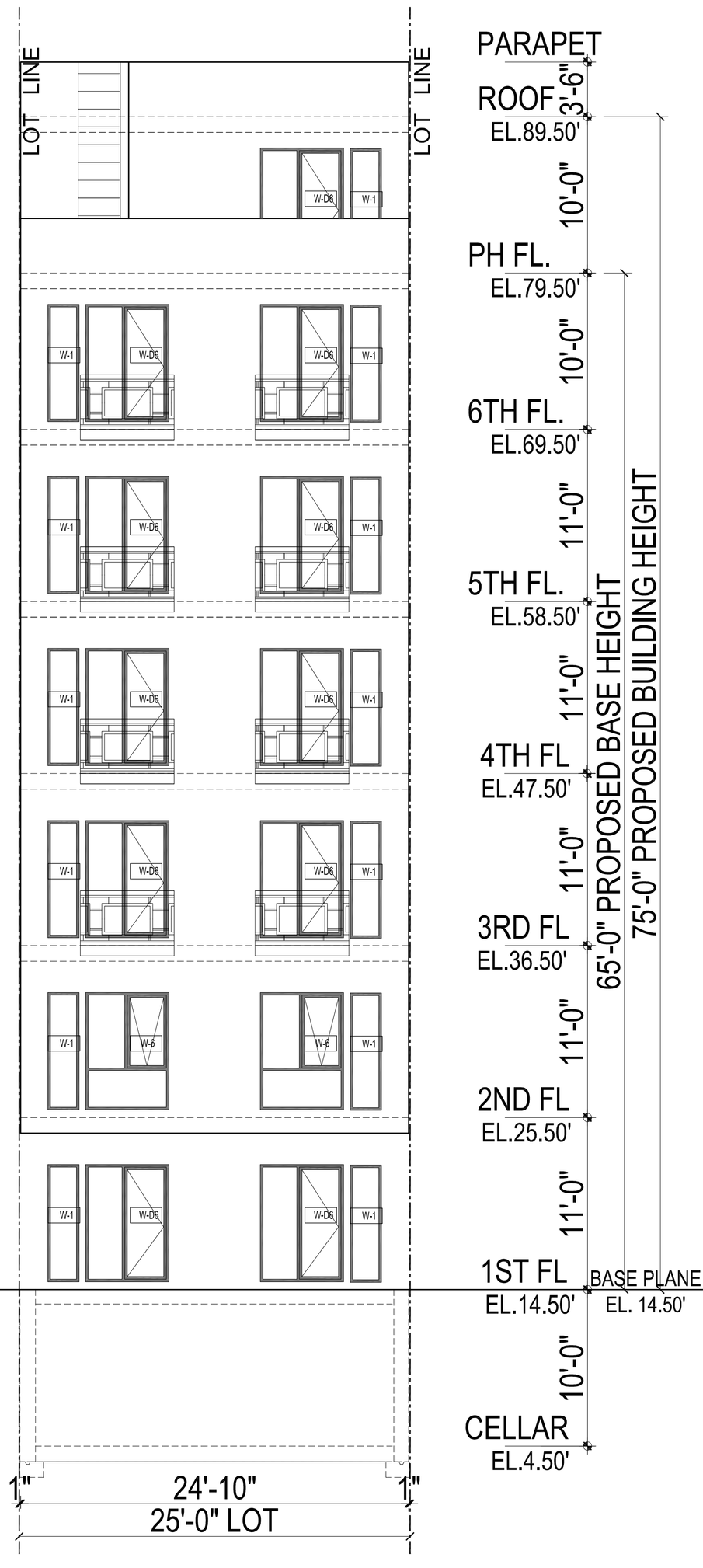
CROSS SECTION#2

SCALE : 3/16" = 1'-0"



FRONT ELEVATION

SCALE : 3/16" = 1'-0"

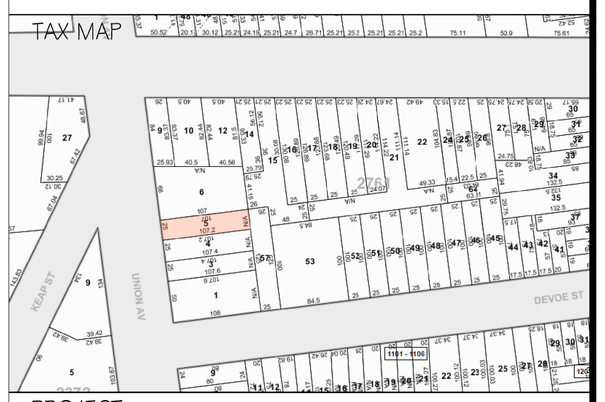


BACK ELEVATION

SCALE : 3/16" = 1'-0"

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

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PROJECT:

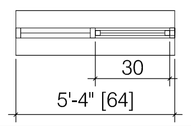
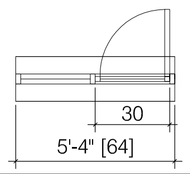
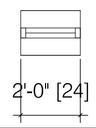
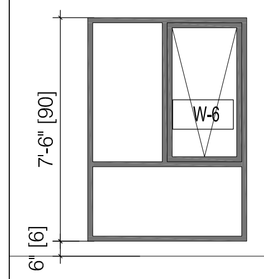
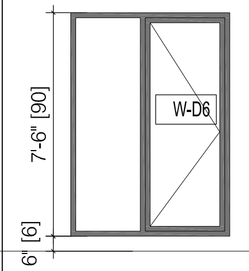
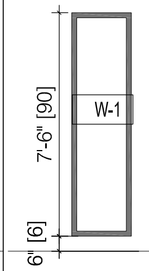
438 UNION AVENUE,
BROOKLYN, NY 11211

PROPOSED CROSS SECTION
AND ELEVATIONS

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

A-006.00

WINDOW SCHEDULE

TYPE	W-06	W-D6	W-1
LOCATION	FRONT & BACK	FRONT & BACK	FRONT & BACK
PLAN			
ELEVATION			
GENERAL INFORMATION	5'-4"x 7'-6"	5'-4"x 7'-6"	2'-0"x 7'-6"
	SWING/FIXED	DOOR/FIXED	DOOR/FIXED
	CHARCOAL GREY	CHARCOAL GREY	CHARCOAL GREY
	WHITE WOOD	WHITE WOOD	WHITE WOOD
	ALUMINUM	ALUMINUM	ALUMINUM
	U- FACTOR = 0.27	U- FACTOR = 0.27	U- FACTOR = 0.27
	SHGC = 0.24	SHGC = 0.24	SHGC = 0.24
	AIR LEAKAGE <0.2 CFM/SF	AIR LEAKAGE <0.2 CFM/SF	AIR LEAKAGE <0.2 CFM/SF

DOOR SCHEDULE

1

NOTES:

DOOR TO BE EQUIPPED WITH LATCH TYPE DOOR HANDLES

DOOR TO PROVEDED WITH BSA APPROVED TYPE PEEPHOLES

DOOR TO BE EQUIPPED WITH WEATHERSTRIPPING AND INTERLOCKING METAL SADDLE



UNIT SIZE	3'-2" W X 7'-0"H
M/O SIZE	3'-2" W X 7'-0"H
MATERIAL	METAL
FRAME	METAL
U-FACTOR = 0.25	SHGC = .13
SILL	½ " BEVELLED INTERLOCKING METAL SADDLE
FIRERATING	1 1/2 HR FIRE RATING SELF CLOSING
AIR LEAKAGE	<0.3 CFM/SF

2

NOTES:

DOOR TO BE EQUIPPED WITH HEAVY DUTY LATCH SET, HEAVY DUTY DEAD BOLD AND CHAIN GUARD T

DOOR TO PROVIDED WITH BSA APPROVED TYPE PEEPHOLES



UNIT SIZE	3'-0" W X 6'-10½"H
M/O SIZE	3'-0" W X 6'-10½"H
MATERIAL	METAL
FRAME	WOOD
U-FACTOR = 0.25	SHGC = .13
SILL	½ " BEVELLED INTERLOCKING METAL SADDLE
FIRERATING	1 1/2 HR FIRE RATING SELF CLOSING
AIR LEAKAGE	<0.3 CFM/SF

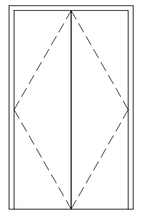
3

UNIT SIZE	2'-10 " W X 6'-8"H
R/O SIZE	2'-10½" W X 6'-8½"H
MATERIAL	WOOD
FRAME	WOOD
FINISH	PAINT
SILL	MARBLE
FIRERATING	NONE

4

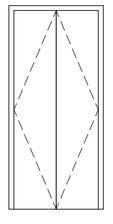
UNIT SIZE	2'-10 " W X 6'-8"H
R/O SIZE	2'-10½" W X 6'-8½"H
MATERIAL	WOOD
FRAME	WOOD
FINISH	PAINT
SILL	NONE
FIRERATING	NONE

5



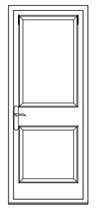
UNIT SIZE	4'-0 " W X 6'-8"H
R/O SIZE	4'-0½" W X 6'-8½"H
MATERIAL	WOOD
FRAME	WOOD
FINISH	PAINT
SILL	NONE
FIRERATING	NONE

6



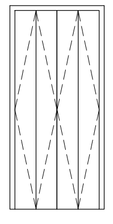
UNIT SIZE	3'-0 " W X 6'-8"H
R/O SIZE	3'-0½" W X 6'-8½"H
MATERIAL	WOOD
FRAME	WOOD
FINISH	PAINT
SILL	NONE
FIRERATING	NONE

7



UNIT SIZE	3'-4" " W X 6'-8"H
R/O SIZE	3'-4½" W X 6'-8½"H
MATERIAL	METAL
FRAME	METAL
FINISH	PAINT
U-FACTOR = .22	
FIRERATING	2HR SELF CLOSING
INFILTRATION RATE	1.0 CFM/SF

8



UNIT SIZE	3'-0 " W X 6'-8"H
R/O SIZE	3'-0½" W X 6'-8½"H
MATERIAL	WOOD
FRAME	WOOD
FINISH	PAINT
SILL	NONE
FIRERATING	NONE

CAST METAL TREE GUARDS

CAST METAL RAISED GRATE

SECTION

NOTE:
WRITTEN NOTIFICATION WILL BE MADE TO DEPARTMENT OF PARKS & RECREATION PRIOR TO COMMENCMENT

NO DELETERIOUS, CAUSTIC OR ACID MATERIALS OF SUCH WORK SHALL BE DUMPED OR MIXED WITHIN 10' OF SUCH TREE

§27–1030 PROTECTION OF TREES. NO TREES OUTSIDE THE STREET LINE SHALL BE DISTURBED OR REMOVED WITHOUT THE PERMISSION OF THE COMMISSIONER OF PARKS AND RECREATION. PROTECTION MEETING THE REQUIREMENTS OF THE DEPARTMENT OF PARKS AND RECREATION SHALL BE PROVIDED AROUND THE TRUNKS OF ALL SUCH TREES, AND WRITTEN NOTIFICATION SHALL ALSO BE MADE TO THE DEPARTMENT OF PARKS AND RECREATION AT LEAST FORTY–EIGHT HOURS PRIOR TO COMMENCEMENT OF SUCH WORK, NO DELETERIOUS, CAUSTIC, OR ACID MATERIAL SHALL BE DUMPED OR MIXED WITHIN TEN FEET OF ANY SUCH TREE, NOR SHALL SALT FOR THE REMOVAL OF ICE OR SNOW BE APPLIED WHEN RUNOFF WILL DRAIN TO A TREE.

