FORMER UNIVERSAL SCRAP METAL PROCESSORS CORP.

1181 FLUSHING AVENUE
BROOKLYN, NEW YORK 11237
Block 2994, Lot 75

REMEDIAL ACTION WORK PLAN

DECEMBER 2017

Prepared for:

Flushing Stewart LLC
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Brooklyn, NY 11211

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CERTIFICATIONS

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

076508	12/10/17	
NYS Professional Engineer #	Date	Signature

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

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ATTACHMENTS

LIST OF ACRONYMS

Acronym	Definition
AMC	AMC Engineering
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CQMP	Construction Quality Management Plan
DUSR	Data Usability Statement Report
EBC	Environmental Business Consultants
FER	Final Engineering Report
HDPE	High Density Polyethylene
IRM	Interim Remedial Measure
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PS	Public School
PVC	Polyvinyl Chloride
RAO	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCOs	Recommended Site Cleanup Objectives
SCG	Standards, Criteria, and Guidelines
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SSDS	Sub-slab Depressurization System
SWPPP	Stormwater Pollution Prevention Plan
SVOCs	Semi-Volatile Organic Compounds
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

This Remedial Action Work Plan (RAWP) was prepared on behalf of was prepared on behalf of was prepared on behalf of Flushing Stewart LLC for the property known as the Former Universal Scrap Metal Processors Corp., located at 1181 Flushing Avenue, Brooklyn, New York (hereafter referred to as the Site). In February 2015, Flushing Stewart LLC filed an application with the New York State Department of Environmental Conservation (NYSDEC), to admit the Project Site into the New York State Brownfield Cleanup Program (BCP). The application was deemed complete by the NYSDEC on May 7, 2015. On March 16, 2015, the NYSDEC informed Flushing Stewart LLC that the project (Site No. C224194) had been accepted into the BCP with Flushing Stewart LLC classified as a “Volunteer”. The Brownfield Cleanup Agreement was executed by NYSDEC on July, 2, 2015.

An unrestricted use is proposed for the property. When completed, the Site will be redeveloped with a new 6-8 story commercial building which will cover approximately 60 percent of the south lot (lot 75). Refer to the Brownfield Cleanup Program (BCP) application for additional details.

The street address for the Site is 1181 Flushing Avenue, Brooklyn, NY (**Figure 1**). The Site is located in the City of New York in the East Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of one tax parcel identified as Block 2994, Lot 75 and totaling 40,006.98 sq. ft (0.92 acres). The Site originally consisted of two tax parcels, Lots 9 and 75 which were merged into Lot 75 for development purposes. The Site consists of approximately 120 ft of street frontage on Flushing Avenue and 210 feet of street frontage on Stewart Avenue. The Brownfield Site is a portion of the new merged lot and contains approximately 21,942.45 sq. ft (0.50 acres) (**Figure 2**). Currently the property is vacant but was most recently occupied by a scrap metal recycler. The property was partially developed with a 1-story 4,500 sf commercial building which was constructed in 1931, and demolished before the start of the Remedial Investigation. The building yard area and Lot 9 to the north were used as a metal scrap yard. The area to the south of the building is used for parking.

The Site is currently owned by 1175 Flushing Avenue Associates, LLC. The property is currently vacant. The Volunteer is under contract to purchase the property.

Summary of the Remedial Investigation

A Remedial Investigation was completed at the Site from November 10, 2016 through November 17, 2016 and documented in a Remedial Investigation Report dated April 2017. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.

Activities completed under the RI:

- Sampling for non-petroleum contaminants such as pesticides, PCBs and metals in soil and groundwater including the analysis of soil and groundwater samples
- Soil sampling and analysis for petroleum compounds in soil samples from 16 soil boring locations;
- The installation of 12 groundwater monitoring wells
- The collection and analysis of groundwater samples for petroleum compounds;
- The collection of analysis of soil gas samples for VOCs from 9 soil gas sampling locations.

The results of sampling performed during this RI, identified petroleum VOC and SVOC contamination in soil at multiple locations around the property including areas adjacent to and downgradient of the former UST area, adjacent to the waste oil tank and in shallow soil across the Site. Contamination adjacent to the UST area extends to a depth of 12-14' below grade while downgradient of the UST area in the vicinity of SB19 it extends to 25 feet. Petroleum impact in the vicinity of the waste oil tank extends to 7 feet. Much of the remainder of the Site has petroleum impacts in the top 2 to 5 feet of soil extending to 15 feet in two locations.

Historic fill material has been identified across the Site to depths 2 to 5 feet below grade extending as deep as 12 feet in at least one of the borings. Depending on location, the historic fill material contains one or more metals including barium, copper, lead, mercury and zinc, pesticides, PAHs and PCBs above unrestricted and / or restricted use SCOs.

Groundwater is impacted with petroleum VOCs across much of the Site, extending as far north as MW10. Overall petroleum VOCs were reported in the low hundreds across the Site with the exception of the area downgradient of the UST area as defined by wells MW2, MW3 and MW14 which had concentrations of petroleum VOCs in the mid to high hundreds and low thousands. .

Chlorinated VOCs (CVOCs) were reported in all of the soil vapor samples with Trichloroethylene (TCE) reported in 5 of the 9 soil vapor samples, and Tetrachloroethylene (PCE) reported in 6 of the 9 soil vapor samples. Detectable concentrations of TCE ranged in concentration from 0.32 μg/m3 in SG-3 located towards the southern side of the Site to 11.3 $\mu g/m^3$ in SG-7 located at the northwestern side of the Site towards the adjacent property Lot 105. PCE concentrations ranged from 1.19 $\mu g/m^3$ in SG-2 located at the southeastern corner of the Site at the intersection of Flushing Avenue and Stewart Avenue to 34.3 $\mu g/m^3$ in SG-3 located towards the southern side of the Site. Vinyl chloride was detected in 5 of the 9 soil vapor samples. Vinyl chloride concentrations ranged from 1.56 $\mu g/m^3$ in SG-4 located in the middle of the western boundary of the Site to 2,530 $\mu g/m^3$ in SG-7 located along the north-western boundary of the Site. Benzene was detected in 7 of the 9 soil vapor samples. Benzene concentrations ranged from 1.16 $\mu g/m^3$ in SG-1 located in the south-western corner of the Site to 1,140 $\mu g/m^3$ in SG-5 located in the middle of the eastern property boundary along Stewart Avenue. Cis-1,2-Dichloroethene was detected in 3 of the 9 soil vapor samples. Cis-1,2-Dichloroethene concentrations ranged from 10.2 $\mu g/m^3$ in SG-4 located in the middle of the western boundary of the Site to 109 $\mu g/m^3$ in SG-9 located just north of the northern property boundary of the Site.

Qualitative Human Health Exposure Assessment

The qualitative exposure assessment identified potential completed routes of exposure to construction workers and remediation workers through inhalation, ingestion and dermal contact of petroleum compounds, VOCs, pesticides and heavy metals during excavation activities. The Health and Safety Plan prepared for the site identifies such exposures and provides instructions for on-site workers to minimize potential exposure. Occupants in the proposed on-site building may be exposed to VOCs through the vapor intrusion pathway, if remedial action is not taken to remove the source.

The exposure assessment indicated a limited potential exposure to residents and commercial workers in adjacent buildings which would be reduced further following the removal of the identified source areas.

Potential environmental impacts through the groundwater to surface water discharge were considered unlikely based on the concentrations of VOCs in groundwater and the distance to the English Kills Channel.

Summary of the Remedy

The remedy recommended for the Site is a Track 1 alternative (Alternative 1) which consists of the removal of all on-site soils which exceed the UUSCOs and the remediation of petroleum impacted groundwater. It is expected that a Track 1 alternative will require excavation to a minimum depth of 15 feet across the Site with additional excavation to 15 and 25 feet below grade in the petroleum impacted areas. Excavation will continue to a depth of 15 ft site-wide for construction of the new building. In addition all fill material with parameters above unrestricted SCOs will be removed from the Site and properly disposed of at an off-site facility. The remedy will include the following items:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in **Table 1** to a minimum depth of 15 feet across the Site with additional excavation within the petroleum impacted areas as needed to meet SCOs;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;

5. Dewatering and treatment of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit;
6. Collection and analysis of groundwater samples following excavation / dewatering to evaluate the performance of the remedy on groundwater quality;
7. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material;
8. .If Track 1 cleanup is not achieved implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls;
9. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs cannot be achieved then a Track 2 remedy may result.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) was prepared on behalf of was prepared on behalf of was prepared on behalf of Flushing Stewart LLC for the property known as the Former Universal Scrap Metal Processors Corp., located at 1181 Flushing Avenue, Brooklyn, New York (hereafter referred to as the Site). In February 2015, Flushing Stewart LLC filed an application with the New York State Department of Environmental Conservation (NYSDEC), to admit the Project Site into the New York State Brownfield Cleanup Program (BCP). The application was deemed complete by the NYSDEC on March 16, 2015. On May 7, 2015, the NYSDEC informed Flushing Stewart LLC that the project (Site No. C224194) had been accepted into the BCP with Flushing Stewart LLC classified as a “Volunteer”. The Brownfield Cleanup Agreement was executed by NYSDEC on July, 2, 2015.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed November 2016. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The street address for the Site is 1181 Flushing Avenue, Brooklyn, NY (**Figure 1**). The Site is located in the City of New York in the East Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of a single tax parcel, identified as Block 2994, Lot 75 and totaling 40,006.98 sq. ft (0.92 acres). The site was previously two tax parcels, Lots 9 and 75which were merged into Lot 75 in August 2015. The Site consists of approximately 120 ft of street frontage on Flushing Avenue and 210 feet of street frontage on Stewart Avenue. Currently the property is vacant but was most recently occupied by a scrap metal recycler. The property is partially developed with a 1-story 4,500 sf commercial building located on Lot 75 which was constructed in 1931. The building yard area and Lot 9 to the north were used as a metal scrap yard. The area to the south of the building is used for parking.

The Manhattan Transportation Authority's (MTA) L-train subway line runs beneath a portion of lot 9 in an east-west direction near the front quarter of the lot.

The elevation of the Site ranges from 16 to 18 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the north. The depth to groundwater beneath the Site is approximately 12 feet below grade. Based on regional groundwater elevation maps, groundwater flows to the northwest toward the English Kills Channel.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The redevelopment project consists of the construction of a new 6-8 story commercial building which will cover approximately 60 percent of the lot. The project includes 14,362 sf of commercial / retail space, 14,362 sf of community space and 71,810 sf of hotel space. Plans include a full height basement level requiring excavation to a depth of approximately 15 ft below grade. The basement level will be used for meter rooms and retail storage space. The remainder of the property will be utilized for parking. With groundwater present at 10 feet below grade, dewatering will be required during construction of the building's foundation.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The area surrounding the property is highly urbanized and is primarily industrial / commercial in accordance with the M1-1, M1-2 and M3-1 zoning which surrounds the property. Adjacent land use includes large manufacturing / warehouse buildings to the west, north and east and a lumber yard, Manhattan Transit Authority maintenance building and a wholesale food warehouse to the south.

Residential areas are present further to the south behind the commercial properties along Flushing Avenue. There are no schools or daycare centers identified within 1,000 feet of the Site. Schools nearest the Site are P.S. 123 located approximately 1,307 feet to the southeast and J.H.S 162 located approximately 1,570 feet to the east.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The field work portion of the Remedial Investigation was conducted by EBC in November and December 2015. The investigation is summarized in the sections below. Further details are provided in the Remedial Investigation Report (EBC January 2016).

2.1 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

2.1.1 Soil Borings

A total of sixteen soil borings were advanced between November 10, 2015 and November 14, 2016 to identify source areas and to obtain general soil quality information present at the Site (**Figure 4**).

At each soil boring location soil samples were collected continuously in 5-foot intervals from grade to a depth of 20 or 25 feet below grade using a Geoprobe™ 6720DT, probe drilling machine. The Geoprobe™ system uses a direct push hydraulic percussion system to drive and retrieve core samplers. Soil samples were retrieved using a 1.25-inch diameter, 5-foot long dual-tube sampler with disposable acetate liners. Soil recovered from each soil boring was field screened by an environmental professional for the presence of VOCs with a photo-ionization detector (PID) and visually inspected for evidence of contamination.

In accordance with the RI work plan a minimum of two soil samples were retained for laboratory analysis from each boring with the exception of 15B3, 15B10 and 15B13 in which only one sample was retained. Three samples were retained from borings 15B4, 15B5, 15B7, 15B11 and 15B14 while four samples were retained from 15B19.

Retained samples were submitted for laboratory analysis of one or more of the following analyses: volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, TAL Metals, pesticides and PCBs by EPA Method 8081/8082. Soil boring locations are identified in **Figure 4**.

2.1.2 Monitoring Wells

Twelve monitoring wells (MW1 through MW10, MW14 and MW15) were installed at the Site from November 11, 2016 through November 14, 2016.

All of the wells were installed with a track mounted Geoprobe™ Model 6712DT drilling machine to a depth of approximately 20 feet below grade with 10 feet of 0.010 PVC well screen and 10 feet of PVC riser.

A No.00 morie filter-pack sand filled the annulus surrounding the screen within two feet above the top of the screen. A one-foot hydrated bentonite seal was then placed on top of the filter sand and the remainder of the borehole was backfilled to grade. Following installation, each of the wells were surveyed to determine relative casing elevation to the nearest 0.01 ft and horizontal position to the nearest 0.1 ft. Monitoring well locations are identified in **Figure 5.** Well completion reports detailing monitoring well construction are provided in **Appendix B**.

Prior to sampling, a synoptic round of depth-to-groundwater (DTW) measurements were obtained from wells MW1-MW10, MW14 and MW15 on October 16, 2016 to determine the water table elevation and to calculate the volume of standing water in the well. The depth to groundwater ranged from 11.97-13.19 feet below grade.