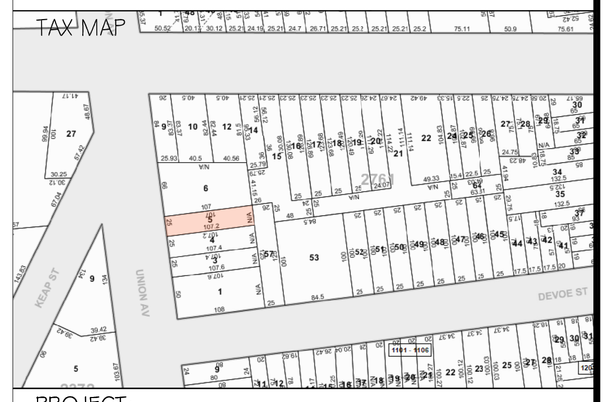
TREE DETAIL

SCALE: N.T.S.

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

	REVISIONS:	DATE:
1		
2		
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5		
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10		
11		

TAX MAP



PROJECT:

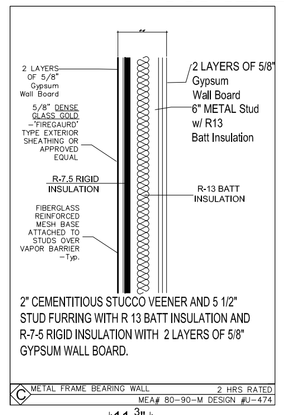
438 UNION AVENUE,
BROOKLYN, NY 11211

DOOR AND WINDOW SCHEDULE

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

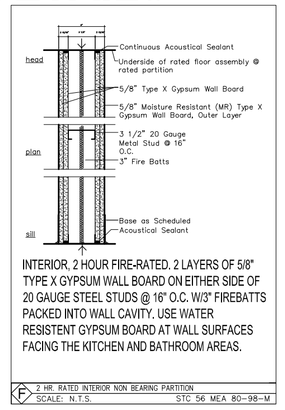
A-007.00

WALL DETAILS



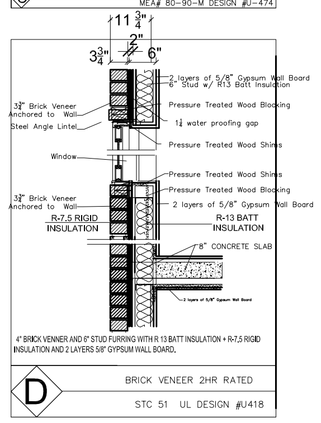
2" CEMENTITIOUS STUCCO VEENER AND 5 1/2" STUD FURRING WITH R 13 BATT INSULATION AND R-7.5 RIGID INSULATION WITH 2 LAYERS OF 5/8" GYPSUM WALL BOARD.

C METAL FRAME BEARING WALL — 2 HRS RATED
METAL BD--90--M DESIGN #U--413

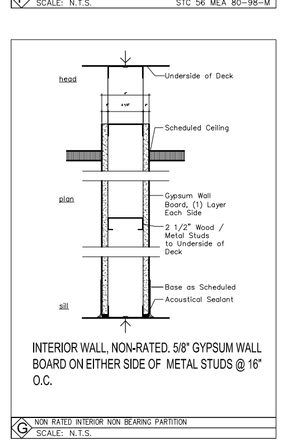


INTERIOR, 2 HOUR FIRE-RATED. 2 LAYERS OF 5/8" TYPE X GYPSUM WALL BOARD ON EITHER SIDE OF 20 GAUGE STEEL STUDS @ 16" O.C. W/3" FIREBATTS PACKED INTO WALL CAVITY. USE WATER RESISTENT GYPSUM BOARD AT WALL SURFACES FACING THE KITCHEN AND BATHROOM AREAS.

F 2 HR. RATED INTERIOR NON BEARING PARTITION
SCALE: N.T.S. — STC 56 MEA BD--98--M

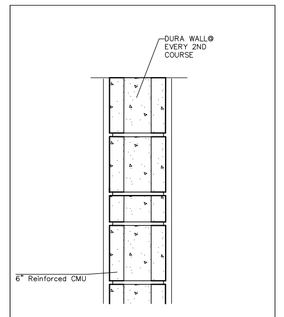


D BRICK VENEER 2HR RATED
STC 51 UL DESIGN #U418



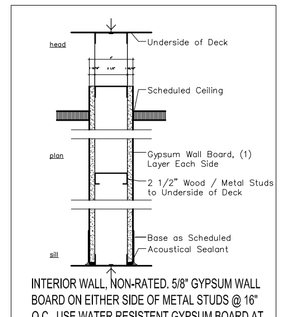
INTERIOR WALL, NON-RATED. 5/8" GYPSUM WALL BOARD ON EITHER SIDE OF METAL STUDS @ 16" O.C.

G NON RATED INTERIOR NON BEARING PARTITION
SCALE: N.T.S.



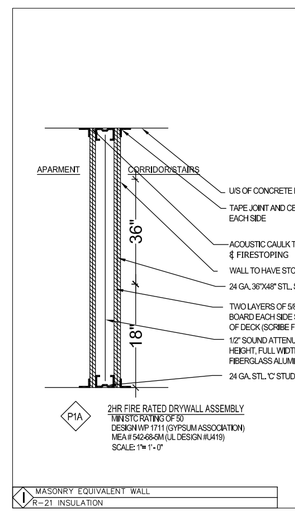
3HR RATED 6" CONCRETE MASONRY

E 6" CMU PARTY WALL BEARING PARTITION — 3 HRS RATED
R--19 INSULATION STC 50 UL DESIGN #U418



INTERIOR WALL, NON-RATED. 5/8" GYPSUM WALL BOARD ON EITHER SIDE OF METAL STUDS @ 16" O.C. USE WATER RESISTENT GYPSUM BOARD AT WALL SURFACES FACING THE KITCHEN AND BATHROOM AREAS.

WATER RESISTENT INTERIOR NON BEARING WALL
SCALE: N.T.S.

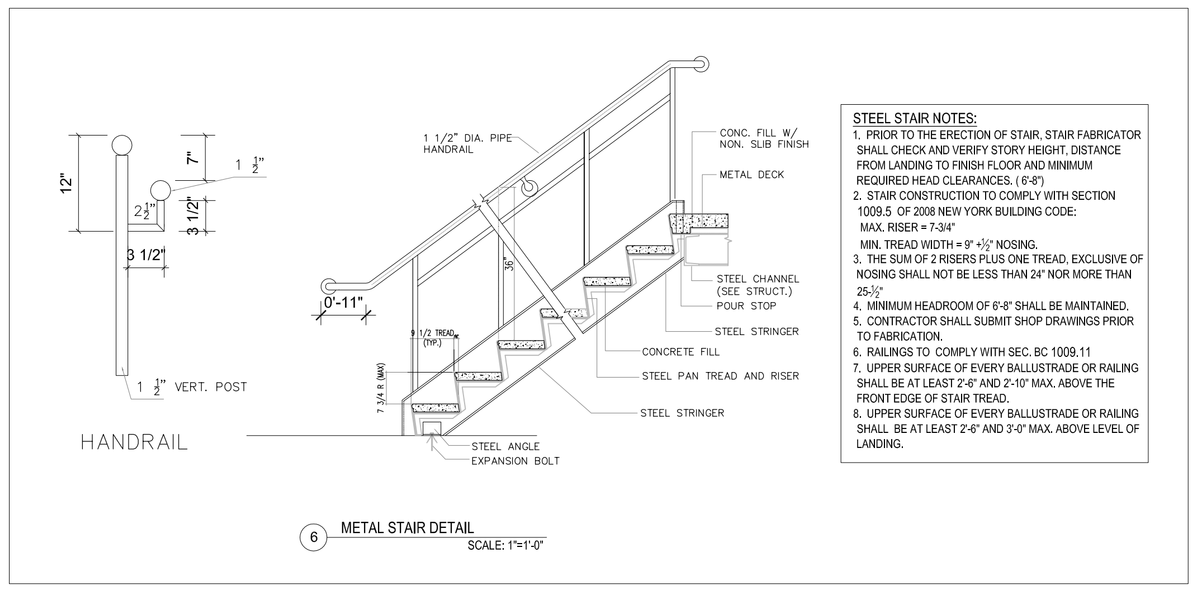


1 MASONRY EQUIVALENT WALL
R--21 INSULATION

1 RCNY §1014-01
CHAPTER 1000
Means of Egress
§1014-01 Masonry equivalent exit enclosures.

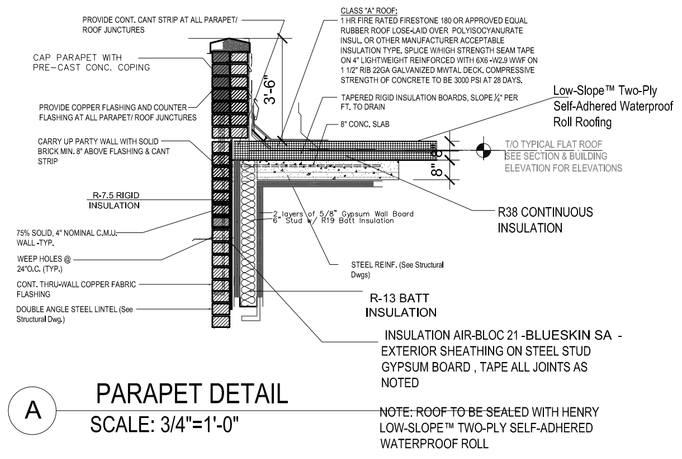
(a) Scope. This rule provides the construction requirements for masonry equivalent exit enclosures in Groups R-1, R-2 and B occupancies.
(b) References. See sections 1014.2.1 (Two exits and exit access doorways, Exceptions 3 and 4) and 1019.1 (Enclosures requlred Exceptlon 10) of the buildlng code.
(c) Stud wall construction requirements. A masonry equivalent exit enclosure constructed as stud and wall board assembly shall satisfy the following requirements:

(2) Performance-based requirements. For a wall assembly not classified In subdivision (1) above, a masonry equivalent wall assembly shall satisfy the followlng requlrements:
(i) Materials. Materials constituting the interior side of the exit enclosure wall assembly shall be tested by an approved testing agency to ASTM C1629, Hard Body Impact Classification Level 3.
(ii) Assembly. The wall assembly shall have a minimum two-hour fire resistance rating. The wall assembly shall be tested by an approved testing agency to ASTM C1629, Soft Body Impact Classification Level 2.
(iii) Installation. Wall assemblies shall be anchored to structural members and shall comply with the structural requirements of the building code.

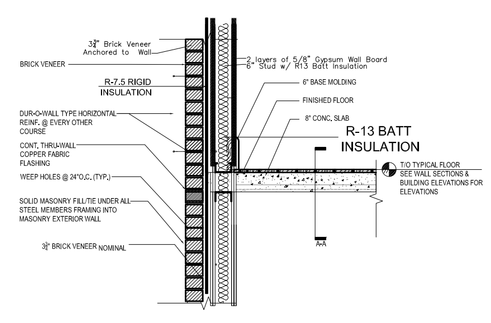


6 METAL STAIR DETAIL
SCALE: 1"=1'-0"

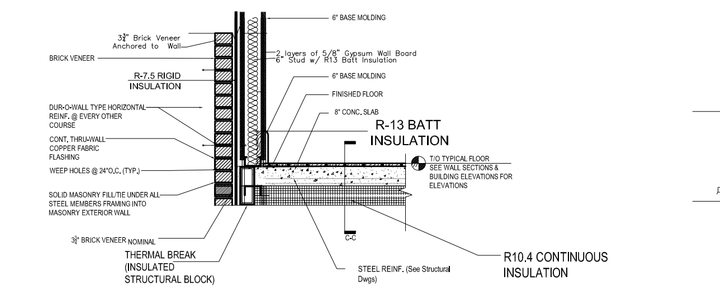
STEEL STAIR NOTES:
1. PRIOR TO THE ERECTION OF STAIR, STAIR FABRICATOR SHALL CHECK AND VERIFY STORY HEIGHT, DISTANCE FROM LANDING TO FINISH FLOOR AND MINIMUM REQUIRED HEAD CLEARANCES. (6'-8")
2. STAIR CONSTRUCTION TO COMPLY WITH SECTION 1009.5 OF 2008 NEW YORK BUILDING CODE:
MAX. RISER = 7-3/4"
MIN. TREAD WIDTH = 9" +½" NOSING.
3. THE SUM OF 2 RISERS PLUS ONE TREAD, EXCLUSIVE OF NOSING SHALL NOT BE LESS THAN 24" NOR MORE THAN 25-½"
4. MINIMUM HEADROOM OF 6'-8" SHALL BE MAINTAINED.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION.
6. RAILINGS TO COMPLY WITH SEC. BC 1009.11
7. UPPER SURFACE OF EVERY BALLUSTRADE OR RAILING SHALL BE AT LEAST 2'-6" AND 2'-10" MAX. ABOVE THE FRONT EDGE OF STAIR TREAD.
8. UPPER SURFACE OF EVERY BALLUSTRADE OR RAILING SHALL BE AT LEAST 2'-6" AND 3'-0" MAX. ABOVE LEVEL OF LANDING.



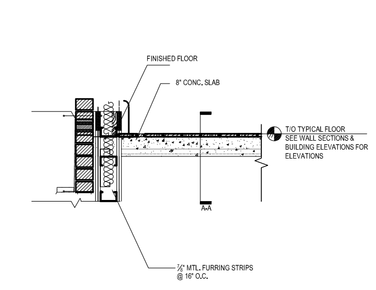
A PARAPET DETAIL
SCALE: 3/4"=1'-0"



B 2 HR FIRE RATED WALL SECTION DETAIL
SCALE: 3/4"=1'-0"



C 2 HR FIRE RATED HEATED CEILING/FLOOR DETAIL
SCALE: 3/4"=1'-0"



D 2 HR FIRE RATED CEILING / FLOOR DETAIL

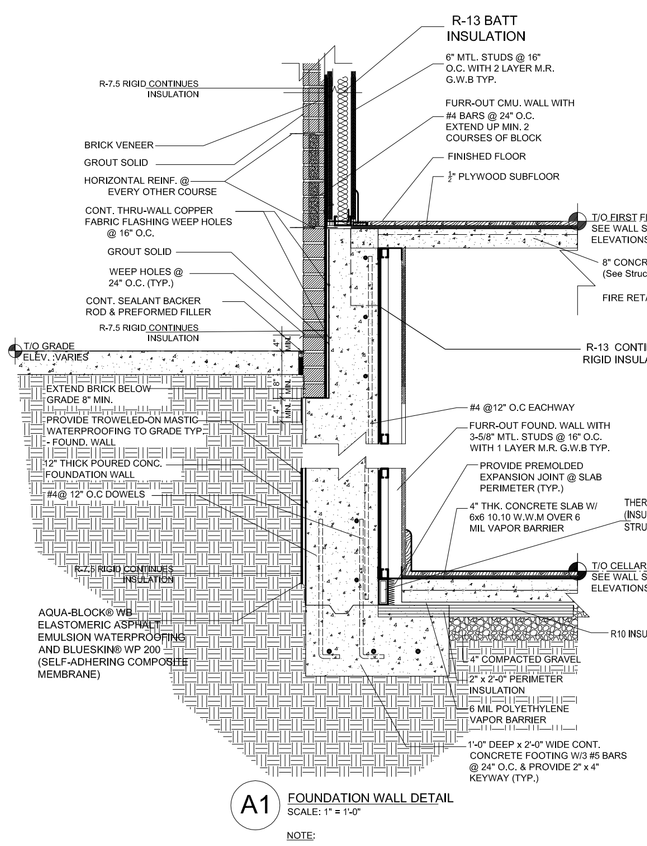
AIR SEALING NOTES AND SPECS

BLUESKIN SA IS A SELF-ADHERING MEMBRANE CONSISTING OF AN SBS RUBBERIZED ASPHALT COMPOUND LAMINATED ON A BLUE POLYETHYLENE FILM. IMPERMEABLE TO AIR, MOISTURE VAPOR AND WATER, BLUESKIN SA IS DESIGNED TO INSTALL EASILY ON A VARIETY OF PREPARED SUBSTRATES.

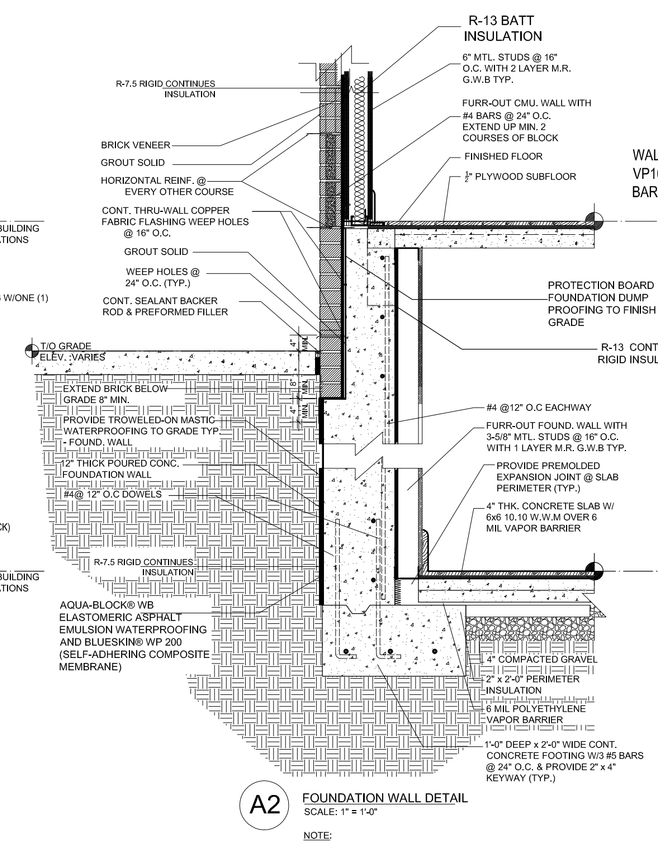
1 . BLUESKIN SA SHOULD BE USED AS A TRANSITION SHEET ON ALL AIR-BLOC 06, 21 , AND 32 SYSTEMS.
2. TYPICAL APPLICATION SEQUENCE IS TO INSTALL THE BLUESKIN MEMBRANE FIRST, FOLLOWED BY THE AIR-BLOC LIQUID MEMBRANE.
3. WHERE LARGE GAPS OCCUR IN EXTERIOR SHEATHING AROUND BRICK TIES, USE AIR-BLOC 21 TO SEAL FOLLOWED BY REINFORCING TAPE. ALTERNATIVELY, USE A STRIP OF BLUESKIN SA EXTENDING 3 IN. AROUND TIE AND SEAL ALL EDGES WITH AIR-BLOC 21 .
4. AIR-BLOC 21 CAN ALSO BE USED AS AN ADHESIVE TO BOND RIGID INSULATION TO EXTERIOR SHEATHING OR OTHER AIR-BLOC SYSTEMS.

AIR SEALING NOTES AND SPECS

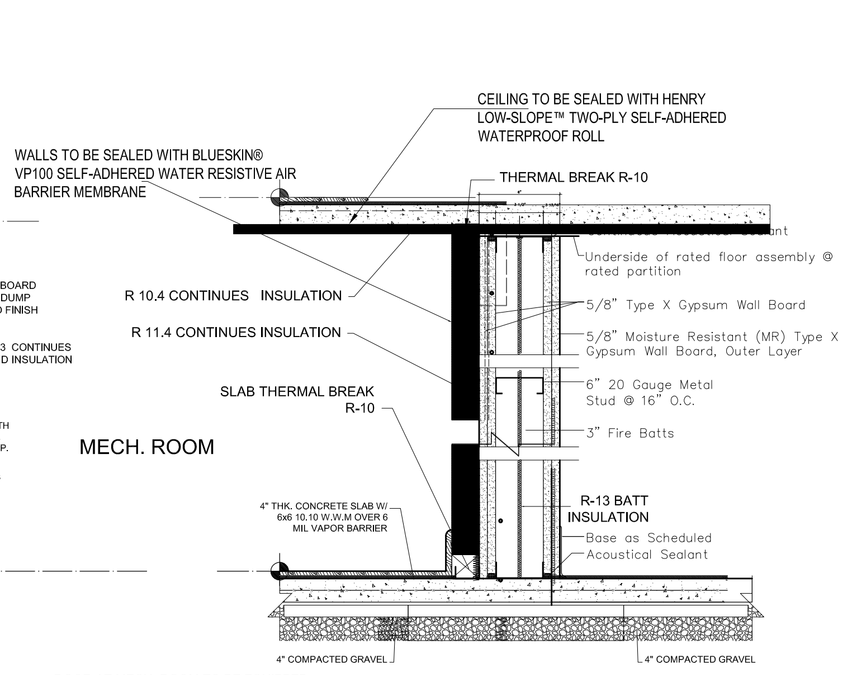
HE925 - BES SEALANT IS A PREMIUM, ENVIRONMENTALLY FRIENDLY, MOISTURE CURE, MEDIUM MODULUS SEALANT FOR CONSTRUCTION JOINTS SUBJECT TO DYNAMIC JOINT MOVEMENT.
HE925 - BES SEALANT TO BE PLACED ALL AROUND SEALING OF ALL PENETRATIONS OF THE THERMAL ENVELOPE, AND SEALING OF DOORS AND ACCESS OPENINGS TO SHAFTS, CHUTES, STAIRWAYS, AND ELEVATOR LOBBIES.
HENRY LOW-SLOPE™ TWO-PLY SELF-ADHERED WATERPROOF ROLL ROOFING IS A MODIFIED BITUMEN ROOFING MEMBRANE WITH A FIBROUS GLASS REINFORCEMENT



A1 FOUNDATION WALL DETAIL
SCALE: 1" = 1'-0"
NOTE:



A2 FOUNDATION WALL DETAIL
SCALE: 1" = 1'-0"
NOTE:



DOOR AT MECH. ROOM TO BE EQUIPPED WITH OUTDOOR WEATHER STRIPPING AND INSULATION
use HE925 - BES Sealant, which is used for External joint sealant for Henry/Bakor air barrier, waterproofing and roofing systems

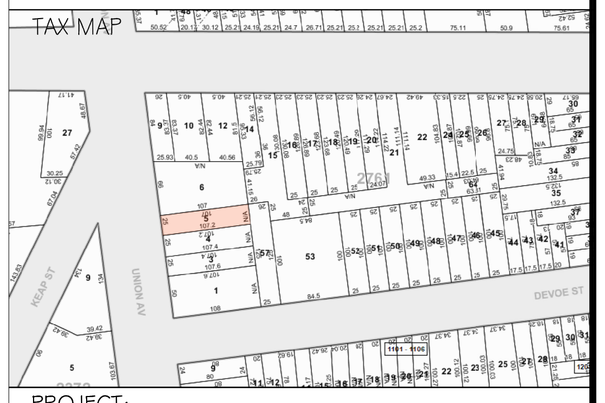
DOOR '7' SHEET A-008.00
U FACTOR = 0.22

A3 MECH. ROOM WALL DETAIL
SCALE: 1" = 1'-0"
NOTE:

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

	REVISIONS:	DATE:
1		
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10		
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TAX MAP



PROJECT:

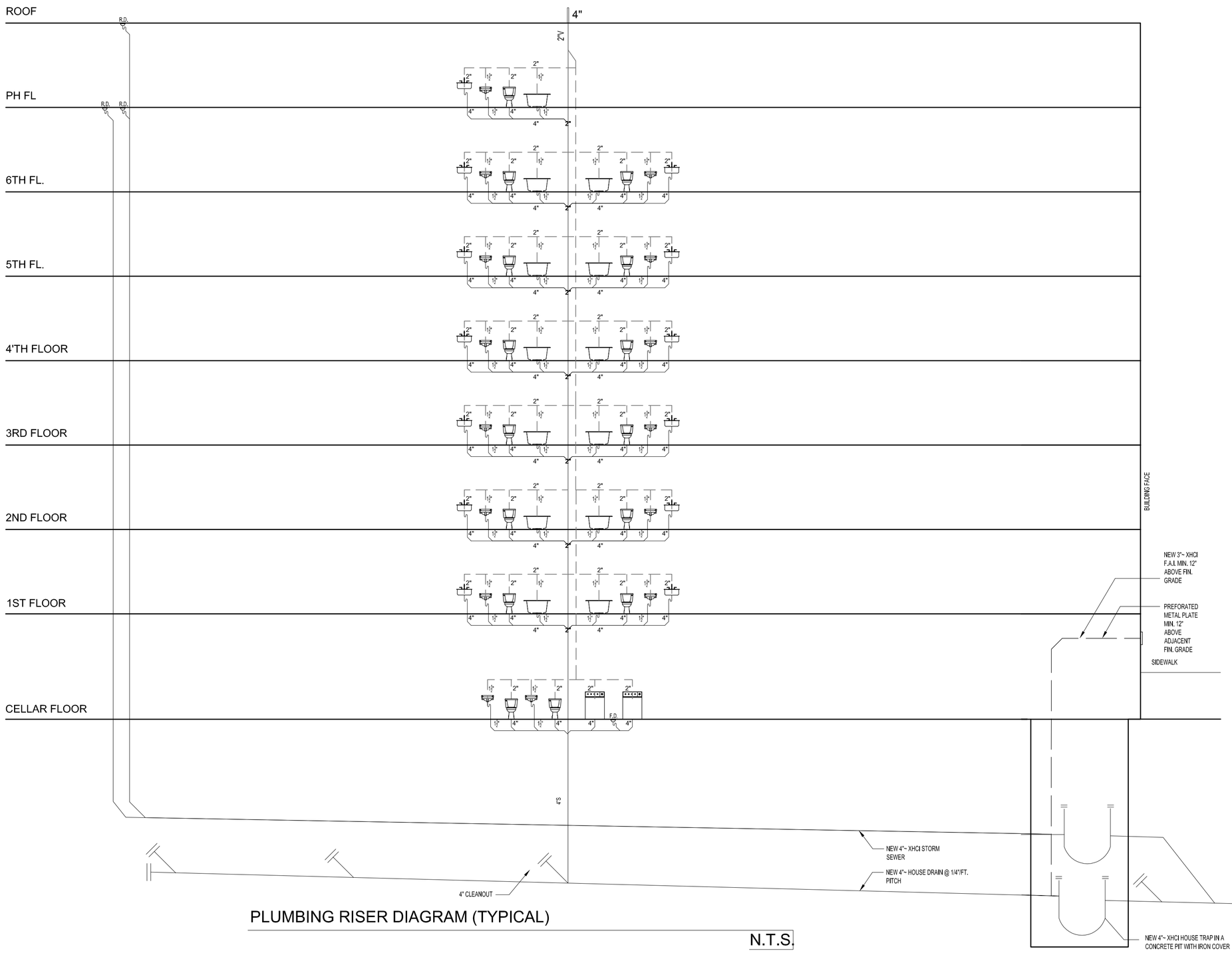
438 UNION AVENUE,
BROOKLYN, NY 11211

WALL DETAILS

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

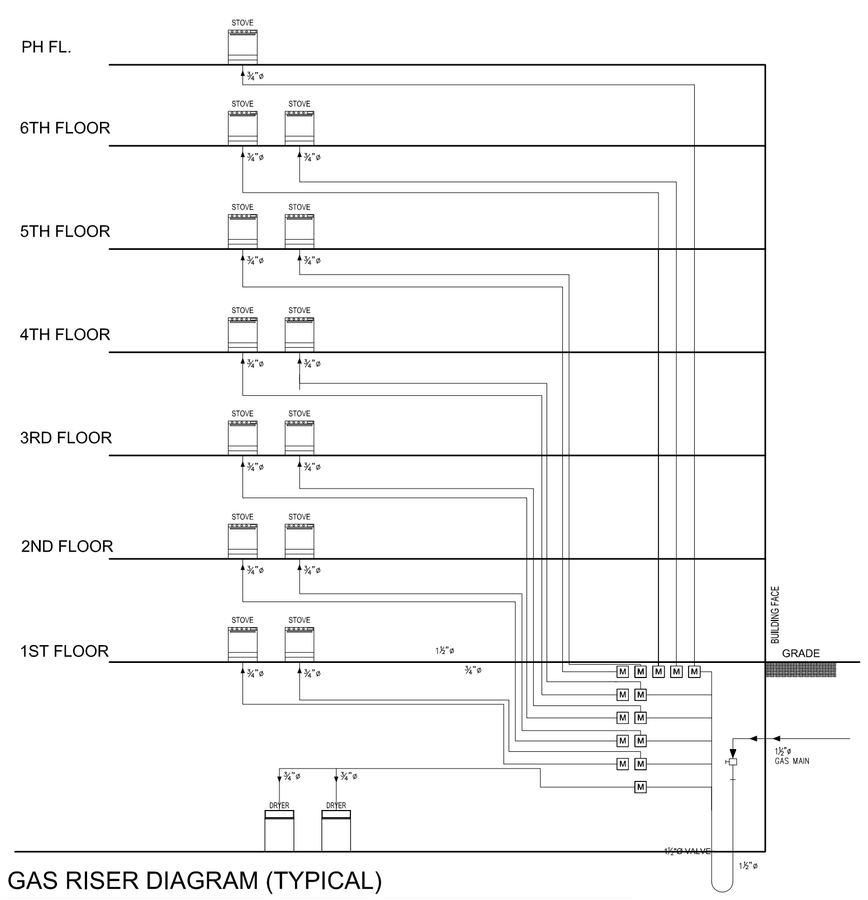
A-008.00

NOTE:
ALL VENTS TO EXTEND 3'-6" MINIMUM ABOVE FINISHED ROOF



PLUMBING RISER DIAGRAM (TYPICAL)

N.T.S.



GAS RISER DIAGRAM (TYPICAL)

N.T.S.

FIXTURE LEGEND:

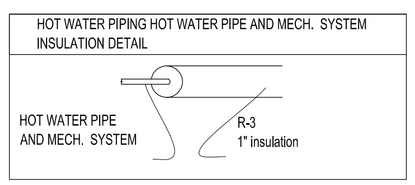
SINK	DISHWASHER
LAVATORY	WASHING MICHINE
WATER CLOSET	
BATH TUB	DRYER
SHOWER	
F.D. FLOOR DRAIN	UR
A.D. AREA DRAIN	

NOTE. ALL BOILERS, COMPRESSES, CONDENSERS AND FANS LOCATED ABOVE A DWELLING UNIT SHALL BE MOUNTED WITH VIBRATION ISOLATORS

AIR CONDENSER

MANUFACTURE	MODEL NO.	TONAGE	MEA #
CENTURION	AC048X10216	4 TON	160-00-E

HOT WATER PIPING HOT WATER PIPE AND MECH. SYSTEM INSULATION DETAIL



NOTE: ELECTRIC BOILER AND HOT WATER HEATER TO BE INSTALLED [TYPICAL]
MEA 400-03-E
MANUFACTURER- CCI THERMAL TECHNOLOGIES, 2767 BRIGHTON RD , OAKVILLE, ON, L6H 3A6.
TRADE NAME- CALORITECLH.
PRODUCT- ELECTRIC STEAM AND HOT WATER BOILERS.
PERTINENT CODE SECTION(S)- 27-792, 27-824.
PRESCRIBED TESTS--; UL 14-6 (UL834), CAN/CSA-C22.2 NO. 165-92- ELECTRIC BOILERS.

PLUMBING NOTES:

1. COMPLETE PLUMBING SYSTEM AND DRAINAGE SYSTEM INSTALLATION SHALL COMPLY WITH SUB-CHAPTER 16 & RS 16-1.
2. PROVIDE CLEANOUTS AT BASE OF ALL STACKS.
3. PROVIDE SHUT OFF VALVES ON ALL WATER SUPPLY LINES AT FIXTURES.
4. PURGE ALL WATER AND GAS LINES BEFORE FINAL CONNECTIONS.
5. PROVIDE AIR CHAMBERS AT TOP OF WATER RISERS MINIMUM 18" HIGH; 12" DIA.
6. STANDARD WEIGHT BLACK STEEL PIPE FOR GAS SYSTEM WITH GALVANIZED STEEL FITTINGS.
7. FLOOR DRAINS SHALL BE PROVIDED WITH REMOVABLE STRAINER AS PER RS 16.
8. TRAPS FOR FLOOR DRAINS SHALL BE DEEP SEAL TYPE.
9. APPROVED TYPE WATER METER TO BE INSTALLED TO CONFORM WITH LEGISLATION SIGNED INTO LAW ON JULY 31, 1985.
10. ALL PIPING INSTALLED TO SERVICE BUILDING AND WITHIN BUILDING SHALL BE THERMALLY INSULATED AS PER NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE.
11. WATER METERS LOCATED OUTSIDE OF THE BUILDING AND WITHIN THE PROPERTY LINE, SHALL BE INSTALLED IN AN ACCESSIBLE, WATERTIGHT AND FROST PROOF PIT OR METER BOX AS PER SEC. P107.3 (B).
12. PLUMBING VENT LINE TO EXTEND 2'-0" MIMIMUM ABOVE FINISHED ROOF.
13. INSTALLATION OF WATER SUPPLY SERVICE LINES SHALL COMPLY WITH SEC. P107.2.
14. SEPARATION OF WATER SUPPLY SERVICE AND BUILDING SEWER SHALL COMPLY WITH SEC. P107.2 (B) (6).
15. PROTECTIVE COVER FOR SERVICE PIPE SHALL COMPLY WITH SEC. P107.2 (B) (6).
16. WATER METER LOCATION SHALL BE SUBJECT TO APPROVAL BY THE DEPARTMENT OF WATER SUPPLY, GAS AND ELECTRICITY, AND SHALL COMPLY WITH SEC. P107.3 (B).
17. PRIOR TO THE INSTALLATION OF HOUSE DRAIN, PLUMBING CONTRACTOR SHALL CHECK AND VERIFY DEPTH OF SEWER/SEWERS IN STREET, TO ASCERTAIN THE COMPLIANCE OF PROVIDING THE MINIMUM REQUIRED PITCH OF HOUSE SEWER, AS PER BUILDING CODE REQUIREMENTS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT IMMEDIATELY PRIOR TO START OF ANY WORK.
18. ROOF GUTTERS SHALL BE AS PER RS 16-19.
19. PLUMBING CONTRACTOR SHALL VERIFY ALL INVERTS AND EXISTING CONDITIONS PRIOR TO THE INSTALLATION OF NEW WORK.
20. ALL HOT AND COLD WATER LINES TO BE INSULATED WITH FIBERGLASS-FOIL BACKED INSULATION JACKETS.
21. WASHING MACHINES TO BE PROVIDED WITH VACUUM BREAKERS. ALL WASHING MACHINES SHALL BE M.E.A. APPROVED TYPE, VACUUM BREAKER BY SINGER CORP., M.E.A. 398-87E.
22. LAUNDRY ROOM / BOILER ROOM FLOOR DRAINS, TRAPS FOR FLOOR DRAINS, SHALL BE DEEP SEAL TYPE AND SHALL HAVE A WATER SUPPLY AVAILABLE FROM A PLUMBING FIXTURE LOCATED IN THE SAME ROOM OR FROM A FAUCET OR VALVED OUTLET LOCATED NOT MORE THAN 3'-0" ABOVE THE FLOOR DRAIN. AUTOMATIC PRIMING DEVICES WILL BE PERMITTED ONLY WHEN AN AIR GAP IS PROVIDED BETWEEN THE PORTABLE WATER SUPPLY AND THE WATER SUPPLY FOR THE DRAIN AS PER SEC. P104.17.
23. PLUMBING FIXTURES TO COMPLY WITH NATIONAL STANDARD OF REFERENCE STANDARDS RS-16.
24. ALL NEW WATER CLOSETS AND ASSOCIATED FLUSH VALVES INSTALLED MUST MEET WATER SAVING PERFORMANCE STANDARDS AS WELL AS PROPER LABELING AS SET FORTH IN LOCAL LAW 29/89. WATER CLOSETS AND ASSOCIATED FLUSH VALVES SHALL BE ON THE APPROVED LIST OF WATER SAVING DEVICES COMPILED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

NARRATIVE FOR HWH RECIRCULATION SYSTEMS

A. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING COMMISSIONING, INCLUDING PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
B. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED, THEIR FULL SEQUENCES OF OPERATION, AND A DESCRIPTION OF THE TESTS TO BE PERFORMED, INCLUDING PREREQUISITE ACTIVITIES AND REFERENCE TO SPECIFIC CHECKLISTS OF WORKSHEETS WHICH ARE NECESSARY OR REQUIRED REQUIRED BY THE DEPARTMENT.
C. FUNCTIONS TO BE TESTED, INCLUDING, BUT NOT LIMITED TO CALIBRATIONS AND ECONOMIZER CONTROLS.
D. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. AT A MINIMUM, TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
E. MEASURABLE CRITERIA FOR PERFORMANCE.