2.1.3 Samples Collected

A summary of the sampling performed during the RI is provided in **Table 2**.

<u>2.1.3.1 Soil Samples</u>

A total of thirty-six soil samples were collected from sixteen 16 soil borings for laboratory analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals and pesticides/PCBs (EPA Method 8081/8082).

<u>2.1.3.2 Groundwater Samples</u>

Groundwater samples were obtained from all twelve monitoring wells. All groundwater samples from the monitoring wells were analyzed for VOCs / SVOCs by EPA method 8260 / 8270, pesticides / PCBs by EPA method 8081 / 8082 and target analyte list (TAL) metals.

2.1.3.3 Soil Gas Samples

To assess the presence of VOCs in soil gas beneath the site, nine soil vapor implants were installed at the Site and sampled on November 16, 2016. The vapor implants (Geoprobe™ Model AT86 series), were constructed of a 6-inch length of double woven stainless steel wire and installed to a depth of 9 ft below grade using Geoprobe™ equipment. All soil gas samples were collected over a 2 hr sampling period.

Soil vapor samples were collected in accordance with the procedures as described in section 2.4 of the approved RIR and the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 10/06)*.

2.1.4 Chemical Analytical Work Performed

Each soil and groundwater sample was placed in pre-cleaned laboratory supplied glassware, and placed in a cooler packed with ice for transport to the laboratory. Laboratory services for soil and groundwater sample analysis were provided by Phoenix Environmental Laboratories of Manchester, CT, a New York State ELAP certified environmental laboratory (ELAP Certification No. 11301).

Retained soil samples were submitted for laboratory analysis of one or more of the following analyses: volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, TAL Metals, pesticides and PCBs by EPA Method 8081/8082.

All groundwater samples from the monitoring wells were analyzed for VOCs / SVOCs by EPA method 8260 / 8270, target analyte list (TAL) metals by EPA method 6010 and Pesticides/PCBs by method 8081/8082. Soil gas samples were analyzed for VOCs by USEPA Method TO-15.

2.1.5 Documentation

A map showing the locations of the soil borings is provided in **Figure 4.** The locations of the monitoring wells and soil gas sample collection points are provided in **Figure 5**. The results of sample soil, groundwater and soil gas samples collected during the RI are summarized in **Tables 3** through **14**. Below is a summary of the RI findings.

The results of sampling performed during this RI, identified petroleum VOC and SVOC contamination in soil at multiple locations around the property including areas adjacent to and downgradient of the former UST area, adjacent to the waste oil tank and in shallow soil across the Site. Contamination adjacent to the UST area extends to a depth of 12-14' below grade while downgradient of the UST area in the vicinity of SB19 it extends to 25 feet. Petroleum impact in the vicinity of the waste oil tank extends to 7 feet. Much of the remainder of the Site has petroleum impacts in the top 2 to 5 feet of soil extending to 12 feet in one location.

Historic fill material has been identified across the Site to depths 2 to 5 feet below grade extending as deep as 12 feet in at least one of the borings. Depending on location, the historic fill material contains one or more metals including barium, copper, lead, mercury and zinc, pesticides, PAHs and PCBs above unrestricted and / or restricted use SCOs.

Groundwater is impacted with petroleum VOCs across much of the Site, extending as far north as MW10. Overall petroleum VOCs were reported in the low hundreds across the Site with the exception of the area downgradient of the UST area as defined by wells MW2, MW3 and MW14 which had concentrations of petroleum VOCs in the mid to high hundreds and low thousands.

Chlorinated VOCs (CVOCs) were reported in all of the soil vapor samples with Trichloroethylene (TCE) reported in 5 of the 9 soil vapor samples, and Tetrachloroethylene (PCE) reported in 6 of the 9 soil vapor samples. Detectable concentrations of TCE ranged in concentration from 0.32 µg/m3 in SG-3 located towards the southern side of the Site to 11.3 µg/m^3 in SG-7 located at the northwestern side of the Site towards the adjacent property Lot 105. PCE concentrations ranged from 1.19 µg/m^3 in SG-2 located at the southeastern corner of the Site at the intersection of Flushing Avenue and Stewart Avenue to 34.3 µg/m^3 in SG-3 located towards the southern side of the Site. Vinyl chloride was detected in 5 of the 9 soil vapor samples. Vinyl chloride concentrations ranged from 1.56 µg/m^3 in SG-4 located in the middle of the western boundary of the Site to 2,530 µg/m^3 in SG-7 located along the north-western boundary of the Site. Benzene was detected in 7 of the 9 soil vapor samples. Benzene concentrations ranged from 1.16 $\mu g/m^3$ in SG-1 located in the south-western corner of the Site to 1,140 $\mu g/m^3$ in SG-5 located in the middle of the eastern property boundary along Stewart Avenue. Cis-1,2-Dichloroethene was detected in 3 of the 9 soil vapor samples. Cis-1,2-Dichloroethene concentrations ranged from 10.2 $\mu g/m^3$ in SG-4 located in the middle of the western boundary of the Site to 109 $\mu g/m^3$ in SG-9 located just north of the northern property boundary of the Site.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH will review the RI Report and will determine whether the Site does or does not pose a significant threat to human health and the environment. Notice of that determination will be provided during the public comment period, through fact sheet No. 2 and the Proposed Decision Document.

2.3 SITE HISTORY

2.3.1 Past Uses and Ownership

The Site is currently owned by 1175 Flushing Avenue Associates LLC. The property is currently vacant with no above grade structures present but was most recently occupied by a scrap metal recycling facility and auto dismantler. The Site is comprised of a single tax parcel, identified as Block 2994, Lot 75 and totaling 40,006.98 sq. ft (0.92 acres). The site was previously two tax parcels, Lots 9 and 75, but a merger to Lot 75 occurred in August 2015. The property boundary can be found in Appendix A – Metes and Bounds.

A review of Sanborn maps shows that the Site served as a Long Island Rail Road freight yard from between 1888 and 1907 until sometime between 1951 and 1965. The current building was constructed 1931in the southeast corner of the Site. In 1951 the building was utilized for fire wood cutting, bagged charcoal storage and automobile storage. An underground gas tank is shown in the south central area of the site at this time. From 1955 to 2003 the building along Flushing Avenue was used as a service station, car wash and auto repair shop. The remainder of the property was used for parking through 1981. In 1981 the parking area was used as an auto parts yard. Between 2007 and 2014 the building on Site was converted from an auto service to a scrap metal facility.

A listing of previous owners and operators for the property is as follows:

Previous Owners Lot 75

Dates	Name	Comments	Contact Info
Prior to 6/10/1982	Dora Getreider	Deed	2335 Emmons Avenue, Brooklyn NY 11235
From 6/10/1982 to 5/18/1990	JCB Realty Corp.	Deed	1175 Flushing Avenue, Brooklyn, NY 11237
From 5/18/1990 to 7/22/1992	James F. Dwyer Charles Manor Glen C. Finnerty	Deed	6436 Myrtle Avenue, Glendale, NY 11383 P.O. Box 177, Bethel, NY 12720 87-16 Atlantic Avenue, Ozone Park, NY 11416
From 7/22/1992 to 7/31/1998	Kevin Dwyer	Deed	6436 Myrtle Avenue, Glendale, NY 11383
From 7/31/1998 to 12/1/2004	Louis C. Ruggiero	Deed	164-40 91st Street, Howard Beach, NY 11414
From 12/1/2004 to 2/3/2005	James C. Ruggiero	Deed	163-14 92nd Street, Howard Beach, NY 11414
From 2/3/2005 to Present	1175 Flushing Avenue Associates LLC	Deed	1175 Flushing Avenue, Brooklyn, NY 11237

Previous Owners Lot 9

Dates	Name	Comments	Contact Info
Sometime prior to 1888 to 8/19/2014	The Long Island Railroad Company	Sanborn Maps	Jamaica Station, Jamaica, NY 11434
From 8/19/2014 to Present	1175 Flushing Avenue Associates LLC	Deed	1175 Flushing Avenue, Brooklyn, NY 11237

Previous Operators

Dates	Name	Comments	Contact Info
Sometime between 1888 and 1907 to sometime between 1951 and 1965	The Long Island Railroad Company	Sanborn Maps	Jamaica Station, Jamaica, NY 11434
Sometime between 1933 and 1945 to sometime between 1949 and 1960	Gowanus Kindling Wood works (1945, 1949) Morgan Avenue Wood Works (1945) LWood & Fuel Co. (1949) Consolidated Charcoal (1949)	Sanborn Maps City Directory	Unknown 1175 Flushing Avenue, Brooklyn, NY 11237
Sometime between 1949 and 1960 to 1970	T&T Auto Wash (1960) Public Serv. Station (1960, 1965) Quality Car Wash (1965) AAA Bargain Car Wash Corp. (1970	Sanborn Maps City Directory	Unknown 1175 Flushing Avenue, Brooklyn, NY 11237
Sometime between 1970 and 1973 to 1980	Stewart Car Wash (1973, 1976) B&M Service Station (1973) Flushing Avenue Service Station (1976) AFA Auto Repair (1980)	Sanborn Maps City Directory	Unknown 1175 Flushing Avenue, Brooklyn, NY 11237
Sometime between 1980 and 1985 to 1992	Stewarts Auto Repair (1985) D&G Tire (1985) Riteway Tire Service (1992)	Sanborn Maps City Directory	Unknown 1175 Flushing Avenue, Brooklyn, NY 11237
Sometime between 1992 and 2005 to 2008	Newark II Auto Recycling Corp. (2005) &R Used Auto Parts (2005) Newark II Automotive (2005, 2008) Universal Used Auto Parts Inc. (2008)	Sanborn Maps City Directory	Unknown 1175 Flushing Avenue, Brooklyn, NY 11237
From 2008 to present	Universal Scrap Metal Processors Corp.	Sanborn Maps City Directory	25 Stewart Avenue, Brooklyn, NY 11237

2.3.2 Summary of Previous Reports

Environmental investigations performed at the Site include the following:

- NYSDEC Spill Files No. 1305242 and 0510000
- Phase I Environmental Site Assessment Report - EBC (December 2014)
- Phase II Subsurface Investigation Data Summary - EBC (January 2015)

NYSDEC Spill Files No. 1305242 and 0510000

According to the NYSDEC Spill file, a petroleum spill was reported in November 2005 during the removal of eleven 550 gallon underground storage tanks. Impacted soil was present around the tanks and approximately 239 tons of soil were removed for disposal. Impacted soil remained in the excavation near the western edge in the vicinity of the former fill ports. A groundwater well installed within the former tank area indicated 7,630 ug/L of total BTEX VOCs. Based on these results continued monitoring was required. In 2009 the DEC requested that an additional investigation be performed to delineate the extent of the contamination. An investigation performed in August 2009 by P.W. Grosser Consulting (PWGC) identified total VOCs in groundwater ranging from 3.26 to 9,217 ug/L. In January 2010 PWGC submitted a remedial plan to the DEC consisting of chemical oxidants and oxygen releasing compound injections. DEC approved the plan in March 2010. Two injection rounds were completed, one in July 2010 and one in September 2010. Post injection monitoring indicated a significant reduction in VOC concentrations in groundwater. Subsequent sampling in 2011 and 2013 indicated some rebound with concentrations then stabilizing by 2014 in the 1,000 to 2,500 ug/L range.

December 2014 – Phase I Environmental Site Assessment (EBC)

Based upon reconnaissance of the subject site and surrounding properties, and review of historical records and regulatory agency databases, the Phase I Screening identified the following Recognized Environmental Conditions (RECs) for the Site:

- The entire property was used as a Railroad freight yard from sometime between 1888 and 1907 to sometime between 1951 and 1965. Historic rail lines were known to use PCBs and herbicides for weed control. In addition rail freight yards would be subject to fuel and petroleum releases from equipment and potential chemical releases from rail tanker cars, etc.
- The south end of the Site was utilized as filling station from approximately 1955 until at least 2003.
- The southern portion of the Site and the building were used for auto repair from 1955 until 2007.
- The Site contained a gasoline storage tank at the south end, along Flushing Avenue, in 1951.

- The northern portion of the property was used as an auto scrap yard from 1981 through 2007.
- From 2007 through 2014 the property was used as a scrap metal facility.

January 2015 - Phase II Invesitgation Data Summary (EBC)

The field work portion of the Phase II was performed on December 29th and 30th, 2014 and included the installation of six soil borings and the collection and analysis of eight soil and five groundwater samples. Shallow soil samples were also analyzed for TAL metals and PCBs. Deeper samples, from the water table interface, were analyzed for VOCs by USEPA 8260 and SVOCs by USEPA 8270. Groundwater samples were analyzed for VOCs only. Laboratory services were provided by Phoenix Environmental Laboratories of Manchester, CT 06040, a New York State ELAP certified environmental laboratory (ELAP Certification No. 11301).

The depth to groundwater at the site is approximately 12 feet below grade. Soil at the site is described as historic fill materials to a depth of approximately 0-4 feet below the surface followed by native brown sand and silt.

Laboratory results identified VOCs including 1,2-dichloroethane (B3), benzene, trimethylbenzene, ethylbenzene, toluene and xylene (B9, B10) above unrestricted and groundwater protection SCOs indicated multiple source areas across the Site. The concentration of total VOCs (when including naphthalene) were reported as high as 37,037 ug/kg. One or more SVOCs including chysene, benzo(a)anthracene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, benzo(k)fluornthene were reported above Unrestricted or Restricted Residential SCOs in two locations (B2 and B10). Metals reported above included the following:

<u>Unrestricted Use</u>

B2 0-4 ft - Copper (76.6 mg/kg), lead (108 mg/kg), zinc (856 mg/kg)
B3 0-2 ft - Copper (62 mg/kg), lead (161 mg/kg), zinc (170 mg/kg)
B6 0-5 ft - Lead (72.6 mg/kg)
B9 4-6 ft - Zinc (134 mg/kg)
B10 0-4 ft - Copper (68.6 mg/kg), lead (147 mg/kg), mercury (0.55 mg/kg), zinc (1800 mg/kg)

Restricted Residential Use

B1 0-2 ft - Cadmium (3 mg/kg), mercury (1.94 mg/kg)

B2 0-4 ft - Mercury (5.54 mg/kg)

B3 0-2 ft - Mercury (1.01 mg/kg)

Petroleum VOCs were reported in three of the five groundwater samples (MW3, MW5, MW6) above water quality standards. Total petroleum VOCs were reported to 8,727 ug/L.

2.4 GEOLOGICAL CONDITIONS

Long Island's present configuration is primarily the result of glaciation which during the Pleistocene Era, predominately that of the last ice age, the Wisconsin, which ended about ten thousand years ago. Two advances of the Wisconsin ice sheet during the Upper Pleistocene of the Quaternary Period caused the island to be blanketed with till, ice contact stratified drift, outwash deposits and deposits composed of clay, silt, sand, gravel and boulders. The terminal moraines and the north shore are composed primarily of stratified drift with some till. The area between the moraines and south of them are mostly the outwash deposits. Central and South Long Island are of the glaciofluvial origin. The Pleistocene deposits lie atop the gently-dipping Cretaceous rocks.

The bedrock was eroded to a peneplain before the overlying Cretaceous sediments were deposited; its surface shows signs of later erosion by Pleistocene glaciation in the north. Bedrock crops out in northwestern Queens County near the East River and slopes southward at about eighty (80) feet per mile. Consequently, the overlying formations form a southward-dipping wedge that attains a maximum thickness of one-thousand fifty (1,050) feet in the southeast corner of Queens County. The maximum thickness of unconsolidated deposits in Kings County is about eight-hundred (800) feet in southeast Kings.

Overlying bedrock is the Raritan Formation of Late Cretaceous age, consisting of the Lloyd Sand Member and an upper, unnamed clay member. Overlying the Raritan Formation is the Magothy Formation and Matawan Group, undifferentiated, also of Late Cretaceous age, the Jameco Gravel of Pleistocene age, the Gardiners Clay of Pleistocene age, upper Pleistocene deposits of

Wisconsin age, and a generally thin soil mantle of Holocene age. Holocene beach deposits make up most of the Rockaway Peninsula and Coney Island in the south, and Holocene salt-marsh deposits underlie and fringe the south-shore bay areas. Artificial filling has been done in low and swampy shoreline areas. Because Holocene deposits occur in relative small areas of Kings and Queens and are not significant water bearers, they are not included in the geologic descriptions that follow. The four distinct formations on Long Island: The Upper Glacial, the Jameco, the Magothy and the Lloyd aquifers. They all occur in the unconsolidated materials overlying the bedrock.

According to geologic maps of the area created by the United States Geologic Survey (USGS), the bedrock in this area of Brooklyn is an igneous intrusive classified as the Ravenswood grano-diorite of middle Ordovician to middle Cambrian age. The depth to bedrock in this area of Brooklyn is greater than 100 ft below grade. Unconsolidated sediments overlie the bedrock and consist of Pleistocene aged sand, gravel and silty clays, deposited by glacial-fluvial activity. Non-native fill materials consisting of dredge spoils, rubble and / or other materials have historically been used to reinforce and extend shoreline areas and to raise and improve the drainage of low lying areas.

Subsurface soils at the Site consist of historic fill materials to a depth of approximately 2 to 5 feet below grade with some areas extending to 12 feet below grade. Silty sand is present immediately below this layer.

Groundwater at the Site is present under water table conditions at a depth of 11.97 to 13.19 feet below grade. Based upon on-site measurements, groundwater flow is to the north and northeast (**Figure 6**).

Considering the poor quality of groundwater in the area, including high levels of sodium and magnesium associated with saltwater intrusion and impacts from petroleum and industrial solvents related to the former commercial / industrial use of the area, there is no anticipated future groundwater use.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

VOC contamination at the Site consists of petroleum related contaminants in soil at multiple locations around the property including areas adjacent to and downgradient of the former UST area, adjacent to the waste oil tank and in shallow soil across the Site.

Contamination adjacent to the UST area extends to a depth of 12-14' below grade while downgradient of the UST area in the vicinity of SB19 it extends to 25 feet. Petroleum impact in the vicinity of the waste oil tank extends to 7 feet. Much of the remainder of the Site has petroleum impacts in the top 2 to 5 feet of soil extending to 12 feet in one location.

It has been previously established that a release occurred in the UST area. Released gasoline in this area would have encountered the shallow water table almost immediately and then migrated north with groundwater flow in free phase form resulting in residually impacted soil. Gasoline constituents then dissolved into the groundwater which was in contact with the contaminated soil or which passed through the contaminated soil zone and migrated north.

As noted in the Spill File, eleven 550 gallon USTs were removed from the southern portion of the Site along with 239 tons of petroleum impacted soil. Chemical oxidants were then applied to reduce VOC impacts in groundwater. This remediated a good portion of the source area leaving residually impacted soil adjacent to the excavated area and northeast along Stewart Avenue.

The presence of petroleum impacted soil adjacent to the waste oil sump and the general poor housekeeping observed around it indicates that spills occurred at this location and impacted soil to approximately 7 feet below the surface. .

The historic use of the property as an auto dismantler, combined with a partial and damaged asphalt/concrete cover, resulted in surface spillage of automotive fluids (primarily gasoline) entering the ground and impacted shallow soil. For the most part this was limited to the top 2 feet of soil though in some areas of the Site it penetrated to a depth of 12 to 14 feet.

Dissolved petroleum VOCs originated from residually impacted soils in UST area and downgradient impact zone and then migrated from these areas north. In addition, it is likely that surface runoff passing through the shallow contaminated soils across the site, picked up VOC contaminants and then transported them to the water table as dissolved constituents.

2.5.2 Description of Areas of Concern

Source areas identified during the RI include the former UST area located in the southern area of the Site. Although the tanks were previously removed there appears to be some residual soil contamination in the northwest corner of the UST area as evidenced by petroleum VOCs reported at the 12-14' interval at the 15B1 location. The residual contamination associated with the UST area extends downgradient (northeast) to the 15B19 location along Stewart Avenue to a depth of 20 to 25'. Indications of a second source area were noted in 15SB6 at the 5-7' interval located adjacent the waste oil tank.

Shallow petroleum contamination reported across much of the Site in the 0-2' and 3-5' intervals and extending to 12-14' at the 15SB12 location is likely related to surface spillage from the storing and dismantling of derelict vehicles.

2.5.3 Soil/Fill Contamination

VOC contamination at the Site consists of petroleum related contaminants in soil at multiple locations around the property including areas adjacent to and downgradient of the former UST area, adjacent to the waste oil tank and in shallow soil across the Site.

Contamination adjacent to the UST area extends to a depth of 12-14' below grade while downgradient of the UST area in the vicinity of SB19 it extends to 25 feet. Petroleum impact in the vicinity of the waste oil tank extends to 7 feet. Much of the remainder of the Site has petroleum impacts in the top 2 to 5 feet of soil extending to 12 feet in one location.

Historic fill material has been identified across the Site to depths 2 to 5 feet below grade extending as deep as 12 feet in at least one of the borings. Depending on location, the historic fill material contains one or more metals including barium, copper, lead, mercury and zinc, pesticides, PAHs and PCBs above unrestricted and / or restricted use SCOs.

2.5.3.1 Summary of Soil/Fill Data

Soil sample results from the RI are summarized in **Tables 3-6**. Further information on soil sample collection, handling and analysis can be found in the RI Report (EBC 3/17).

2.5.3.2 Comparison of Soil/Fill with SCGs

Table 7 shows sample results above Track 1 Unrestricted SCOs for all overburden soil at the Site. **Figure 7** is spider map which shows soil sampling locations and summarizes shallow and deep sample results above Track 1 Unrestricted SCOs for all overburden soil.

2.5.4 On-Site and Off-Site Groundwater Contamination

Petroleum VOCs above NYSDEC Ambient Water Quality Standards (AWQS) were reported across much of the Site, extending as far north as MW10. Overall petroleum VOCs were reported in the low hundreds across the Site with the exception of the area downgradient of the UST area as defined by wells MW2, MW3 and MW14 which had concentrations of petroleum VOCs in the mid to high hundreds and low thousands. .

CVOCs were reported slightly above standards in two monitoring wells including tetrachlorethene (PCE) in MW6 and tricloroethene (TCE) n MW3 and MW6.

SVOC detections above groundwater standards were limited to naphthalene in wells MW1, MW2, MW3, MW6 and MW14.

PCB1016 was reported slightly above the NYSDEC AWQS standard in well MW14.

Several dissolved metals were detected above standards including iron, sodium magnesium and manganese in most of the wells. These metals are consistent with general groundwater quality throughout the area. Barium, cadmium and lead were also reported above standards at the MW6 location.

2.5.4.1 Summary of Groundwater Data

The results of groundwater samples collected during the RI are summarized in **Tables 8-12**. Further information on groundwater sample collection, handling and analysis can be found in the RI Report (EBC 3/17).

2.5.4.2 Comparison of Groundwater with SCGs

Sample results above GA groundwater standards in monitor wells prior to the remedy are shown in **Table 13**. Spider maps which show groundwater sampling locations and summarize results above GA groundwater standards prior to the remedy are shown in **Figure 8**.

2.5.5 On-Site and Off-Site Soil Vapor Contamination

Petroleum-related VOCs were generally low in soil vapor samples with the exception of benzene, cyclohexane, heptane and hexane in SG4, SG5, SG6, SG7 and SG9. Chlorinated VOCs (CVOCs) were generally limited to vinyl chloride in SG8.

2.5.5.1 Summary of Soil Vapor Data

A table of soil vapor data collected prior to the remedy is shown in **Table 14**. Further information on soil gas sample collection, handling and analysis can be found in the RI Report (EBC 3/17). Soil vapor results are posted on **Figure 9**.

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment under the Brownfields Cleanup Program (BCP) is to identify potential receptors to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur. An exposure pathway has five elements; a contaminant source, release and transport mechanisms, point of exposure, route of exposure and a receptor population.

The potential exposure pathways identified below, represent both current and future exposure scenarios.

Contaminant Source

Source areas of the Site include petroleum VOCs in soil adjacent to and downgradient of the former UST area located in the southern portion of the Site. A second source is present in the vicinity of the waste oil tank though contamination in that area is not in direct contact with the groundwater Petroleum VOCs are also present in shallow soil throughput much of the Site extending to the water table in at least one location. Shallow impacted soil is also considered a contaminant source.

Elevated levels of metals, PAHs and pesticides are also present in fill materials throughout the Site.

Contaminant Release and Transport Mechanism

Petroleum contamination is present in soil adjacent to and downgradient of the former UST area at depths which put it in direct contact with the groundwater. Contaminants in shallow soil can affect groundwater quality as surface runoff infiltrates the impacted zone and acts as transport water for dissolved constituents.

Dissolved components migrating from the source area or infiltrating through surface runoff would travel north to northeast with groundwater flow.

There appears to be some transfer of lighter petroleum VOCs to the vapor phase in the central and northern areas of the Site. These lighter end petroleum VOCs such as heptane and hexane may be migrating off-site in this area.

Point of Exposure, Route of Exposure and Potentially Exposed Populations

<ins>Potential On-Site Exposures:</ins> Remediation workers and construction workers engaged in the excavation of impacted and non-impacted soil at the site may be exposed to petroleum VOCs /

SVOCs, CVOCs, pesticides and heavy metals through several routes. Workers excavating impacted soil may be exposed through inhalation, ingestion and dermal contact. A site specific Health and Safety Plan has been developed to identify and minimize the potential hazards to on-site workers. Site trespassers could also be exposed to impacted soil during excavation, however, security measures including an 8 ft high construction fence and 24 hr security will minimize potential exposure through this route. Potential vapor intrusion is a concern for residents of the planned construction in the north-central area of the Site, however remediation of the source areas is expected to greatly reduce if not eliminate this potential.

Potential Off-Site Exposures: Off-Site residents could also be exposed to dust or vapors during the excavation of impacted soil. A site specific Community Air Monitoring Plan has been developed to identify and minimize the potential for off-site exposure to residents through continuous air monitoring during excavation activity.

The entire area is serviced by the New York City Water System which distributes water from the Croton Reservoir system. Since there are no public or private potable supply wells in the area, exposure from contact with tap water is not a concern. Off-site exposure is therefore limited to vapor intrusion from light end petroleum VOCs. This potential will be further reduced following the removal of the source are under the planned redevelopment of the Site.

2.6.2 Fish & Wildlife Remedial Impact Analysis

Since petroleum VOCs in groundwater may be migrating beneath the Site at low concentrations in a northeasterly direction, the groundwater to surface water discharge pathway was evaluated. The nearest surface water to the Site is the English Kills Channel located approximately 1,500 feet to the northwest. Based upon the concentrations of contaminants currently in groundwater beneath the Site, there are no expected impacts to surface water environments from contaminants migrating from the Site.

2.7 REMEDIAL ACTION OBJECTIVES

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

2.7.1 Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.7.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.7.3 Soil Vapor

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

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 EVALUATION OF REMEDIAL ALTERNATIVES

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance; and
- Land use.

The first two criteria are threshold criteria and must be satisfied in order for an alternative to be considered for selection. The remaining seven criteria are balancing criteria which are used to compare the positive and negative aspects of each of the remedial alternatives, provided the alternative satisfies the threshold criteria.