ALL COLD AND HOT WATER PIPING SHALL BE COPPER TYPE L, HARD DRAWN. ALL SOLDER AND/OR BRAZING MATERIAL SHALL BE LEAD FREE. PROVIDE ALTERNATE PRICE FOR PEX PIPING.

SANITARY DRAIN PIPING AND FITTINGS: 6" AND SMALLER, CAST IRON OR COPPER.
DIELECTRIC FITTINGS: CONNECTIONS TO DISSIMILAR METALS 2" AND SMALLER PIPE SIZE SHALL BE MADE USING VICTAULIC CEARFLOW STYLE 47 DIELECTRIC WATERWAY CONNECTOR 2-½" AND LARGE PIPE SIZE SHALL BE MADE BY USING FLANGES WITH DIELECTRIC ISOLATION GASKETS.

PIPE INSULATORS: FIBERGLAS WITH ALL SERVICE JACKET, SCHULLER, OWENS-CORNING OR KNAUF

PIPING SHALL BE INSULATED WITH NOT LESS THAN 1 INCH OF INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H •FT2 • °F .
THE FIRST 8 FEET OF PIPING IN NON-HOT-WATER-SUPPLY TEMPERATURE MAINTENANCE SYSTEMS SERVED BY EQUIPMENT WITHOUT INTEGRAL HEAT TRAPS SHALL BE INSULATED WITH 0.5 INCH OF MATERIAL HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H •FT2 •°F.

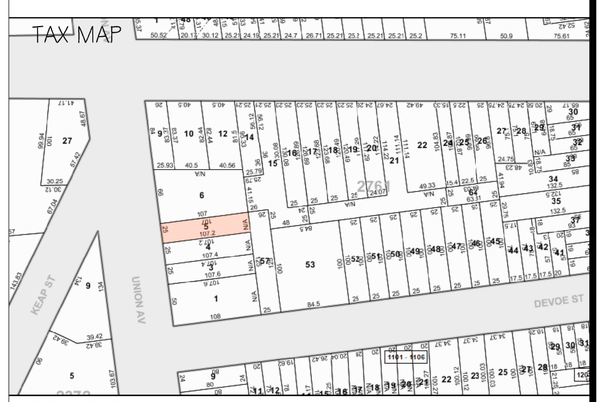
HOT AND COLD WATER SHUTOFF VALVES: FIBERGLASS WITH ALL SERVICE JACKET, SCHULLER, OWENS-CORNING OR KNAUF

ALL WATER HAMMER ARRESTOR TO BE CONNECTED BETWEEN THE LAST TWO FIXTURES OF ANY RUN. THIS APPLIES BOTH TO HOT AND COLD WATER PIPING.

PETER PIZZIMENTI, R.A.
ADDRESS: 35 THOMAS DRIVE,
MANALAPAN,
NEW JERSEY 07726
PHONE: 908-839-7648
LICENSE# 19677

	REVISIONS:	DATE:
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TAX MAP



PROJECT:

438 UNION AVENUE,
BROOKLYN, NY 11211

PLUMBING AND GAS RISER DIAGRAM

DATE:	8/13/2018
JOB No.	
DRAWING BY:	NJ
CHK BY:	
DWG No.	

PL-001.00

ENERGY ANALYSIS
(2016 NYC ENERGY CONSERVATION CODE)

APPLICATION COMPLIES WITH THE NYCECC.
CHAPTER 4, GROUP R2, RESIDENTIAL USE BUILDING, 6 STORY+ PENTHOUSE; CLIMATE ZONE 4A

NYCECC CITATION	PROVISION	ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE PRESCRIPTIVE VALUE	SUPPORTING DOCUMENTATION
			ENVELOPE		
TABLES C402.1.3	ROOF ASSEMBLY – INSULATION ENTIRELY ABOVE DECK	NEW ROOF MEMBRANE AND THERMAL INSULATION	R–38 CONTINUOUS INSULATION HENRY LOW–SLOPE™ TWO–PLY SELF–ADHERED WATERPROOF ROLL ROOFING (MEMBRANE WITH A FIBROUS GLASS REINFORCEMENT)	MINIMUM R–30 CONTINUOUS INSULATION	LONGITUDINAL SECTION (A–005.00) CROSS SECTION (A–006.01) PARAPET DETAIL 'A' (A–008.00)
TABLES C402.1.3 C402.1.4.1	WALLS, ABOVE–GRADE: METAL FRAMED	2" COMPETITIONS STUCCO VENEER AND 5 1/2" STUD FURRING WITH R 13 BATT INSULATION AND R–7–5 RIGID INSULATION WITH 2 LAYERS OF 5/8" GYPSUM WALL BOARD	R–7.5 RIGID + R–13 BATT INSULATION INSULATION AIR–BLOC 21 –BLUESKIN SA –	R13 + R7.5CI NOMINAL, DEPTH OF STUDS:6" SPACING OF FRAMING: 16" CAVITY R–VALUE = 19 FC FACTOR= 0.37 EFFECTIVE R–VALUE =7.03	WALL TAG ON ALL FLOOR PLANS; DETAIL C 'METAL FRAME BEARING WALL" (A–008.00) LONGITUDINAL SECTION (A–005.00) CROSS SECTION (A–006.00)
TABLES C402.1.3	SLAB–ON–GRADE FLOORS: UNHEATED SLABS	UNHEATED SLABS	CONTINUOUS R–10 / 2FT DEPTH	R–10 FOR 24 IN. BELOW	DETAIL A1 (A–008.00) LONGITUDINAL SECTION (A–005.00) CROSS SECTION (A–006.00)
TABLES C402.1.3	BELOW–GRADE WALLS	THERMAL INSULATION AT NEW CELLAR WALL	R–13 CONTINUOUS RIGID INSULATION AQUA–BLOCK® WB ELASTOMERIC ASPHALT EMULSION WATERPROOFING AND BLUESKIN® WP 200	R7.5CI	DETAIL A1 (A–008.00) LONGITUDINAL SECTION (A–005.00) CROSS SECTION (A–006.00)
TABLES C402.1.3	FLOORS: MASS	FLOORS OVER UNCONDITIONED SPACE (GAS METER ROOM)	R–10.4CI HENRY LOW–SLOPE™ TWO–PLY SELF–ADHERED WATERPROOF ROLL ROOFING (MEMBRANE WITH A FIBROUS GLASS REINFORCEMENT)	R–10.4CI	LONGITUDINAL SECTION (A–005.00) CROSS SECTION (A–006.00) HEATED CEILING/FLOOR DETAIL 'C' (A–008.00)
C402.4	VERTICAL FIXED FENESTRATION, U VALUE, SHGC	NEW WINDOWS	U = 0.27, SHGC = 0.24	WINDOW : U = 0.38, SHGC = 0.40	WINDOW SCHEDULE SHEET A–007.00 LONGITUDINAL SECTION (A–005.00)
TABLES C402.4	GLAZED DOOR, SWINGING	NEW INSULATED METAL ENTRY DOOR	U = 0.25, SHGC = 0.13 ALL WINDOW PENETRATIONS TO BE SEALED WITH HE925 – BES SEALANT	DOOR : U = 0.77, SHGC = 0.40	DOOR #1, DOOR SCHEDULE SHEET A–007.00
TABLES C402.4	OPAQUE DOORS, SWINGING	NEW INSULATED METAL DOOR TO MECHANICAL ROOM	U = 0.22, ALL DOOR PENETRATIONS TO BE SEALED WITH HE925 – BES SEALANT	DOOR : U = 0.77, SHGC = 0.40	DOOR #7, DOOR SCHEDULE SHEET A–007.00
C402.5.2	WINDOW AND DOOR ASSEMBLIES	NEW WINDOWS AND WALLS	AIR LEAKAGE ≤0.20CFM/SF ALL WINDOW PENETRATIONS TO BE SEALED WITH HE925 – BES SEALANT	MAXIMUM AIR LEAKAGE = 0.2 CFM/SF	WINDOW SCHEDULE SHEET A–007.00 MANUFACTURE'S DATA SHEET
C402.5.2	AIR LEAKAGE OF FENESTRATION	GLAZED ENTRANCE DOOR	AIR LEAKAGE ≤0.30CFM/SF ALL DOORS PENETRATIONS TO BE SEALED WITH HE925 – BES SEALANT	COMMERCIAL GLAZED SWINGING ENTRANCE DOORS AND REVOLVING DOORS = 1.0 CFM/SF OF DOOR AREA	DOOR #1, DOOR SCHEDULE SHEET A–007.00
			LIGHTENING		
C405.2 C405.2.2.2 C405.2.2.3	MANUAL/INTERIOR LIGHTING CONTROLS	MANUAL SWITCHES ARE PROVIDED IN EACH ROOM.	MANUAL SWITCH PROVIDED IN EACH AREA ENCLOSED BY WALLS OR FLOOR–TO–CEILING PARTITIONS.	EACH AREA ENCLOSED BY WALLS OR FLOOR–TO–CEILING PARTITIONS SHALL HAVE AT LEAST ONE MANUAL CONTROL FOR THE LIGHTING IN THAT AREA.	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)
C405.2.2.1	AUTOMATIC LIGHTING SHUTOFF	AUTOMATIC LIGHTING SHUTOFF	OCCUPANT SENSOR PROVIDED IN NON–SLEEPING UNIT SPACES AS REQUIRED	BUILDINGS SHALL BE EQUIPPED WITH AN AUTO CONTROL DEVICE TO SHUTOFF LIGHTING IN THOSE AREAS.	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)
C405.2.1.1	OCCUPANT SENSORS	OCCUPANCY SENSOR – AUTO–ON (<50% POWER), AUTO–OFF	AUTOMATIC ON TO 50% POWER, AUTO–OFF OCCUPANCY SENSORS INSTALLED IN ALL RESTROOMS, STORAGE ROOMS, PRIVATE OFFICES >200 SF, ALL OTHER SPACES <300 SF.	OCCUAPANCY SENSORS 1.AUTOMATICALLY TURN OFF LIGHTS WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.2.BE MANUAL ON OR CONTROLLED TO AUTOMATICALLY TURN THE LIGHTING ON TO NOT MORE THAN 50 PERCENT POWER	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)
C405.2.4	EXTERIOR LIGHTING CONTROLS	BUILDING FAÇADE LIGHTING	TIME SWITCH PROVIDED AND PROGRAMMED PER REQUIREMENTS ALL WALL PENETRATIONS WITH EXTERIOR LIGHTING TO BE SEALED WITH HE925 – BES SEALANT RECESSED LUMINAIRES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO MAXIMUM AIR LEAKAGE 2CFM.	BUILDING FAÇADE OR LANDSCAPE LIGHTING SHALL BE PROVIDED WITH CONTROLS THAT AUTOMATICALLY SHUT OFF THE LIGHTING FROM 12 MIDNIGHT OR WITHIN ONE HOUR OF THE END OF BUSINESS OPERATIONS, WHICHEVER IS LATER UNTIL 6AM OR BUILDING OPENING WHICHEVER IS EARILER.	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)
C405.2.4	EXTERIOR LIGHTING CONTROLS	BUILDING SIGNAGE LIGHTING	TIME SWITCH PROVIDED AND PROGRAMMED PER REQUIREMENTS ALL WALL PENETRATIONS WITH EXTERIOR LIGHTING TO BE SEALED WITH HE925 – BES SEALANT RECESSED LUMINAIRES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO MAXIMUM AIR LEAKAGE 2CFM.	EXTERIOR LIGHTING OTHER THAN BUILDING FACADE OR LANDSCAPE LIGHTING SHALL BE PROVIDED WITH CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTING POWER BY AT LEAST 30 PERCENT FROM THE LIGHTING FROM 12 MIDNIGHT OR WITHIN ONE HOUR OF THE END OF BUSINESS OPERATIONS, WHICHEVER IS LATER UNTIL 6AM OR BUILDING OPENING WHICHEVER IS EARILER OR DURING ANY PERIOD WHEN NO ACTIVITY HAS BEEN DETECTED FOR A TIME OF NO LONGER THAN 15 MINUTES.	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)
C405.6	ELECTRICAL ENERGY CONSUMPTION (MANDATORY)	SEPARATE ELECTRICAL METERS HAVE BEEN PROVIDED FOR EACH UNIT	PROVIDED 8 ELECTRICAL METERS, ONE FOR EACH UNIT (7) AND ONE FOR PUBLIC SPACE	EACH DWELLING UNIT LOCATED IN A GROUP R–2 BUILDING SHALL HAVE A SEPARATE ELECTRICAL METER.	LIGHTING NOTES AND LIGHTENING PLAN (SHEET EN–002.00)