3.2 STANDARDS, CRITERIA AND GUIDANCE (SCG)

A criterion for remedy selection is evaluation for conformance with SCGs that are applicable, relevant and appropriate. Principal SCGs that are applicable, relevant and appropriate for evaluating the alternatives for remediation of this BCP site include the following:

- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response

- 10 NYCRR Part 67 – Lead
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes (November 1998)
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- 6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities (November 1998)
- 6 NYCRR Part 375 - 6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1, 375-3 and 375-6 (December 2006)
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 750 through 758 - Implementation of NPDES Program in NYS ("SPDES Regulations")
- 6 NYCRR Part 375-6 Soil Cleanup Objectives
- New York State Groundwater Quality Standards – 6 NYCRR Part 703;
- NYSDEC Ambient Water Quality Standards and Guidance Values – TOGS 1.1.1;
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation - May 2010;
- NYSDEC Draft Brownfield Cleanup Program Guide – May 2004;
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYS Waste Transporter Permits – 6 NYCRR Part 364;
- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364.
- TAGM 4059 - Making Changes To Selected Remedies (May 1998)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- DER-10, Technical Guidance for Site Investigation and Remediation, May 2010
- DER-23 / Citizen Participation Handbook for Remedial Programs, January 2010

- OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (November 1997)

Additional regulations and guidance are applicable, relevant, and appropriate to the remedial alternatives and will be complied in connection with implementation of the remedial program; however, the list above is intended to represent the principal SCGs which should be considered in evaluating the remedial alternatives for the BCP site.

Conformance with the appropriate standards for remediation of contaminated soil is an important criterion in evaluating the remedial alternatives for the BCP site. Presently, in New York State 6 NYCRR Part 375 establishes the primary SCGs associated with remediation of contaminated soil at sites which are in the BCP. If proposing remediation pursuant to a Track other than Track 1 (Unrestricted Use), 6 NYCRR Part 375 requires evaluation of at least one remedial alternative pursuant to Track I (Unrestricted Use) and one other alternative developed by the applicant for the proposed use of the BCP site. The remedial alternatives presented in Section 3.3 of this work plan have been prepared in conformance with this requirement.

3.3 ALTERNATIVES ANALYSIS

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;

- Cost effectiveness;
- Community Acceptance; and
- Land use.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. This analysis was prepared in accordance with 6 NYCRR Part 375-1.8(f) and Part 375-3.8(f) and Section 4.3(c) of NYSDEC DER-10. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

- Alternative 1 - Track 1, remediation of all soils above bedrock to unrestricted use criteria. This would include excavation to a minimum depth of 15 feet across the Site for the cellar level of the new building, with the excavation of the petroleum impacted areas to a depth of 25 feet or as needed to meet unrestricted use SCOs. The Alternative includes dewatering / treatment of groundwater beneath the Site as part of the installation of the new buildings foundation and to facilitate the over excavation of petroleum impacted areas. This alternative does not allow the use of long-term institutional /engineering controls to address impacted media or prevent exposures which may be required beneath the new building. An SSD system is not required for this alternative since the building foundation will be well below the water table and since the cellar levels will consist of a parking garage with mechanical ventilation.

- Alternative 2 - Track 2, remediation of all soils to restricted residential criteria to a depth of 15 feet if soils below 15 feet do not represent a source of contamination. This alternative would require a slightly lesser degree of excavation than Alternative 1 to meet SCOs, however, the excavation depth planned for the new building will likely exceed the excavation depth needed to meet this alternative in most areas of the Site. As with Alternative 1, some areas will required over excavation to depths 25 feet to meet groundwater protection SCOs. This alternative does not allow the use of long-term institutional /engineering controls to meet soil cleanup objectives. Long-term institutional /engineering controls are allowed to address or prevent exposures from other impacted media. This alternative is provided as a contingency in the event that Track 1 SCOs cannot be met. Since the planned excavation depth for the new building along with the over excavation of hotspot areas is expected to satisfy SCOs for both Alternative 1 and Alternative 2, Alterative 2 has been added as a contingency in the event that Alternative 1 cannot be achieved.

3.4 REMEDIAL ALTERNATIVE 1

The following sections provide an evaluation of Alternative 1 based on the nine evaluation criteria as previously discussed.

3.4.1 Overall Protection of Human Health and the Environment

Alternative 1 will be protective of human health and the environment by eliminating constituents in soil related to petroleum and historic fill and remediating groundwater. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of all petroleum contaminated and historic fill soils with parameters in excess of unrestricted criteria, disposing of excavated materials off-site, full dewatering and treatment of groundwater beneath the Site and backfilling as needed with certified clean fill, virgin mined materials or recycled concrete materials from a NYSDEC permitted recycling facility.

Potential post-remediation exposures to on-site residents from soil vapors are not expected to require the operation of SSD systems, though groundwater use will be restricted at the Site until groundwater quality recovers.

During remedial and construction activity workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a Health and Safety Plan. Exposures to area residents from dust and/or vapors will be minimized through the use of engineering controls and through implementation of a Community Air Monitoring Plan (CAMP).

3.4.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 1 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal to Track 1 unrestricted cleanup levels. SCGs for groundwater will also be achieved as impacted groundwater will be fully extracted and treated prior to discharge into the NYC sewer system (see Section 5.5.10). Compliance with SCGs for soil vapor is expected following completion of the remedial action.

3.4.3 Long-Term Effectiveness and Permanence

Alternative 1 achieves long term effectiveness and permanence by permanently removing and/or remediating all soils affected by Site contaminants or historic fill materials and by remediating groundwater. Under this Alternative, risk from soil impacts and groundwater will be eliminated. Aternative 1 will continue to meet RAOs for soil, groundwater and soil vapor in the future, providing a permanent long-term solution for the Site.

3.4.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site soil by meeting unrestricted objectives through excavation and from on-site groundwater by extraction, treatment and off-site discharge (sewer system) of groundwater beneath the Site during construction.

3.4.5 Short-Term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 1 is minimal.

Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic, will be controlled and regulated under the terms of the NYS Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities, will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan has also been prepared to minimize disturbance to the local roads and community.

3.4.6 Implementability

The techniques, materials and equipment to implement Alternative 1 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation and construction dewatering for the remediation of soils and groundwater are both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites.

3.4.7 Cost

Costs associated with Alternative 1 are estimated at approximately $ 1,187,671. This cost estimate includes the following elements and assumptions:

- Excavate as per the cellar level foundation plans for the new building to 15 ft below grade. Over-excavate as necessary to remediate petroleum hot-spot areas to depths of 15 feet for hot spots SB1 and SB12 and to 25 ft for hot spot SB19.
- Disposal of approximately 5,092 cy of historic fill soil as non-hazardous with lead levels <1500 ppm;
- Disposal of approximately 2,012 cy of petroleum contaminated soil as non-hazardous with lead levels <1,500 ppm;
- Disposal of approximately 8,171 cy of clean native soil for beneficial reuse.;
- Groundwater dewatering and treatment during foundation construction; and,
- HASP and CAMP monitoring for the duration of the remedial activities.

3.4.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current M1-2 / R6A zoning. Following remediation, the Site will meet unrestricted use objectives which will exceed the objectives for its planned commercial-retail and residential use. A groundwater use restriction may be required to prevent future exposure to affected groundwater.

3.4.9 Community Acceptance

No questions regarding the Site have been raised regarding remedial options to date. This RAWP will be subject to a 45-day public comment period to determine if the community had comments on the presented remedial alternatives and selected remedy. If no comments are received regarding Alternative 1, it will be considered to be acceptable to the community.

3.5 REMEDIAL ALTERNATIVE 2

The following sections provide an evaluation of Alternative 2 based on the nine evaluation criteria as previously discussed.

3.5.1 Overall Protection of Human Health and the Environment

Alternative 2 will be protective of human health and the environment by eliminating constituents in soil related to petroleum and historic fill and remediating groundwater. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of all petroleum contaminated and historic fill soils with parameters in excess of unrestricted criteria, disposing of excavated materials off-site, full dewatering and treatment of groundwater beneath the Site and backfilling as needed with certified clean fill, virgin mined materials or recycled concrete materials from a NYSDEC permitted recycling facility.

Potential post-remediation exposures to on-site residents from soil vapors are not expected to require the operation of SSD systems, though groundwater use will be restricted at the Site until groundwater quality recovers.

During remedial and construction activity, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a HASP. Exposures to area residents from dust and or vapors will be minimized through the use of engineering controls and through implementation of a CAMP.

3.5.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 2 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal to restricted residential cleanup levels for the top 15 feet. SCGs for groundwater will also be achieved as impacted groundwater will be fully extracted and treated prior to discharge into the NYC sewer system (see Section 5.5.10). Compliance with SCGs for soil vapor is expected following completion of the remedial action by removal of all impacted soil and groundwater and through the building's construction which will place the cellar level foundation 10 to 15 ft below the water table.

3.5.3 Long-term Effectiveness and Permanence

Alternative 2 achieves long term effectiveness and permanence by permanently removing and/or remediating all soils affected by Site contaminants above restricted residential objectives to a depth of 15 feet and by remediating groundwater. Under this Alternative risk from soil impacts and groundwater will be eliminated. Alternative 2 will continue to meet RAOs for soil groundwater and soil vapor in the future, providing a permanent long-term solution for the Site.

3.5.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-site soil by meeting restricted residential objectives in the upper 15 feet and from on-site groundwater by extraction, treatment and off-site discharge (sewer system) of groundwater beneath the Site during construction.

3.5.5 Short-term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 2 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic will be controlled and regulated under the terms of the NYS Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan will also be prepared to minimize disturbance to the local roads and community.

3.5.6 Implementability

The techniques, materials and equipment to implement Alternative 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation and construction dewatering for the remediation of soils and groundwater are both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites.

3.5.7 Cost

Costs associated with Alternative 2 are almost identical to Alternative 1 adding only those costs associated with preparation of a Site Management Plan and Environmental Easement package and are estimated at approximately $ 1,216,271. This cost estimate includes the following elements and assumptions:

- Excavate as per the cellar level foundation plans for the new building to 15 ft below grade. Over-excavate as necessary to remediate petroleum hot-spot areas to depths of 15 feet for hot spots SB1 and SB12 and to 25 ft for hot spot SB19.
- Disposal of approximately 5,092 cy of historic fill soil as non-hazardous with lead levels <1500 ppm;
- Disposal of approximately 2,012 cy of petroleum contaminated soil as non-hazardous with lead levels <1,500 ppm;
- Disposal of approximately 8,171 cy of clean native soil for beneficial reuse;
- Groundwater dewatering and treatment during foundation construction; and,
- HASP and CAMP monitoring for the duration of the remedial activities.
- Preparation of a Site Management Plan; and,
- Preparation and Filing of an Environmental Easement.

3.5.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current M1-2 zoning. Following remediation, the Site will meet restricted-residential use objectives which will meet objectives for its planned mixed commercial-retail and hotel use. A groundwater use restriction may be required to prevent future exposure to affected groundwater.

3.5.9 Community Acceptance

No questions regarding the Site have been raised regarding remedial options to date. This RAWP will be subject to a 45-day public comment period to determine if the community has any comments on the presented remedial alternatives and selected remedy. If no comments are received, it will be considered to be acceptable to the community.

3.6 SELECTION OF THE PREFERRED REMEDY

The remedy recommended for the site is a Track 1 alternative which consists of the removal and proper off-site disposal of all petroleum / CVOC contaminated soil and historic fill material with parameters above unrestricted SCOs.

Any backfill materials used at the site will either consist of clean native soil excavated from other areas of the site, virgin mined materials, recycled materials or certified fill which meets unrestricted SCOs.

Groundwater will be remediated through construction dewatering and treatment followed by discharge into the NYC sewer system. Confirmatory groundwater samples will be collected following completion of the excavation to evaluate the effectiveness of the remedy on groundwater quality. A contingency for additional groundwater treatment is included in the remedy

3.6.1 Preferred Remedy Land Use Factor Evaluation

As required by Article 27, Title 14 of the Environmental Conservation Law 27-1415, the following land use factor evaluation examines whether the preferred alternative is acceptable based on the 14 criteria presented in the following subsections.

Zoning

The property is currently zoned M1-2. M1 districts are often buffers between M2 or M3 districts and adjacent residential or commercial districts. M1 districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. Nearly all industrial uses are allowed in M1 districts if they meet the stringent M1 performance standards. Offices, hotels and most retail uses are also permitted. Certain community facilities, such as hospitals, are allowed in M1 districts only by special permit, but houses of worship are allowed as-of-right.

The proposed project which includes a hotel and commercial-retail space is compatible with the surrounding land use and will be in compliance with the current zoning.

Applicable Comprehensive Community Master Plans or Land Use Plans

In early 2006, the City created 16 Industrial Business Zones (IBZ) across the City where expanded business services are available for industrial and manufacturing businesses. This designation fosters high-performing business districts by creating competitive advantages over locating in areas outside of New York City. The IBZs are supported by tax credits for relocating within them, zone-specific planning efforts, and direct business assistance from Industrial Providers of NYC Business Solutions Industrial and Transportation. In light of the purpose of IBZs to foster industrial sector growth by creating real estate certainty, rezoning of these areas for residential use are not allowed.

The proposed project is located within the North Brooklyn Industrial Business Zone and will be in compliance with this land use plan as ratified by the NY City Boundary Commission in November 2014 after expanding and adding several IBZs.

Surrounding Property Uses

The land use in the immediate vicinity of the Site (Figure 6) is primarily industrial / commercial in accordance with the M1-1, M1-2 and M3-1 zoning which surrounds the property. Adjacent land use includes large manufacturing / warehouse buildings to the west, north and east and a lumber yard, Manhattan Transit Authority maintenance building and a wholesale food warehouse to the south. Residential areas are present further to the south behind the commercial properties along Flushing Avenue.

There are no schools or daycare centers in the immediate area (1,000 ft) of the Site, however there are two schools, P.S. 123 and J.H.S. 162, located to the south and east respectively, of the Site.

The proposed project is compatible with the surrounding land use and will be in compliance with the current zoning.

Citizen Participation

Citizen participation for implementation of the preferred alternative will be performed in accordance with DER 23 and NYCRR Part 375-1.10 and Part 375-3.10. A Citizen Participation Plan has been prepared and is available for public review at the identified document repositories (NYSDEC Region 2 Office, Bushwick Branch of the Brooklyn Public Library).

Environmental Justice Concerns

As shown on Figure 9, the Site is located within a potential environmental justice area. The NYSDEC defines a potential environmental justice area as a "minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Environmental justice means the fair treatment and meaningful involvement of all people regardless of race, color, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Land use designations

The proposed remedy is consistent with land-use designations.

Population growth patterns

Population growth patterns support the proposed use for the Site. The preferred remedy will not negatively affect on population growth patterns.

Accessibility to existing infrastructure

The Site is accessible to existing infrastructure. The location of the Site on Flushing Avenue will assist soil transportation and contractor access to the Site. The Site is also accessible to mass transit and is within walking distance to the L line with a subway stop on Wykoff Avenue and Troutman Street (2 blocks to the east). The preferred remedy will not alter accessibility to existing infrastructure.

Proximity to cultural resources

The proposed remedy will not negatively impact cultural resources.

Proximity to natural resources

The proposed remedy will improve the local environment and will not negatively impact affect natural resources.

Off-Site groundwater impacts

The proposed remedy will improve potential off-site groundwater impacts by removing petroleum impacted soil from the site and treating VOC impacted groundwater. The proposed remedy will not affect natural resources other than to potentially improve the quality of groundwater on a local basis.

Proximity to floodplains

No portion of the Site is located within a designated flood zone area. The nearest moderate risk flood zone is located 820 feet to the northwest and the nearest high risk flood zone is located 1,000 feet to the northwest.

Geography and geology of the Site

The selected remedy will excavate historic fill materials across the Site to a depth of 5 feet and petroleum impacted soil in hotspot areas of the site to depths of 15 and 25 feet. Redevelopment will also remove soils to a depth of 15 feet for the cellar levels of the new building. The selected alternative and development of the site have considered the geography and geology of the Site.

Current Institutional Controls

There are no institutional controls presently assigned to the Site.

3.7 SUMMARY OF SELECTED REMEDIAL ACTIONS

The remedy recommended for the Site is a Track 1 alternative (Alternative 1) which consists of the removal of all on-site soils which exceed the UUSCOs and the remediation of petroleum impacted groundwater. It is expected that a Track 1 alternative will require excavation to a minimum depth of 15 feet across the Site with additional excavation in the petroleum impacted areas as needed to meet SCOs. Excavation to a depth of 15 ft site-wide is required for construction of the new building. In addition all fill material with parameters above USCOs will be removed from the Site and properly disposed of at an off-site facility. The remedy will include the following items:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in **Table 1** to a minimum depth of 15 feet across the Site with additional excavation within the petroleum impacted areas as needed to meet SCOs;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
5. Dewatering and treatment of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit;
6. Collection and analysis of groundwater samples following excavation to evaluate the performance of the remedy on groundwater quality;

7. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material;
8. .If Track 1 cleanup is not achieved implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls;
9. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs and a bulk reduction of groundwater contamination to asymptotic levels cannot be achieved, then a Track 2 remedy may result.

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. Any anticipated deviations to the RAWP shall be submitted to the NYSDEC for review.

4.0 REMEDIAL ACTION PROGRAM

The objective of this section of the Remedial Action Work Plan, is to present a scope of work which will be approved by NYSDEC and when completely implemented will ready the BCP site for development under the Contemplated Use consistent with the requirements of the Brownfield Cleanup Program.

4.1 GOVERNING DOCUMENTS

Governing documents and procedures included in the Remedial Work Plan include a Site-specific Health and Safety Plan (HASP), a Community Air Monitoring Plan (CAMP), a Citizen Participation Plan, a Soil Management Plan (SoMP), a Quality Assurance Project Plan (QAPP), fluid management procedures, and contractors' site operations and quality control procedures. Highlights of these documents and procedures are provided in the following sections.

4.1.1 Health & Safety Plan (HASP)

Contractors and subcontractors will have the option of adopting this HASP or developing their own site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, the Remedial Engineer will insure that it meets the minimum requirements as detailed in the site-specific HASP prepared for the Site.

Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926. Modifications to the HASP may be made with the approval of the Remedial Engineer (RE), Site Safety Manager (SSM) and/or Project Manager (PM).

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

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

The Health and Safety Plan (HASP) and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

The Site Safety Coordinator will be Ms. Chawinie Miller. Her resume is provided in **Attachment F**. Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses. A copy of the Site Specific Health and Safety Plan is provided in **Attachment B.**

4.1.2 Quality Assurance Project Plan (QAPP)

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or a cold-pak(s) to maintain a temperature of 4^oC.

Dedicated disposable sampling materials will be used for both soil and groundwater samples (if collected), eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected.

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash with alconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Prepare field blanks by poring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory. Laboratory reports will be upgradeable to ASP category B deliverables for use in the preparation of a data usability report (DUSR). The QAPP for the Site is provided in **Attachment C**.

4.1.3 Construction Quality Assurance Plan (CQAP)

All construction work related to the remedy (i.e. soil excavation) will be monitored by EBC / AMC field personnel under the direct supervision of the Remedial Engineer. Monitoring during soil excavation will be performed to protect the health of site workers and the surrounding community. A Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) have been specifically developed for this project. These plans specify the monitoring procedures, action levels, and contingency measures that are required to protect public health.

All intrusive and soil disturbance activities will be monitored by an environmental professional (EP) under the direct supervision of the Remedial Engineer who will record observations in the site field book and complete a photographic log of the daily activities. The EP will provide daily updates to the Project Manager and Remedial Engineer who will both make periodic visits to the site as needed to assure construction quality. Daily updates will also be submitted to the NYSDEC. See section 4.4.1 Daily Reports.

4.1.4 Soil/Materials Management Plan (SoMP)

A SoMP has been prepared for excavation, handling, storage, transport and disposal of all soils/materials that are disturbed / excavated at the Site. The SoMP includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SoMP is presented in Section 5.4.

4.1.5 Erosion and Sediment Control Plan (ESCP)

Erosion and sediment controls will be performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Typical measures that will be utilized at various stages of the project to limit the potential for erosion and migration of soil include the use of hay bales, temporary stabilized construction entrances/exits, placement of silt fencing and/or hay bales around soil stockpiles, and dust control measures.

4.1.6 Community Air Monitoring Plan (CAMP)

The CAMP provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities.

The action levels specified require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are vapors, nuisance odors and dust particulates.

The primary concerns for this site are vapors, nuisance odors and dust particulates. The CAMP prepared for implementation of the RAWP is provided in **Attachment D**.

4.1.7 Contractors Site Operations Plan (SOP)

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

4.1.8 Citizen Participation Plan (CPP)

The Citizen Participation Plan prepared for this project is provided in **Attachment E**. The public will be informed of key project documents and events through the distribution of fact sheets through the Department's List Serv. The public was initially informed of the Site and the opportunity to join the List Serv through an ad placed in the local newspaper and mailed fact sheets.

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

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

Brooklyn Public Library – Bushwick Branch
340 Bushwick Avenue, Brooklyn, NY 11206
(718) 602-1348

Hours

Mon	closed
Tue	10:00 am - 6:00 pm
Wed	10:00 am - 8:00 pm
Thu	10:00 am - 8:00 pm
Fri	10:00 am - 6:00 pm
Sat	10:00 am - 5:00 pm

Brooklyn Community Board 4
1420 Bushwick Ave. Rm. 370
Brooklyn, NY, 11237
Phone: 718-628-8400

4.2 GENERAL REMEDIAL ACTION INFORMATION

4.2.1 Project Organization

The Project Manager for the Remedial Activity will be Mr. Keith Butler. Overall responsibility for the BCP project will be Mr. Charles B. Sosik, P.G., P.HG. The Remedial Engineer for this project is Mr. Ariel Czemerinski, P.E. Resumes of key personnel involved in the Remedial Action are included in **Attachment F**.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Mr. Ariel Czemerinski, P.E. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Site. The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will review all pre-remedial plans submitted by contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal, and will certify compliance in the Final Remediation Report. The Remedial Engineer will provide the certifications listed in Section 10.1 in the Final Engineering Report.

4.2.3 Remedial Action Schedule

The remedial action will begin with mobilization of equipment and material to the Site, which will begin approximately 1 week following RAWP approval and 10 days after the distribution of the remedial construction Fact Sheet. A pre-construction meeting will be held among NYSDEC, the Remedial Engineer, and the selected remedial contractor prior to site mobilization. Mobilization will be followed by soil removal and disposal and confirmation sampling. The work is expected to take 6 months as part of the construction excavation and foundation installation.

4.2.4 Work Hours

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

4.2.5 Site Security

A construction fence will be erected around the entire property as required by the NYC Department of Buildings. The fence will be maintained as required and secured at the end of each work day.

4.2.6 Traffic Control

The Volunteer's construction management personnel will direct the arrival or departure of construction vehicles, and provide flag services as needed to maintain safe travel exiting and entering the Site from Bedford Avenue. Traffic related to on-going remedial activity will require the staging of 10-wheel dump trucks on Stewart Avenue on a daily basis during soil excavation activity. The soil disposal transport route will be as follows:

- ENTERING SITE - from the Brooklyn Queens Expressway heading south; take the Exit 34 Meeker Avenue and turn left heading south on Morgan Avenue to Flushing Avenue. 10th Street. Turn left on Stewart to the Site entrance on the left.

- EXITING SITE – Turn left onto Stewart Avenue heading north to Johnson Avenue. Turn left on to Johnson Avenue heading west to Morgan Avenue. Turn right on to Morgan Avenue heading north to Meeker Avenue. Turn right on to Meeker Avenue heading east and continue to the on-ramp (bearing left) Brooklyn-Queens Expressway.

A map showing the truck routes is included as **Figure 10**.

4.2.7 Worker Training and Monitoring

An excavation contractor with appropriate experience, personnel and training (minimum 24 hr OSHA) is required to perform the removal of the petroleum impacted soil, historic fill and uncontaminated native soil. The excavation contractor's on-site personnel engaged in this work will all have a minimum of 24 hour Hazardous Waste Operations and Emergency Response Operations training.

All field personnel involved in remedial activities will participate in training, if required under 29 CFR 1910.120, including 24 and 40-hour hazardous waste operator training and annual 8-hour refresher training. The Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign a HASP acknowledgment.

All on-site personnel engaged in remedial or sampling activities must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.

- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

4.2.8 Agency Approvals

The Applicant has addressed all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by New York City Department of Planning. A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A complete list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in **Table 15**. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the Final Remediation Report.

4.2.9 NYSDEC BCP Signage

A project sign will be erected at the main entrance to the Site prior to the start of any remedial activities. The sign will indicate that the project is being performed under the New York State Brownfield Cleanup Program. The sign will meet the detailed specifications provided by the NYSDEC Project Manager and contained in **Attachment G**.

4.2.10 Pre-Construction Meeting with NYSDEC

A pre-construction meeting or teleconference call with the Project Manager, Remedial Engineer, Construction Manager, Owner's Representative and the NYSDEC will take place prior to the start of major construction activities.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in **Table 16**. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The total estimated cost of the Remedial Action is $ 1,187,671. An itemized and detailed summary of estimated costs for all remedial activity is attached as **Attachment H**. This will be revised based on actual costs and submitted as an Appendix to the Final Remediation Report.

4.3 SITE PREPARATION

4.3.1 Mobilization

Mobilization will include the delivery of construction equipment and materials to the site. All construction personnel will receive site orientation and training in accordance with the site specific HASP, CAMP and established policies and procedures to be followed during the implementation of the RAWP. The remediation contractor, construction manager and all associated subcontractors will each receive a copy of the RAWP and the site specific HASP and will be briefed on their contents.

4.3.2 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control. Haybales and/or silt fence will be placed by the remedial contractor at locations surrounding excavation areas and within the perimeter fencing as needed, to control stormwater runoff and surface water from exiting the excavation. These control measures will be installed prior to initiating the soil excavation.

4.3.3 Stabilized Construction Entrance(s)

Stabilized construction entrances will be installed at all points of vehicle ingress and egress to the Site. The stabilized entrances will be constructed of a 4 to 6-inch bed of crushed stone or crushed concrete which will be sloped back toward the interior of the Site. The stabilized entrances will be inspected on a daily basis during soil loading activities and reinforced as needed with additional stone/concrete material to prevent the accumulation of ruts, mud or soil.

4.3.4 Utility Marker and Easements Layout

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

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

4.3.5 Sheeting and Shoring

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

The exact means and methods for the support of excavation (SOE) have not been determined yet and will be forwarded to DEC upon receipt.

4.3.6 Equipment and Material Staging

All equipment and work materials will be staged on-Site in areas as designated by the General Contractor, and / or Construction Site Superintendant.

4.3.7 Decontamination Area

A temporary truck decontamination pad will be constructed to decontaminate trucks and other vehicles/equipment leaving the Site. The pad will be constructed by placing a 4 to 6-inch bed of stone aggregate such as crushed rock or RCA. The pad will be bermed at the sides and sloped back to the interior of the Site. The truck pad will be sized to accommodate the largest construction vehicle used and located in line with the stabilized construction entrance. The pad will be inspected on a daily basis during soil loading activities and reinforced as needed with additional stone/concrete material to prevent the accumulation of ruts, mud or soil.