TABLE II - PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE - COMMERCIAL BUILDINGS

	Inspection/Test	Frequency (minimum)	Reference Standard (See ECC Chapter 6) or Other Criteria	ECC or Other Citation
IIA				
IIA1	**Protection of exposed foundation insulation:** Insulation shall be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slabs-on-grade floors.	As required during foundation work and prior to backfill	Approved construction documents	C303.2.1; ASHRAE 90.1 – 5.8.1.7
IIA2	**Insulation placement and R-values:** Installed insulation for each component of the conditioned space envelope and at junctions between components shall be visually inspected to ensure that the R-values are marked, that each R-values conforms to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation shall be similarly visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	C303.1, C303.1.1; C303.1.2, C402.1, C402.2; ASHRAE 90.1 –5.5, 5.6 or 11; 5.8.1
IIA3	**Fenestration thermal values and product ratings:** U-factors and SHGC values of installed fenestration shall be visually inspected for conformance with the U-factors and SHGC values identified in the construction drawings by verifying the manufacturer's NFRC labels or, where not labeled, using the ratings in ECC Tables 303.1.3(1), (2) and (3). Where ASHRAE 90.1 is used, visible light transmittance values shall also be verified.	As required during installation	Approved construction documents; NFRC 100, NFRC 200	C303.1, C303.1.3, C402.3; ASHRAE 90.1 –5.5; 5.6 or 11; 5.8.2
IIA4	**Fenestration and door assembly product ratings for air leakage:** Windows and sliding or swinging door assemblies, except site-built windows and/or doors, shall be visually inspected to verify that installed assemblies are listed and labeled by the manufacturer to the referenced standard. For curtain wall, storefront glazing, commercial entrance doors and revolving doors, the testing reports shall be reviewed to verify that the installed assembly complies with the standard cited in the approved plans.	As required during installation; prior to final construction inspection	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440 ASTM E283; ANSI/DASMA 105	C402.4.3; ASHRAE 90.1 –5.4.3.2
IIA5	**Fenestration area:** Dimensions of windows, doors and skylights shall be verified by visual inspection.	Prior to final construction inspection	Approved construction documents	C402.2; ASHRAE 90.1 – 5.5.4.2, 5.6 or 11
IIA6	**Air sealing and insulation – visual inspection:** Openings and penetrations in the building envelope, including site-built fenestration and doors, shall be visually inspected to verify that a continuous air barrier around the envelope forms an airtight enclosure. The progress inspector shall visually inspect to verify that materials and/or assemblies have been tested and meet the requirements of the respective standards, or that the building is tested and meets the requirements of the standard, in accordance with the standard(s) cited in the approved plans.	As required during construction	Approved construction documents; ASTM E2178, ASTM E2357, ASTM E1677, ASTM E779, ASTM E283.	C402.4; ASHRAE 90.1 – 5.4.3.1
IIB	**Mechanical and Service Water Heating Inspections**			
IIB2	**Shutoff dampers:** Dampers for stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be visually inspected to verify that such dampers, except where permitted to be gravity dampers, comply with approved construction drawings. Manufacturer's literature shall be reviewed to verify that the product has been tested and found to meet the standard.	As required during installation	Approved construction documents; AMCA 500D	C403.2.4.4; ASHRAE 90.1 – 6.4.3.4
IIB3	HVAC and service water heating equipment: Equipment sizing, efficiencies and other performance factors of all major equipment units, as determined by the applicant of record, and not less than 15% of minor equipment units, shall be verified by visual inspection and, where necessary, review of manufacturer's data. Pool heaters and covers shall be verified by visual inspection.	Prior to final plumbing and construction inspection	Approved construction documents	C403.2, C404.2, C404.7, C406.2; ASHRAE 90.1 –6.3, 6.4.3, 6.4.2, 6.8; 7.4, 7.8
IIB4	HVAC and service water heating system controls ; No less than 20% of each type of required controls and economizers shall be verified by visual inspection and tested for functionality and proper operation, such controls shall include, but are not limited to; • thermostatic • set point overlap restriction • off–hour • shutoff damper • snow-melt system • demand control systems • outdoor heating systems • zones • economizers • air systems • variable air volume fan • single zone cooling systems • hydronic systems • heat rejection equipment fan speed •complex mechanical systems serving multiple zones • ventilation • energy recovery systems • hot gas bypass limitation • temperature • service water heating • hot water system • pool heater and time switches • exhaust hoods • radiant heating systems. • HVAC control in group R–1 sleeping rooms Controls with seasonally dependent functionality: Controls whose complete operation cannot be demonstrated due to prevailing weather conditions typical of the season during which progress inspections will be performed shall be permitted to be signed off for the purpose of a Temporary Certificate of Occupancy with only a visual inspection, provided, however, that the progress inspector shall perform a supplemental inspection where the controls are visually inspected and tested for functionality and proper operation during the next immediate season thereafter. The owner shall provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection. For such supplemental inspections, the department shall be notified by the approved progress inspection agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.	After installation and prior to final electrical and construction inspection, except that for controls with seasonally dependent functionality, such testing shall be performed before signoff for issuance of a Final Certificate of Occupancy	Approved construction documents, including control system narratives; ASHRAE Guideline 1: the HVAC commissioning process where applicable.	C403.2.4, C403.2.5.1, C403.2.11, C403.3, C403.4, C404.3, C404.6, C404.7; ASHRAE 90.1 –6.3, 6.4, 6.5, 7.4.4, 7.4.5
IIB5	HVAC insulation and sealing: Installed duct and piping insulation shall be visually inspected to verify proper insulation placement and values. Joints, longitudinal and transverse seams and connections in ductwork shall be visually inspected for proper sealing.	After installation and prior to closing shafts, ceilings and walls.	Approved construction documents; SMACNA Duct Construction Standards, Metal and Flexible	C403.2.7, C403.2.9, C404.5, MC 603.9; ASHRAE 90.1 – 6.3, 6.4.4, 6.8.2, 6.8.3; 7.4.3
IIC	**Electrical Power and Lighting Systems**			
IIC1	**Electrical energy consumption:** The presence and operation of individual meters or other means of monitoring individual dwelling units shall be verified by visual inspection for all dwelling units.	Prior to final electrical and construction inspection	Approved construction documents	C405.7
IIC2	**Lighting in dwelling units:** Lamps in permanently installed lighting fixtures shall be visually inspected to verify compliance with high-efficacy requirements.	Prior to final electrical and construction inspection	Approved construction documents	C405.1; ASHRAE 90.1 – 9.1.1
IIC3	**Interior lighting power:** Installed lighting shall be verified for compliance with the lighting power allowance by visual inspection of fixtures, lamps, ballasts and transformers.	Prior to final electrical and construction inspection	Approved construction documents	C405.5, C406.3; ASHRAE 90.1 –9.1, 9.2, 9.5, 9.6; 1BCNY §101-07(c)(3)(v)(C)4
IIC4	**Exterior lighting:** Installed lighting shall be verified for compliance with source efficacy and/or the lighting power allowance by visual inspection of fixtures, lamps, ballasts and relevant transformers.	Prior to final electrical and construction inspection	Approved construction documents	C405.6; ASHRAE 90.1 – 9.4.3; 1BCNY §101-07(c)(3)(v)(C)4
IIC5	**Lighting controls:** Each type of required lighting controls, including: - occupant sensors - manual interior lighting controls - light-reduction controls - automatic lighting shut-off - daylight zone controls - sleeping unit controls - exterior lighting controls shall be verified by visual inspection and tested for functionality and proper operation.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	C405.2; ASHRAE 90.1 – 9.4.1 (as modified by section ECCA102)
IIC6	**Exit signs:** Installed exit signs shall be visually inspected to verify that the label indicates that they do not exceed maximum permitted wattage.	Prior to final electrical and construction inspection	Approved construction documents	C405.4; ASHRAE 90.1 – 9.4.2
IID	**Other**			
IID1	**Maintenance information:** Maintenance manuals for mechanical, service hot water and electrical equipment and systems requiring preventive maintenance shall be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner. Labels required for such equipment or systems shall be inspected for accuracy and completeness.	Prior to sign-off or issuance of Final Certificate of Occupancy	Approved construction documents, including electrical drawings where applicable; ASHRAE Guideline 4: Preparation of Operating and Maintenance Documentation for Building Systems	C303.3, C408.2.5.2; ASHRAE 90.1 – 4.2.2.3, 6.7.2.2, 8.7.2, 9.7.2.2

ENERGY CODE NOTES:

1) CONTRACTOR SHALL INSULATE WALLS, CEILING AND FLOORS AS PER 2014 NYC ENERGY CONSERVATION CODE

2) CONTRACTOR SHALL USE WINDOWS AND SKYLIGHTS WITH A U FACTOR 0.45 AND SHGC 0.40, AND FOR DOORS A U FACTOR 0.77 AND SHGC 0.40. AS PER 2014 NYC ENERGY CONSERVATION CODE

3) CONTRACTOR SHALL USE HEATING AND COOLING SYSTEMS AS PER 2014 NYC ENERGY CONSERVATION CODE (AT LEAST 88% EFFICIENCY WITH A PROGRAMMABLE THERMOSTAT.)

4) CONTRACTOR SHALL INSULATE HOT WATER SYSTEM PIPING AS PER 2014 NYC ENERGY CONSERVATION CODE (MINIMUM R2)

C402.1 BUILDING THERMAL ENVELOPE INSULATION.
AN R-VALUE IDENTIFICATION MARK SHALL BE APPLIED BY THE MANUFACTURER TO EACH PIECE OF BUILDING THERMAL ENVELOPE INSULATION 12 INCHES (305 MM) OR GREATER IN WIDTH. ALTERNATELY, THE INSULATION INSTALLERS SHALL PROVIDE A CERTIFICATION LISTING THE TYPE, MANUFACTURER AND R-VALUE OF INSULATION INSTALLED IN EACH ELEMENT OF THE BUILDING THERMAL ENVELOPE. FOR BLOWN OR SPRAYED INSULATION (FIBERGLASS AND CELLULOSE), THE INITIAL INSTALLED THICKNESS, SETTLED THICKNESS, SETTLED R-VALUE, INSTALLED DENSITY, COVERAGE AREA AND NUMBER OF BAGS INSTALLED SHALL BE LISTED ONTHE CERTIFICATION. FOR SPRAYED POLYURETHANE FOAM (SPF) INSULATION, THE INSTALLED THICKNESS OF THE AREAS COVERED AND R-VALUE OF INSTALLED THICKNESS SHALL BE LISTED ON THE CERTIFICATION. THE INSULATION INSTALLER SHALL SIGN, DATE AND POST THE CERTIFICATION IN A CONSPICUOUS LOCATION ON THE JOB SITE.