4.3.8 Site Fencing

An 8-foot high construction fence is present around the portions of the Site which are not bordered by adjacent buildings (west) with entrance / exit gates located on Stewart Avenue. This fence will be properly secured at the end of the day and supplemented, as needed, by installing orange safety fencing around open excavations to ensure on-site worker safety.

4.3.9 Demobilization

Demobilization will consist of the restoration of material staging areas and the disposal of materials and/or general refuse in accordance with acceptable rules and regulations. Materials used in remedial activities will be removed and disposed properly. All equipment will be decontaminated prior to leaving the Site.

4.4 REPORTING

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

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day in which remedial activity takes place. Daily reports will include:

- An update of progress made during the reporting day;
- Quantities of oxidant material applied at specific injection locations of the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

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

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

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

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

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

4.4.4 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions including noise, odor, truck traffic etc., will be recorded in the Site field book and reported to the NYSDEC via email on the same day as the complaint is received.

4.4.5 Deviations from the Remedial Action Work Plan

Minor deviations from the RAWP will be identified in the daily update report and will be noted in the Final Engineering Report. When deviations are reported, a brief discussion will be provided which will state the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy.

Major changes to the scope of work must be discussed with the NYSDEC and the NYSDOH prior to implementation. If the changes are considered to be significant enough, an addendum to the RAWP Work Plan will be prepared and submitted to NYSDEC / NYSDOH for review.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

Excavation work includes the following; the removal and off-Site disposal of the top 15 feet of soil across the Site with additional excavation in three petroleum hotspot areas as needed to meet unrestricted and groundwater protection SCOs. . In addition all fill material with parameters above unrestricted SCOs will be removed from the Site. Soil excavation will be performed using conventional equipment such as track-mounted excavators, backhoes and loaders.

All excavation work will be performed in accordance with the Site-specific HASP and CAMP. If an underground storage tank (UST) is discovered during excavation the NYSDEC Project Manager will be immediately notified and the UST removed and closed in accordance with DER-10, NYSDEC PBS regulations and NYC Fire Department regulations. It is anticipated that the excavation of petroleum soils will be performed by an excavation contractor using appropriately trained personnel (24 hr HAZWOPER). Historic fill materials and native soils will also be performed by the excavation contractor for the construction project using personnel with 24 hr HAZWOPER training.

Historic fill materials soils will be excavated to a depth of approximately 5 feet (sitewide) or as needed to meet SCOs. Petroleum contaminated soil within the identified hotspots will be excavated to 15 and 25 feet respectively, or as otherwise needed to achieve SCOs. Excavation for the cellar level of the new building will continue sitewide to a depth of approximately 15 feet. Over excavated areas will be backfilled using clean native soil excavated from other areas of the Site, or imported material meeting SCOs. An excavation plan showing the excavation depths to achieve the Track 1 remedy is provided in **Figure 11**.

Dewatering will be required for excavation of contaminated areas and for foundation construction (See section 5.10)

5.1 CONTINGENCY

5.1.1 Waste Oil Tank / UST Removal Methods

The waste oil tank located in the south central area of the Site and any USTs encountered during excavation activities at the Site, will be removed in accordance with the procedures described under the NYSDEC Memorandum for the Permanent Abandonment of Petroleum Storage Tanks and Section 5.5 of Draft DER-10 as follows:

- Remove all product to its lowest draw-off point
- Drain and flush piping into the tank
- Vacuum out the tank bottom consisting of water product and sludge
- Dig down to the top of the tank and expose the upper half of the tank
- Remove the fill tube and disconnect the fill, gauge, product and vent lines and pumps. Cap and plug open ends of lines
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank
- Clean tank or remove to a storage yard for cleaning
- If the tank is to be moved it must be transported by licensed waste transported. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport
- After cleaning the tank must be made acceptable for disposal at a scrap yard cleaning the tank interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.)
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.)
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

The fill port and potential fuel oil UST that were observed by the DEC and EBC staff during the June 9, 2015 site visit will be removed in accordance to the procedures, above.

5.1.1 Supplemental Groundwater Treatment

The remedy includes full Site dewatering and excavation below the impacted soil zone. Extracted groundwater will be treated and discharged under permit to the NYC combined sewer system. Dewatering operations will continue post-excavation until the building foundation is installed and enough of the building super structure is complete to counter balance the hydrostatic pressure when dewatering operations cease. Dewatering is therefore expected to continue for a minimum of six months. Full removal of all impacted groundwater from the Site followed by continued pumping of multiple additional Site volumes is expected to fully remediate groundwater.

However, post-excavation groundwater sampling results will determine whether supplemental treatment of on-site groundwater is needed. If additional treatment of petroleum-related compounds is necessary, a plan to further address impacted groundwater will be submitted to DEC for approval and implemented.

5.2 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives for this Site are listed in **Table 1**. **Table 7** summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. Spider maps showing all soil samples that exceed the SCOs proposed for this Remedial Action are shown in **Figure 7**.

5.3 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT AND GROUNDWATER SAMPLING

Post excavation (endpoint) soil samples will be collected from across the Site to verify that remedial goals have been achieved. Endpoint soil samples will be collected from the Site as follows:

(1) Site-wide bottom of excavation endpoint soil samples will be collected following removal of all soil needed for construction of the buildings cellar level to verify that

remedial goals have been achieved (**Figure 12**). The Site-wide endpoint soil samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals.

(2) Sidewall endpoint soil samples will be collected from those petroleum hotspot areas in which the excavation extends beyond the site-wide excavation depth of 15 ft. Sidewall samples collected from the petroleum hotspot areas will be analyzed for VOCs and SVOCs. Endpoint bottom samples from the petroleum hotspot areas.

(3) Groundwater samples will be collected at three locations (Figure 12) to verify that a bulk reduction in groundwater contamination has occurred. Groundwater samples will be analyzed for VOCs.

5.3.1 End-Point Sampling Frequency

Endpoint sampling frequency will be in accordance with DER-10 section 5.4 which recommends the collection of one bottom sample per 900 sf of bottom area and one sidewall sample per 30 liner feet. Sidewall samples will not be collected where sheeting or shoring is present and will not be collected when the excavation extends to the Site boundaries. Sidewall samples only will be collected from the petroleum hotspot areas if the excavation extends beyond the site-wide excavation depth of 15 ft.

5.3.2 Methodology

Collected samples be placed in glass jars supplied by the analytical laboratory and stored in a cooler with ice to maintain a temperature of 4 degrees C. Samples will either be picked up at the Site by a laboratory dispatched courier at the end of the day or transported back to the EBC /AMC office where they will be picked up the following day by the laboratory courier. All samples will be analyzed by a NYSDOH ELAP certified environmental laboratory

All site-wide post-excavation (endpoint) soil samples will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA method 8270, pesticides/PCBs by EPA method 8081/8082 and TAL metals. Post-excavation soil samples from the petroleum hotspot areas will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA method 8270. Post-excavation groundwater samples will be analyzed for VOCs by EPA Method 8260B

5.3.3 Reporting of Results

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format.

5.3.4 QA/QC

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or cold-pak(s) to maintain a temperature of $4^{o}C$.

Dedicated disposable sampling materials will be used for soil samples, eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers.

Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory.

5.3.5 DUSR

The DUSR provides a thorough evaluation of analytical data without third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use. Verification and/or performance monitoring samples collected under this RAWP will be reviewed and evaluated in accordance with the Guidance for the Development of Data Usability Summary Reports as presented in Appendix 2B of DER-10. The completed DUSR for verification/performance samples collected during implementation of this RAWP will be included in the final Engineering Report.

5.3.6 Reporting of End-Point Data in FER

All endpoint data collected as part of this remedial action will be summarized and presented in the Final Engineering Report. The summary tables will include comparison of results to unrestricted SCOs to verify attainment of Track 1. Laboratory reports and the DUSR will be included as an appendix in the FER.

5.4 ESTIMATED MATERIAL REMOVAL QUANTITIES

It is expected that 2,012 cubic yards (3,018 tons) of petroleum impacted soil will be generated by excavating the petroleum areas as shown on **Figure 11** to depths of approximately 15 and 25 ft. Historic fill material was also documented throughout the Site to depths as great as 5 feet below grade. Therefore, an estimated 5,092 cubic yards (7,638 tons) of historic fill material will be generated by excavating the remainder of the Site to 5 feet. An additional 8,171 cubic yards (12,256 tons) of clean native soil will be excavated to 15 feet below grade from the Site for construction of the proposed building's cellar. A portion (1,777 cy) of the clean native soil will be reused, if found to be suitable, to backfill the petroleum area excavated 10 feet below the planned construction depth of 15 ft. The remainder of clean soil (6,394 cy), will be transported off-Site for disposal at a beneficial reuse facility or other approved destination.

5.5 SOIL/MATERIALS MANAGEMENT PLAN

Excavated soil will be secured and temporarily stored on-site until arrangements can be made for off-site disposal. As an alternative, pre-characterization samples may be collected to allow the soil to be loaded directly on to trucks for transport to the disposal facility. Soils excavated from the CVOC hotspot, will be classified as hazardous unless DEC makes a contained-in determination classifying it as non-hazardous. Based on the levels of TCE reported in soil it is anticipated that DEC will make the contained-in determination. The remainder of the soils including petroleum contaminated soil and historic fill soil are expected to be classified as non-hazardous.

The final determination on classification will be based on the results of waste characterization analysis and the NYSDEC.

Soil excavation will be performed in accordance with the procedures described under Section 5.5 of DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined by the Remedial Engineer or his designee, and will depend on the horizontal and vertical extent of contaminated soils as identified through physical examination (PID response, odor, staining, etc.). Expansion of the excavation beyond the planned hotspot area is anticipated and can easily be accommodated.

The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the HASP;

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated;

- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile or dispose of separate from the impacted soil;

- If USTs are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued removal of overburden to access the top of the structure or continued trenching around the perimeter to minimize its disturbance;

- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc), an attempt will be made to remove it to the extent not limited by the site boundaries. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separate dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present;

- Excavated soils which are temporarily stockpiled on-site will be covered with 6-mil polyethylene sheeting while disposal options are determined. Sheeting will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property;

- Once the Remedial Engineer is satisfied with the removal effort, verification or confirmatory samples will be collected from the excavation as described in **Section 6.2** of this document.

5.5.1 Excavation of Petroleum / CVOC Contaminated Soil

Petroleum impacted soil is known to be present in surficial soils across much of the Site and to deeper levels in three "hotspot" areas. CVOC impacted soil was also noted in one of the borings at the 0-2 ft interval. The vertical extent of petroleum impacted soil in two of the hotspot areas is approximately 15 feet below grade while it extends to approximately 25 feet in the third area.

However, soil screening will be performed to determine the limits of the excavation with verification sampling performed to confirm removal of all petroleum impacted soil. The excavation of the petroleum / CVOC hot-spot areas will be performed by a qualified contractor and trained (40 hr HAZWOPER) personnel.

5.5.2 Excavation of Historic Fill Soil

Historic fill material is present beneath the site to depths which vary from 1 to 5 feet below grade. The historic fill material contains SVOCs, metals and pesticides above unrestricted and / or restricted use SCOs. Historic fill material will be segregated from non-contaminated native soils and disposed of off-Site at a permitted disposal facility.

Historic fill soil with lead levels above 1,500 mg/kg will require further segregation for disposal at alternate facilities. Excavated historic fill materials will be secured and temporarily stored on-Site until arrangements can be made for off-Site disposal. It is anticipated that the historic fill material will be classified as non-hazardous material. If this material is classified as non-hazardous, then the excavation of historic fill material will be performed by the excavation contractor for the construction project using trained personnel (24 hr HAZWOPER). If this material is classified as hazardous, then 40 hr HAZWOPER trained personnel will be needed to perform the excavation of this material.

5.5.3 Excavation of Native Soils

Native soils are present directly below the fill materials and will require excavation for basement areas and foundation components during construction of the new building. Since excavation of the cellar level will begin following removal of petroleum contaminated soil and historic fill, it is expected that native soils will not be contaminated. However, if evidence of contamination is discovered during the excavation of cellar level, the contamination will be removed to the extent possible and segregated from clean native soils for proper disposal. Clean native soils will be stockpiled on-site and characterized for reuse on-site in areas over excavated to remove historic fill. Any excess soil will be disposed of off-site as a beneficial re-use material or reused on-site if found to meet SCOs through testing and if acceptable to the structural engineer.

It is anticipated that the excavation of native soil materials will be performed by the excavation contractor for the construction project.

5.5.4 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by an environmental professional during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

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

5.5.5 Stockpile Methods

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

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Soils which exhibit strong odors will be completely sealed with heavy tarps or vapor suppressant foam.

5.5.6 Materials Excavation and Load Out

The Remedial Engineer or an EP under his/her supervision will oversee all invasive work and the excavation and load-out of all excavated material. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

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

Where effective, the equipment will be "dry" decontaminated using a broom and/or brushes. If significant amounts of soil or other contaminants remain after the dry decontamination, the equipment will also be pressure washed before leaving the Site. The EP will be responsible for ensuring that all outbound trucks are dry-brushed or washed on the truck wash/equipment pad before leaving the Site until the remedial construction is complete. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking. The EP will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

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

Development-related grading cuts and fills will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill material and contaminated soil on-Site is prohibited. All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be located and shown on maps to be reported in the Final Engineering Report.

5.5.7 Materials Transport Off-Site

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

- ENTERING SITE - from the Brooklyn Queens Expressway heading south; take the Exit 34 Meeker Avenue and turn left heading south on Morgan Avenue to Flushing Avenue. 10th Street. Turn left on Stewart to the Site entrance on the left.

- EXITING SITE – Turn left onto Stewart Avenue heading north to Johnson Avenue. Turn left on to Johnson Avenue heading west to Morgan Avenue. Turn right on to Morgan Avenue heading north to Meeker Avenue. Turn right on to Meeker Avenue heading east and continue to the on-ramp (bearing left) Brooklyn-Queens Expressway.

These routes are shown in **Figure 10**.

These are the most appropriate routes to and from the Site and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off- Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in residential neighborhoods around the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Material transported by trucks exiting the Site will be secured with covers. Wet loads are not anticipated since the entire site will be dewatered prior to excavating soils. However, if wet soils are excavated they will be stockpiled within the excavation to dry or blended with dry soils. No loads of material capable of generating free liquid will be allowed to leave the Site. All trucks will be inspected, dry-brushed and / or washed, as needed, before leaving the site.

5.5.8 Materials Disposal Off-Site

Multiple disposal facility designations may be employed for the materials removed from the Site. Once final arrangements have been made, the disposal facility acceptance letters will be provided to the NYSDEC Project Manager before the start of excavation activities. It is anticipated that the soil will be disposed of at up to 3 different facilities, based on the following classification:

- Non Hazardous - Contaminated (petroleum) Low Lead < 1,500 mg/kg
- Non Hazardous - Contaminated (historic fill) Low Lead < 1,500 mg/kg
- Uncontaminated Native Soil - meets NJDSC Criteria for beneficial Reuse

The total quantity of material expected to be disposed off-Site is 15,275 cubic yards, including 2,012 cubic yards of petroleum impacted soil, 5,092 cubic yards of historic fill material and 8,171 cubic yards of clean native soil.

Hazardous Soil Disposal and Transport

It is not expected that any soil will be classified as hazardous, however if any soil is classified as hazardous it will be shipped under a hazardous waste manifest system. All hazardous waste transported and disposed of must have a USEPA ID Number and waste code and must be distributed in accordance with the regulatory requirements.

The multi-part manifest will be filled out for each load of soil shipped off of the Site. At a minimum, the following information will be recorded on each manifest:

1) Generator's Name, Address, and Phone Number
2) Destination Facility Name, Address and Phone Number
3) EPA ID Number
4) Waste classification code
5) Transporter Name, Address, Phone Number, License Plate Number, Driver Name, and SW Haulers Permit #

6) Signatures – Generator or an authorized agent for the generator shall print, sign, and date each non-hazardous material manifest after each truck is loaded. The transporter shall then sign and date noting time material was picked up at the site. Both the transporter and a representative of the disposal facility will sign the non-hazardous material manifest when the material has been delivered to disposal facility.

Non-Hazardous Soil Disposal and Transport

Non-hazardous historic fill material and petroleum contaminated soil classified as non-hazardous, will be handled, at a minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Historical fill material and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Materials Management (DMM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported. Soil classified as non-hazardous fill will be transported under a non-hazardous waste manifest obtained from the selected disposal facility. The multi-part manifest will be filled out for each load of soil shipped off of the Site. At a minimum, the following information will be recorded on each manifest:

1) Generator's Name, Address, and Phone Number
2) Destination Facility Name, Address and Phone Number
3) Transporter Name, Address, Phone Number, License Plate Number, Driver Name, and SW Haulers Permit #

4 Signatures – Generator or an authorized agent for the generator shall print, sign, and date each non-hazardous material manifest after each truck is loaded. The transporter shall then sign and date noting time material was picked up at the site. Both the transporter and a representative of the disposal facility will sign the non-hazardous material manifest when the material has been delivered to disposal facility.

A copy of the manifest will be retained by AMC on-Site personnel for each shipment. Final signed manifests will be forwarded by the disposal facility to the generator. Copies of the final manifests will be presented in the FER.

Clean Soil Disposal

Clean native soil removed from the Site for development purposes (i.e. basement levels) will be handled as unregulated or beneficial use disposal. This soil will undergo a testing program to confirm that it meets Unrestricted Use SCOs or Residential / Groundwater Protection SCOs prior to unregulated disposal or meets Unrestricted Use SCOs prior to reuse on-Site. Confirmation testing of clean soils will be in accordance with DER-10 Section 5.4(e)(10) as follows:

Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	Each composite sample for analysis is created from 3-5 discrete samples from representative locations in the fill.
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Uncontaminated native soil confirmed by the above testing program and removed from the site, will be disposed of as C&D material or sent to a beneficial re-use facility. Note that clean soils disposed of at an out-of-state facility, will be subject to the testing requirements of that facility in lieu of testing program outlined above The final destination of soils whether classified as contaminated or uncontaminated must be approved by the Remedial Engineer.

C&D and Scrap Metal Disposal

Concrete demolition material generated on the Site from building slabs, parking areas and other structures will be segregated, sized and shipped to a concrete recycling facility. Concrete crushing or processing on-Site is prohibited. Asphalt removed from the parking areas will be sent to a separate recycling facility.

Additionally, it is common to encounter scrap metals and large boulders (greater than one foot in diameter) during excavation which may not be accepted by either the licensed disposal facility or the C&D facility. These materials will be segregated and subsequently recycled at local facilities. Uncontaminated metal objects will be taken to a local scrap metal facility.

Bricks and other C&D material are also not accepted by most soil disposal facilities if present at greater then 5% by volume. This material, if encountered, will be sent to a C&D landfill or other C&D processing facility. C&D material of this type is most often encountered on sites in which former basement structures have been filled in with material from demolishing a former building. There was no evidence of former basement areas identified during previous investigations performed at the Site.

Scale Tickets

All trucks to be utilized for transport of hazardous or non-hazardous contaminated soil shall be weighed before and after unloading at the disposal facility. Disposal facilities must provide truck scales capable of generating load tickets measured in tons. The tonnage transported and disposed will be determined by the disposal facility and reported on a certified scale ticket which will be attached to each returned manifest. Weights will be reported on the certified scale ticket as Tare and Gross weights.

C&D Transport Tickets / Bills of Lading

Bill of Lading system or equivalent will be used for the disposal of C&D and related materials. Documentation for materials disposed of at recycling facilities (such as metal, concrete, asphalt) and as non-regulated C&D will include transport tickets for each load stating the origin of the material, the destination of the material and the quantity transported. This information will be reported in the Final Engineering Report.

Disposal Facility Documentation

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Applicant to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

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

5.5.9 Materials Reuse On-Site

Re-use of on-Site clean native soil will only be allowed if the material is found to meet Unrestricted Use SCOs (for Track 1) or Restricted Residential Use SCOs (for Track 2) through the verification testing program detailed above. It is estimated that 1,777 cy of clean native soil will be reused on-site to backfill the over excavated petroleum hotspot area.

The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site.

Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos. Concrete crushing or processing on-Site is prohibited. Contaminated on-Site material, including historic fill material and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

5.5.10 Fluids Management

As the depth to groundwater at the site is approximately 1 foot above the planned excavation depth, dewatering operations will be employed during construction. Dewatering fluids will be handled, transported and disposed of in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by the NYCDEP. The pumping and treatment system design will be detailed in the NYCDEP discharge permit submittal. This submittal as well as the approved permit will be provided to the DEC prior to initiating dewatering operations.

Based on conditions observed during dewatering operations on projects in the immediate area of the Site, it is expected that flow rates will not approach that required for a Long Island well permit. However, a permit package will be submitted to the NYSDEC Division of Water to obtain a LI well permit equivalency under the BCP, as a contingency should conditions vary considerably from expected.

Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. A supplemental dewatering work plan will be submitted to the NYSDEC, which will include elements such as the quantity of dewatering expected, equipment specifications, pumping, storage, and discharge locations, and the dewatering treatment required. The supplemental dewatering work plan will be approved by the NYSDEC prior to the start of work.

5.5.11 Backfill from Off-Site Sources

Off-site fill material may be needed to stabilize the entrance - exit areas of the Site, for temporary driveways for loading trucks and as an underlayment to structural components of the new buildings including slabs and footings. Recycled Concrete Aggregate (RCA) derived from recognizable and uncontaminated concrete and supplied by facilities permitted by, and in full compliance with Part 360-16 and DSNY regulations, is an acceptable form of backfill material. The Remedial Engineer is responsible for ensuring that the facility is compliant with the registration and permitting requirements of 6 NYCRR Part 360 and DSNY regulations at the time the RCA is acquired. RCA imported from compliant facilities does not require additional testing unless required by NYS DEC and DSNY under its terms of operations for the facility. Documentation of part 360-16 and DSNY compliance must be provided to the Remedial Engineer before the RCA is transported to the Site.

Fill material may also consist of virgin mined sand, gravel or stone products. Gravel or stone material from a virgin mined source may be imported to the Site without testing provided that that the material meets the specifications of the geotechnical engineer, Remedial Engineer, and Redevelopment Construction Documents and that the source of the material is approved by the Remediation Engineer and the NYSDEC Project Manager. This material must contain less than 10% fines and not be blended with soil or other material. As per DER-10, if soil from sourced from a virgin mine or pit is imported, at least one round of characterization sampling for the first 100 cubic yards is required in accordance with Table 4 of CP-51/Table 5.4(e)10 of DER-10.
The source approval process will require a review of the following information:

- The origin of the material;
- The address of the facility which mines/processes the material;
- A letter from the facility stating that the material to be delivered to the site is a virgin mined material and that it has not been co-mingled with other materials during processing or stockpiling.

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site. Material from industrial sites, spill sites or other potentially contaminated sites will not be imported to the Site.

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

Under no circumstances will fill materials be imported to the site without prior approval from the NYSDEC Project Manager. Any soil imported to the site needs to be tested in accordance with Table 4 of NYSDEC CP-51 Soil Cleanup Guidance Policy. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

5.5.12 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

5.5.13 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs). These analyses will not be limited to STARS parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

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

5.5.14 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities at construction sites.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are odors associated with groundwater purging and sampling. Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report. The complete CAMP developed for this site is included in **Attachment D**.

5.5.15 Odor, Dust and Nuisance Control Plan

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

5.5.15.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site and on-Site. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Applicant's Remediation Engineer, who is responsible for certifying the Final Engineering Report.

All necessary means will be employed to prevent on and off-Site nuisances. At a minimum, procedures will include: (a) use of closed settling tanks and carbon treatment of exhaust air from the pumping / dewatering system (b) limiting the area of open excavations; (c) shrouding open excavations with tarps and other covers; and (d) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (e) direct load-out of soils to trucks for off-Site disposal; (f) use of chemical odorants in spray or misting systems, (g) use of perimeter misting systems; and, (h) use of staff to monitor odors in surrounding neighborhoods.

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

5.5.15.2 Dust Control Plan

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

- Dust suppression will be achieved though spraying water directly onto off-road areas including excavations and stockpiles.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water application.

5.5.15.3 Nuisance Control Plan

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work. A plan will be developed and utilized by the contractor for all remedial work and conforms, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

If a Track 1 cleanup is achieved, all on-Site soil remaining after completion of remediation will meet Track 1 Unrestricted Use SCOs, a bulk reduction of groundwater contamination to asymptotic levels will have occurred, and an Institutional Control (IC) will not be required to protect human health and the environment.

However, if a Track 1 cleanup is not achieved, the Track 2 alternative will be implemented as a contingency and an IC will be required. The Track 2 alternative will allow restricted residential use of the property. Long-term management of the IC will be executed under an environmental easement recorded with the NYC Department of Finance, Office of the City Register.

If Track 1 is not achieved, long-term management of ICs and of residual contamination will be executed under a site-specific Site Management Plan (SMP) that will be developed and submitted to DEC, if needed. The FER will report residual contamination on the Site in tabular and map form.

7.0 ENGINEERING CONTROLS

The intent of this project is to achieve Track 1 unrestricted use remedy. If a Track 1 Cleanup cannot be achieved, then a Track 2 restricted residential cleanup is proposed. If neither a Track 1 nor Track 2 Cleanup can be achieved, then a Track 4 Cleanup will be achieved.

If a Track 4 remedy is achieved, the Site will be restricted to restricted-residential, commercial and industrial uses and a site cover may be required to allow for the intended use of the Site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or two feet of soil meeting the SCOs as set forth in 6 NYCRR Part 375-6.7(d) and Table 375-6.8(b). The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

8.0 INSTITUTIONAL CONTROLS

Since the intent of this project is to achieve Track 1 cleanup criteria, institutional controls are not expected to be part of the final remedy for the Site.

If Track 1 cleanup is not achieved, Institutional Controls (ICs) will be incorporated into the remedy to render the overall Site remedy protective of public health and the environmental. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan (SMP).

If required, a Site-Specific Environmental Easement will be recorded with the City of New York to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on the Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs.

The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

8.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions than an Environmental Easement is required. If an Environmental Easement is needed following completion of the remedy an Environmental Easement approved by NYSDEC will be filed and recorded with the City of New York. The Environmental Easement (if needed) will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the City of New York before the Certificate of Completion can be issued by NYSDEC. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan (SMP), which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls which will be needed to support Engineering Controls are:

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;

- Compliance with the Environmental Easement by the Grantee and the Grantee's successor's is required;

- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the Controls;

- NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable;

8.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial

Action. The Site Management Plan is submitted as a separate and independent document from the FER. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated [month, year], and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

No exclusions for handling of residual contaminated soils will be provided in the Site Management Plan (SMP). All handling of residual contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

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

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

The Final Engineering Report will include written and photographic documentation of all remedial work performed under this remedy. The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

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

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

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

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

9.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I _________certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Work Plan (or Remedial Design or Plans and Specifications) was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Work Plan (or Remedial Design or Plans and Specifications).

Additionally, I certify that:

- *All documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department;*
- *All data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department;*
- *All information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as Owner's Designated Site Representative: [and I have been authorized and designated by all site owners to sign this certification] for this site.*

If the Remedial Action Work Plan (or Remedial Design or Plans and Specifications) identifies time frames to be achieved by the remedial program, the certification must include:

The data submitted to DER demonstrates that the remediation requirements set forth in the Remedial Work Plan (or Remedial Design or Plans and Specifications) and all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in the work plan (or Remedial Design or Plans and Specifications).