C403.1: CONTROLS
AT LEAST ONE THERMOSTAT SHALL BE PROVIDED FOR EACH SEPARATE HEATING AND COOLING SYSTEM

C402.4.1: BUILDING THERMAL ENVELOPE - THE FOLLOWING SHALL BE CAULKED, GASKETED, WEATHERSTRIPPED OR OTHERWISE SEALED WITH AN AIR BARRIER MATERIAL, SUITABLE FILM OR SOLID MATERIAL:

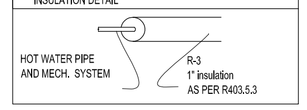
ALL JOINTS, SEAMS AND PENETRATIONS
SITE BUILT WINDOWS, DOORS AND SKYLIGHTS
OPENINGS BETWEEN WINDOW AND DOOR ASSEMBLIES AND THEIR RESPECTIVE JAMBS AND FRAMING
UTILITY PENETRATIONS
DROPPED CEILINGS OR CHASES ADJACENT TO THE THERMAL ENVELOPE
KNEE WALLS
WALLS AND CEILINGS SEPARATING A GARAGE FROM CONDITIONED SPACES
BEHIND TUBS AND SHOWERS ON EXTERIOR WALLS
COMMON WALLS BETWEEN DWELLING UNITS
ATTIC ACCESS OPENINGS
RIM JOIST JUNCTION
OTHER SOURCES OF INFILTRATION

C403.4: CIRCULATING HOT WATER
ALL CIRCULATING SERVICE HOT WATER PIPING SHALL BE INSULATED TO AT LEAST R-2. CIRCULATING HOT WATER SYSTEMS SHALL INCLUDE AN AUTOMATIC OR READILY ACCESSIBLE MANUAL SWITCH THAT CAN TURN OFF THE HOT WATER CIRCULATING PUMP WHEN THE SYSTEM IS NOT IN USE.

C403.6. EQUIPMENT SIZING
HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ACCA MANUAL J OR SIMILAR SECTION OF THE RESIDENTIAL CODE OF NEW YORK STATE.

C405.2: MANDATORY REQUIREMENTS
ALL SUPPLY AND RETURN DUCTS NOT COMPLETELY INSIDE THE BUILDING THERMAL ENVELOPE SHALL BE INSULATED TO A MINIMUM OF R-6

HOT WATER PIPING HOT WATER PIPE AND MECH. SYSTEM INSULATION DETAIL



ECCGNY COMPLIANCE STATEMENT
TO THE BEST OF MY KNOWLEDGE , BELIEF , AND PROFESSIONAL JUDGMENT , THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CODE (2016 NYCECC, CHAPTER C4.)

NOTE:
OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED TO OWNER.

GENERIC REQUIREMENTS:
MUST BE MET BY ALL SYSTEMS TO WHICH THE REQUIREMENT IS APPLICABLE:
1. PLANT EQUIPMENT AND SYSTEM CAPACITY NO GREATER THAN NEEDED TO MEET LOADS

EXCEPTION(S):
2. STANDBY EQUIPMENT AUTOMATICALLY OFF WHEN PRIMARY SYSTEM IS OPERATING
3. MULTIPLE UNITS CONTROLLED TO SEQUENCE OPERATION AS A FUNCTION OF LOAD
4. MINIMUM ONE TEMPERATURE CONTROL DEVICE PER SYSTEM
5 MINIMUM ONE HUMIDITY CONTROL DEVICE PER INSTALLED HUMIDIFICATION/DEHUMIDIFICATION SYSTEM
6. LOAD CALCULATIONS PER ASHRAE/ACCA STANDARD 183.
7. AUTOMATIC CONTROLS: SETBACK TO 55°F (HEAT) AND 85°F (COOL); 7-DAY CLOCK, 2-HOUR OCCUPANT OVERRIDE, 10-HOUR BACKUP

8. R-5 SUPPLY AND RETURN AIR DUCT INSULATION IN UNCONDITIONED SPACES
9. R-8 SUPPLY AND RETURN AIR DUCT INSULATION OUTSIDE THE BUILDING R-8 INSULATION BETWEEN DUCTS AND THE BUILDING EXTERIOR WHEN DUCTS ARE PART OF A BUILDING ASSEMBLY
10 MECHANICAL FASTENERS AND SEALANTS USED TO CONNECT DUCTS AND AIR DISTRIBUTION EQUIPMENT
11. DUCTS SEALED - LONGITUDINAL SEAMS ON RIGID DUCTS; TRANSVERSE SEAMS ON ALL DUCTS; UL 181A OR 181B TAPES AND MASTICS
12. HOT WATER PIPE INSULATION: 1.5 IN. FOR PIPES <=1.5 IN. AND 2 IN. FOR PIPES >1.5 IN.
CHILLED WATER/REFRIGERANT/BRINE PIPE INSULATION: 1.5 IN. FOR PIPES <=1.5 IN. AND 1.5 IN. FOR PIPES >1.5 IN.

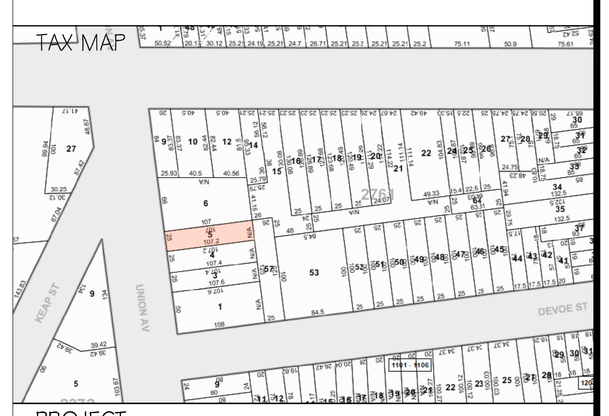
13. OPERATION AND MAINTENANCE MANUAL PROVIDED TO BUILDING OWNER.
14. BALANCING DEVICES PROVIDED IN ACCORDANCE WITH IMC 603.17
15.MOTORIZED, AUTOMATIC SHUTOFF DAMPERS REQUIRED ON EXHAUST AND OUTDOOR AIR SUPPLY OPENINGS EXCEPTION(S):
16.AUTOMATIC CONTROLS FOR FREEZE PROTECTION SYSTEMS PRESENT.
17. SET HOT WATER STORAGE TEMPERATURE AT 105°F.

BOILERS (DOMESTIC HOT WATER):
A. ALL PIPING IN CIRCULATING SYSTEM INSULATED
B. HOT WATER STORAGE TEMPERATURE CONTROLS THAT ALLOW SETPOINT OF 90°F FOR NON-DWELLING UNITS AND 110°F FOR DWELLING UNITS.
C. AUTOMATIC RECIRCULATING SYSTEMS PRESENT
D. CONTROLS WILL SHUT OFF OPERATION OF CIRCULATING PUMP BETWEEN WATER HEATER/BOILER AND STORAGE TANKS WITHIN 5 MINUTES AFTER END OF HEATING CYCLE

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TAX MAP



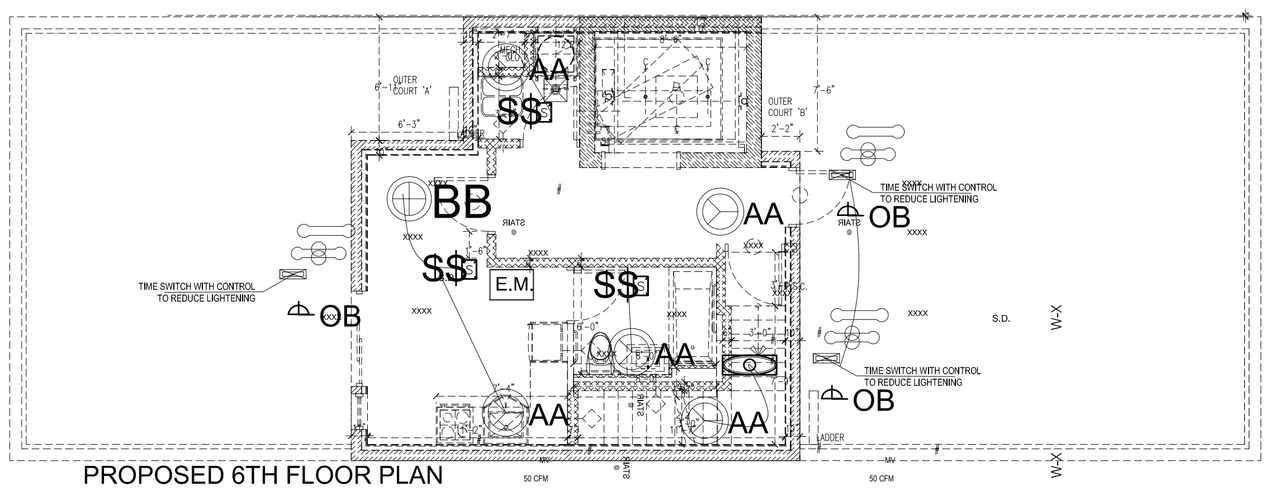
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ENERGY ANALYSIS

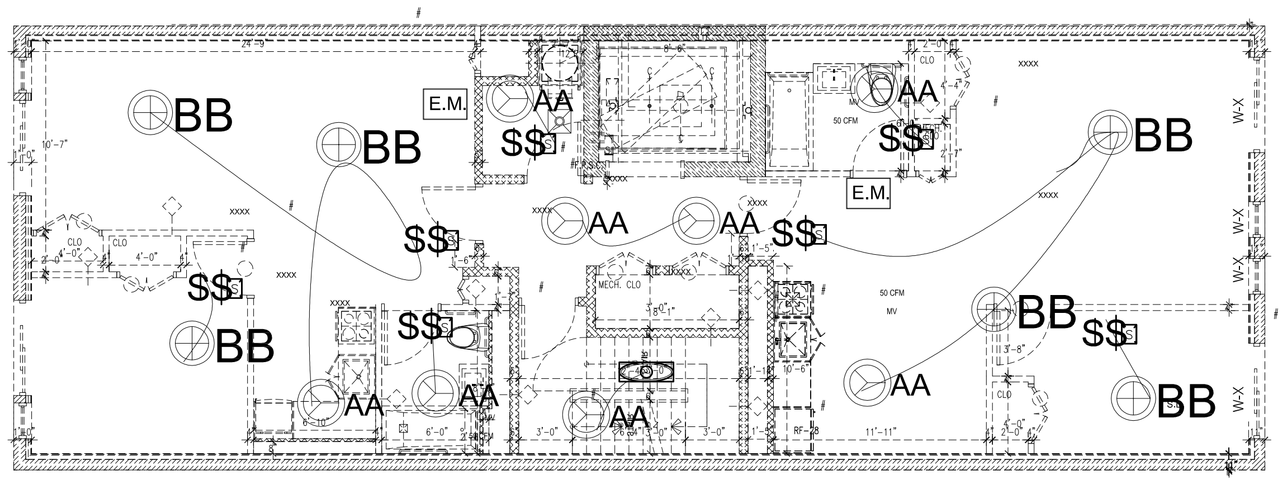
DATE:	8/13/2018
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DRAWING BY:	NJ
CHK BY:	
DWG No.	

EN-001.00



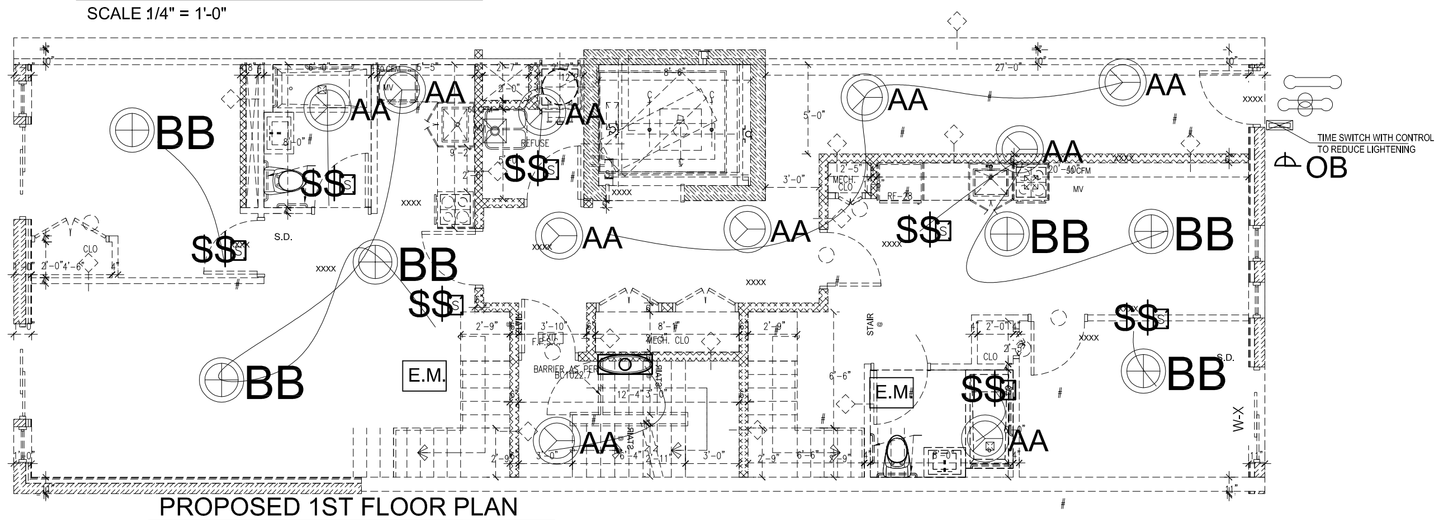
PROPOSED 6TH FLOOR PLAN

SCALE 1/4" = 1'-0"



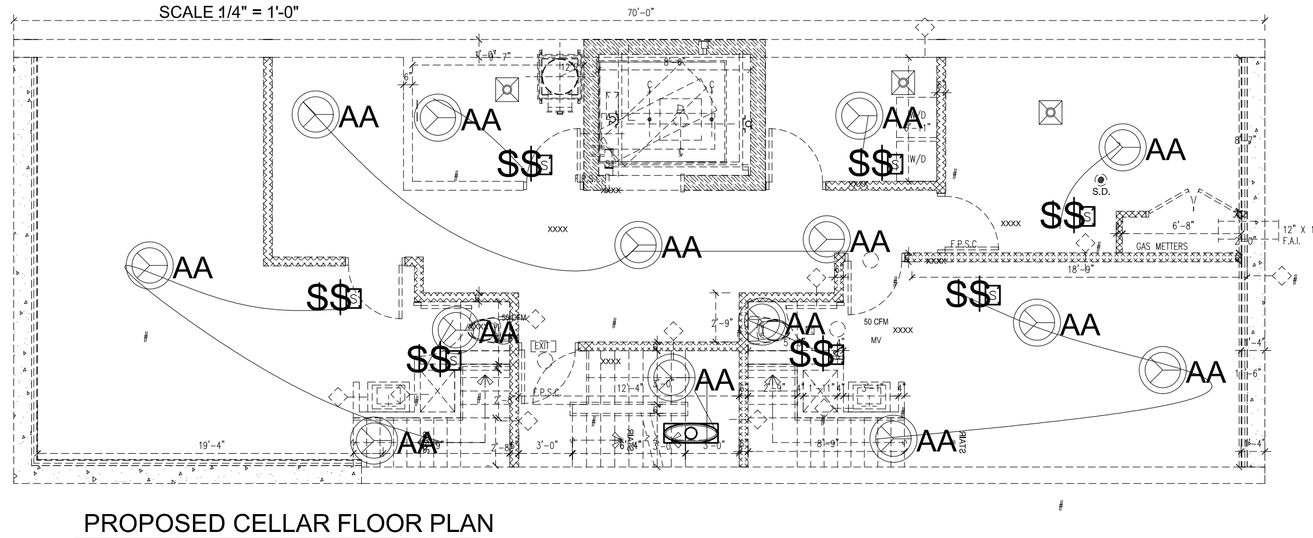
PROPOSED 2ND THRU 5TH FLOOR PLAN

SCALE 1/4" = 1'-0"



PROPOSED 1ST FLOOR PLAN

SCALE 1/4" = 1'-0"



PROPOSED CELLAR FLOOR PLAN

SCALE 1/4" = 1'-0"

ELECTRICAL SYMBOLS LEGEND

OB	OUTDOOR LIGHT 22813 – 40CAM/LL/BB CD2 GE crystal clear 40 watt bent tip 2-pack
MANUFACTURER	GE LIGHTING
Lamp type	POST LIGHT
ENERGY STAR® Qualified	YES
Initial Lumens	360
Wattage	50
WATT	40
Product Code	22813

BB	GE Long Life Energy Smart® A17
MANUFACTURER	GE LIGHTING
Lamp type	Compact Fluorescent - Self- Ballasted
ENERGY STAR® Qualified	YES
Initial Lumens	500 /450
Nominal Initial Lumens per Watt	45
Wattage	13
Input Voltage	120 V
Product Code	47486

AA	GE Kitchen & Bath Long Life Energy Smart® G25
MANUFACTURER	GE LIGHTING
Lamp type	Compact Fluorescent - Self- Ballasted
ENERGY STAR® Qualified	YES
Initial Lumens	800
Nominal Initial Lumens per Watt	53
Wattage	15
Input Voltage	120 V
Product Code	47485

- 2 PACK EMERGENCY
- DIRECTIONAL SIGN LIGHT
- 3 PACK EMERGENCY
- EXIT SIGN & LIGHT (ES&L EXIT LIGHT)
- BUILDING FACADE LIGHTENING; TIME SWICH WITH CONTROLS TO AUTOMATICALLY SHUT OFF THE LIGHTENING
- AUTOMATIC AND AUTO-OFF OCCUPANT SENSOR CONTROLS
- BILEVEL OCCUPANCY SENSORS
- TIME SWITCH WITH CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTENING POWER BY 50% FROM THE LIGHTENING
- EXTERIOR LIGHTING CONTROLES
- E.M. ELECTRICAL METER
- T PROGRAMBLE THERMOSTAT
- S.D. C.M.D. HARDWIRED SMOKE / CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH 2008 B.C. SECTION 907 & 908
- DUPLEX OUTLET
- W.P. WATER PROOF DUPLEX OUTLET
- $ SINGLE POLE SWITCH
- $3 THREE WAY SWITCH SWITCH
- MASTER SWITCH

1. 60 lumens per watt for lamps over 40 watts,2. 50 lumens per watt for lamps over 15 watts to 40 watts, and3. 40 lumens per watt for lamps 15 watts or less.

Bulb A-17: - Watts: 11 Nominal initial lumens per watt: 45 Type: Compact flourescent lamp. Lumen per watt analysis not required.

Bulb T-2: Watts: 10 Nominal initial lumens per watt: 58 Note: 40 watt equivalent. Type: Compact flourescent lamp. Lumen per watt analysis not required.

Bulb G-25:- Watts: 15 Nominal initial lumens per watt: 53 Type: Compact flourescent lamp. Lumen per watt analysis not required.

Bulb PAR-38: Watts: 26 Nominal initial lumens per watt: 50 Type: Compact flourescent lamp. Lumen per watt analysis not required

LIGHTING CONTROLS NARRATIVE:

- EXIT SIGNS (MANDATORY) ILLUMINATED EXIT SIGNS SHALL NOT EXCEED 5 WATTS PER SIDE,
- LIGHTENING AT MEANS OF EGRESS AREAS TO REMAIN ON AL THE TIME
- 1. AN OCCUPANT SENSOR THAT SHALL TURN LIGHTENING OFF WITHIN 30 MINUETS OF AN OCCUPANT LEAVING A SPACE OR
  2. SIGNAL FROM ANOTHER CONTROL OR ALARM SYSTEM THAT INDICATES THE AREA IS UNOCCUPIED
- INTERIOR LIGHTENING CONTROLS EACH AREA ENCLOSED BY WALLS OR FLOOR-TO-CEILING PARTITIONS SHALL HAVE AT LEAST ONE MANUAL CONTROL FOR THE LIGHTENING SERVING THAT AREA THE REQUIRED CONTROLS SHALL BE LOCATED WITHIN AREA SERVED BY THE CONTROLS OR BE A REMOTE SWITCH THAT IDENTIFIES THE LIGHTS SERVED AND INDICATED THEIR STATUS;
- LIGHTENING CONTROL MUST PROVIDE OCCUPANT OVERRIDE CONTROL WHERE AN AUTOMATIC TIME SWITCH CONTROL DEVICE IS INSTALLED;
- BUILDING HAVING INDIVIDUAL DWELLING UNITS, PROVISIONS SHALL BE MADE TO DETERMINE THE ELECTRICAL ENERGY CONSUMED BY TENANT BY SEPARATELY METERING INDIVIDUAL DWELLING UNIT;
- AT LEAST 75% OF THE NEW INSTALLED PERMANENT LIGHTENING FIXTURES WITHIN DWELLING UNITS USE HEIGHT EFFICIENCY LAMPS;
- ELECTRICAN TO PROVIDE EXTERIOR LIGHTENING CONTROL - AN ASTRONOMICAL TIME SWITCH OR PHOTOSENSOR ALL TIME SWITCHES SHALL BE CAPABLE OF RETAINING PROGRAMMING AND THE TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST 10 HOURS;
- BUILDING SHALL INSTALL AUTOMATIC TIMECLOCK WITH OCCUPANCY SENSOR TO DE-ENERGIZE 50% OF FIXTURES TO REMAIN ENERGIZED AT ALL TIMES;
- BUILDING SHALL PROVIDE AUTOMATIC OCCUPANCY SENSOR (ON/OFF) TO ACTIVATE LIGHT & MANUAL CONTROL SWITCHES;
- EXIT SIGN (EMERGENCY FIXTURE TO REMAIN ON AT ALL TIMES)

NOTE: 1) ALL WALL PENETRATIONS WITH EXTERIOR LIGHTING TO BE SEALED WITH HE925 - BES SEALANT
2) ALL SHAFTS TO BE SEALED WITH BLUESKIN® VP100 SELF-ADHERED WATER RESISTIVE AIR BARRIER MEMBRANE

RECESSED LUMINAIRESINSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO MAXIMUM AIR LEAKAGE 2CFM.

NOTE: ALL EXIT SIGNS SHALL BE INERTLY ILLUMINATED WITH A MAX OF 5 WATTS PER SIDE

NOTE: OUTDOOR LIGHTING MUST BE CONTROLLED WITH EITHER A PHOTOCONTROL OR ASTRONOMICAL TIMECLOCK THAT AUTOMATICALLY TURNS LIGHTS OFF WHEN DAYLIGHT IS AVAILABLE

NOTE: FUNCTIONAL TESTING OF LIGHTENING SYSTEM IS REQUIRED

	EXTERIOR LIGHTING CONTROLS:
	controls that automatically turn off lighting when daylight is available.
	facade or landscape lighting also provide controls that automatically shut off lighting from midnight or within an hour of the end of business, whichever is later, until 6 AM or business opening, whichever is earlier.
	other than facade or landscape lighting controls configured to automatically reduce the connected lighting power by at least 30% for the same duration or during any period when no activity has been detected for a time no longer than 15 minutes. All timed controls shall be capable of retaining programming and settings during a loss of power of at least 10 hours.

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LIGHTING PLANS AND NOTES

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EN-002.00