If the remedial program requires ICs or ECs, the certification will include:

All use restrictions, institutional controls, engineering controls and/or any operation and maintenance requirements applicable to the site are contained in an environmental easement created and recorded pursuant to ECL 71-3605 and that any affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

If the remedial program requires applicable SMP, the certification will include:

A Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at the site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by DER.

If the remedial program requires financial assurance, the certification will include:

Any financial assurance mechanisms required by DEC pursuant to Environmental Conservation Law have been executed.

10.0 SCHEDULE

The remedial action will begin with mobilization of equipment and material to the Site which will begin approximately 3 weeks following RAWP approval and within 10 days of the distribution of the Construction Fact Sheet. Mobilization will be followed by the installation of shoring structures, installation and operation of dewatering equipment, removal and disposal of the USTs (if present), excavation and disposal of petroleum impacted soil, historic fill materials and native soil and by confirmation soil and groundwater sampling. Excavation work may proceed in several stages as needed to accommodate pile or sheet driving equipment, underpinning and other components related to the support of excavation (SOE). The work is expected to take approximately 12 months as part of the construction excavation and foundation installation. The schedule of tasks completed under this RAWP is as follows:

Conduct pre-construction meeting with NYSDEC	Within 3 weeks of RAWP approval
Mobilize equipment to the site and construct truck pad and other designated areas	Within 3 weeks following the pre-construction meeting and issuance of Pre-Construction Fact Sheet
Mobilize shoring contractor and equipment to the Site	Within 3 weeks following the pre-construction meeting
Mobilize excavation contractor and equipment to the Site	Within 3 weeks following the installation of shoring or as shoring proceeds
Begin excavation of USTs (if present)	Upon discovery during initial excavation cut (top six feet of soil).
Mobilize dewatering contractor and equipment to the Site	Within 3 weeks following the installation of shoring or as shoring proceeds
Complete excavation and disposal of historic fill material and clean native soil.	Within 12 months of mobilization
Perform endpoint verification of entire site	Performed in sequence as final depth of each excavated area is complete.
Submit SMP (as a contingency) if Track 1 Cleanup is not achieved	By August 15th of the year in which the COC is sought or as required by DEC.
Submit FER	By September 15th of the year in which the COC is sought or as required by DEC.

TABLES

TABLE 1
SOIL CLEANUP OBJECTIVES
SOIL IMPORT CRITERIA

Contaminant	CAS Number	Unrestricted Use
Metals		
Arsenic	7440-38-2	13 [c]
Barium	7440-39-3	350 [c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 [c]
Chromium, hexavalent [e]	18540-29-9	1 [b]
Chromium, trivalent [e]	16065-83-1	30 [c]
Copper	7440-50-8	50
Total Cyanide [e, f]		27
Lead	7439-92-1	63 [c]
Manganese	7439-96-5	1600 [c]
Total Mercury		0.18 [c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9 [c]
Silver	7440-22-4	2
Zinc	7440-66-6	109 [c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex) [f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 [b]
4,4'-DDT	50-29-3	0.0033 [b]
4,4'-DDD	72-54-8	0.0033 [b]
Aldrin	309-00-2	0.005 [c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
delta-BHC [g]	319-86-8	0.04
Dibenzofuran [f]	132-64-9	7
Dieldrin	60-57-1	0.005 [c]
Endosulfan I [d, f]	959-98-8	2.4
Endosulfan II [d, f]	33213-65-9	2.4
Endosulfan sulfate [d, f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1 [c]
Benzo(a)pyrene	50-32-8	1 [c]
Benzo(b)fluoranthene [f]	205-99-2	1 [c]
Benzo(g,h,i)perylene [f]	191-24-2	100
Benzo(k)fluoranthene [f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1 [c]
Dibenz(a,h)anthracene [f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8 [b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33 [b]
Pyrene [f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene [f]	75-35-4	0.33
1,2-Dichlorobenzene [f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 [c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene [f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene [f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33 [b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
n - Propylbenzene [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene [f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene [f]	95-63-6	3.6
1,3,5-Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

TABLE 2
SUMMARY OF RI SAMPLING
Soil, Groundwater, and Soil Gas Samples

Matrix	Location	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Subsurface soil (0 to 5 feet bgs)	from 6 of the borings throughout the site.	6	To assess quality of historic fill across the Site.	VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010. .
Subsurface soil	from 16 borings throughout the site.	20	To evaluate the extent of soil impact and delineate petroleum source areas	VOCs EPA Method 8260B, SVOCs EPA Method 8270, TAL metals EPA 6010.
Subsurface soil (5-15 feet below grade)	from 10 of the borings throughout the site.	10	To assess quality of native soil at the site with respect to Unrestricted SCOs at the Site.	VOCs EPA Method 8260B, SVOCs EPA Method 8270, EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010.
Total (Soils)		36		
Groundwater (water table)	From 12 monitoring wells across the Site.	12	To assess groundwater quality at the Site.	VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010 dissolved and total.
Total (Groundwater)		12		
Soil Gas (14 ft below existing grade)	9 soil gas implants installed across the Site.	9	Evaluate soil gas across the Site.	VOCs EPA Method TO15
Total (Soil Gas)		9		
MS/MSD	Matrix spike and Matrix spike duplicates at the rate 5%	3	To meet requirements of QA / QC program	4 soil and 2 groundwater MS/MSD for VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals. Soil for VOCs EPA Method 8260B, SVOCs EPA Method 8270 and TAL metals EPA 6010.
Trip Blanks	One laboratory prepared trip blank to accompany samples each time they are delivered to the laboratory.	3	To meet requirements of QA / QC program	VOCs EPA Method 8260B
Total (QA / QC Samples)		6		

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B1								15B2								15B3				15B4											
			(12-14') 11/14/2016 µg/Kg				(18-20') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(22.5-25') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(15-17') 11/14/2016 µg/Kg				(18-20') 11/14/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 360	360	U	71	< 15	15	U	0.76	< 1700	1,700	U	83	< 18	18	U	0.89	< 22	22	U	1.1	< 4.4	4.4	U	0.88	< 13	13	U	0.67	< 19	19	U	0.93
1,1,1-Trichloroethane	680	100,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,1,2,2-Tetrachloroethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,1,2-Trichloroethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,1-Dichloroethane	270	26,000	< 270	270	U	71	< 3.8	3.8	U	0.76	< 270	270	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,1-Dichloroethene	330	100,000	< 330	330	U	36	< 3.8	3.8	U	0.38	< 330	330	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,1-Dichloropropene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,2,3-Trichlorobenzene			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,2,3-Trichloropropane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,2,4-Trichlorobenzene			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,2,4-Trimethylbenzene	3,600	52,000	**65,000**	3,600	D	1400	**1.5**	3.8	J	0.38	**260**	410	J	41	**480**	330	-	33	**1.5**	5.4	J	0.54	**1.6**	4.4	J	0.44	**9.6**	3.4	-	0.34	**2.9**	4.6	J	0.46
1,2-Dibromo-3-chloropropane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,2-Dibromomethane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,2-Dichlorobenzene	1,100	100,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,2-Dichloroethane	20	3,100	< 36	36	U	36	< 3.8	3.8	U	0.38	< 41	41	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,2-Dichloropropane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,3,5-Trimethylbenzene	8,400	52,000	**570**	360	-	36	< 3.8	3.8	U	0.38	< 410	410	U	41	**2,300**	330	-	33	**0.67**	5.4	J	0.54	**0.66**	4.4	J	0.44	**4.3**	3.4	-	0.34	**1.3**	4.6	J	0.46
1,3-Dichlorobenzene	2,400	4,900	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,3-Dichloropropane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
1,4-Dichlorobenzene	1,800	13,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
2,2-Dichloropropane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
2-Chlorotoluene			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
2-Hexanone (Methyl Butyl Ketone)			< 1800	1,800	U	360	< 19	19	U	3.8	< 2100	2,100	U	410	< 22	22	U	4.4	< 27	27	U	5.4	< 22	22	U	4.4	< 17	17	U	3.4	< 23	23	U	4.6
2-Isopropyltoluene			**440**	360	-	36	< 3.8	3.8	U	0.38	**150**	410	J	41	**14**	4.4	-	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
4-Chlorotoluene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
4-Methyl-2-Pentanone			< 1800	1,800	U	360	< 19	19	U	3.8	< 2100	2,100	U	410	< 22	22	U	4.4	< 27	27	U	5.4	< 22	22	U	4.4	< 17	17	U	3.4	< 23	23	U	4.6
Acetone	50	100,000	< 360	360	U	360	< 19	19	U	3.8	< 410	410	U	410	< 22	22	U	4.4	< 27	27	U	5.4	< 22	22	U	4.4	< 17	17	U	3.4	< 23	23	U	4.6
Acrolein			< 1400	1,400	U	180	< 15	15	U	1.9	< 1700	1,700	U	210	< 18	18	U	2.2	< 22	22	U	2.7	< 18	18	U	2.2	< 13	13	U	1.7	< 19	19	U	2.3
Acrylonitrile			< 710	710	U	71	< 15	15	U	0.38	< 1700	1,700	U	41	< 18	18	U	0.44	< 22	22	U	0.54	< 8.8	8.8	U	0.88	< 13	13	U	0.34	< 19	19	U	0.46
Benzene	60	4,800	**90**	60	-	36	**0.84**	3.8	J	0.38	< 60	60	U	41	< 4.4	4.4	U	0.44	**1**	5.4	J	0.54	**1.5**	4.4	J	0.44	**100**	60	-	41	**0.62**	4.6	J	0.46
Bromobenzene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Bromochloromethane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Bromodichloromethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Bromoform			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Bromomethane			< 360	360	U	140	< 3.8	3.8	U	1.5	< 410	410	U	170	< 4.4	4.4	U	1.8	< 5.4	5.4	U	2.2	< 4.4	4.4	U	1.8	< 3.4	3.4	U	1.3	< 4.6	4.6	U	1.9
Carbon Disulfide			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	**2.2**	4.4	J	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Carbon tetrachloride	760	2,400	< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Chlorobenzene	1,100	100,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Chloroethane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Chloroform	370	49,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 370	370	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Chloromethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
cis-1,2-Dichloroethene	250	100,000	< 250	250	U	36	< 3.8	3.8	U	0.38	< 250	250	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
cis-1,3-Dichloropropene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Dibromochloromethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Dibromomethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Dichlorodifluoromethane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Ethylbenzene	1,000	41,000	**14,000**	1,400	D	1400	**39**	3.8	-	0.38	**420**	410	-	41	**500**	330	-	33	**100**	420	J	42	**5.3**	4.4	-	0.44	**12**	3.4	-	0.34	**1.3**	4.6	J	0.46
Hexachlorobutadiene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Isopropylbenzene			**6,300**	360	-	36	**3.3**	3.8	J	0.38	**600**	410	-	41	**500**	330	-	33	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**3.6**	3.4	-	0.34	< 4.6	4.6	U	0.46
m&p-Xylenes	260	100,000	**2,100**	360	-	71	**2.2**	3.8	J	0.76	< 410	410	U	83	**500**	330	-	65	**8.2**	5.4	-	1.1	**11**	4.4	-	0.88	**57**	3.4	-	0.67	**3**	4.6	J	0.93
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 360	360	U	360	< 23	23	U	3.8	< 410	410	U	410	< 27	27	U	4.4	< 32	32	U	5.4	< 26	26	U	4.4	< 20	20	U	3.4	< 28	28	U	4.6
Methyl t-butyl ether (MTBE)	930	100,000	< 710	710	U	71	< 7.6	7.6	U	0.76	< 830	830	U	83	< 8.9	8.9	U	0.89	< 11	11	U	1.1	< 8.8	8.8	U	0.88	< 6.7	6.7	U	0.67	< 9.3	9.3	U	0.93
Methylene chloride	50	100,000	< 360	360	U	360	< 3.8	3.8	U	3.8	< 410	410	U	410	< 4.4	4.4	U	4.4	< 5.4	5.4	U	5.4	< 4.4	4.4	U	4.4	< 3.4	3.4	U	3.4	< 4.6	4.6	U	4.6
Naphthalene	12,000	100,000	**2,200**	360	-	71	< 3.8	3.8	U	0.76	**490**	410	-	83	**390**	330	-	65	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	**30**	3.4	-	0.67	< 4.6	4.6	U	0.93
n-Butylbenzene	12,000	100,000	**7,400**	360	-	36	**0.64**	3.8	J	0.38	**410**	410	J	41	**1,200**	330	-	33	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**1.4**	3.4	J	0.34	< 4.6	4.6	U	0.46
n-Propylbenzene	3,900	100,000	**16,000**	3,900	D	2800	**5**	3.8	-	0.76	**2,800**	410	-	83	**2,000**	330	-	65	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	**3.1**	3.4	J	0.67	< 4.6	4.6	U	0.93
o-Xylene	260	100,000	**1,000**	360	-	71	< 3.8	3.8	U	0.76	< 410	410	U	83	**29**	4.4	-	0.89	**1.5**	5.4	J	1.1	**2**	4.4	J	0.88	**17**	3.4	-	0.67	< 4.6	4.6	U	0.93
p-Isopropyltoluene			**2,800**	360	-	36	< 3.8	3.8	U	0.38	**340**	410	J	41	**71**	4.4	-	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**0.47**	3.4	J	0.34	< 4.6	4.6	U	0.46
sec-Butylbenzene	11,000	100,000	**4,800**	360	-	36	**0.85**	3.8	J	0.38	**2,000**	410	-	41	**350**	330	-	33	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**1**	3.4	J	0.34	< 4.6	4.6	U	0.46
Styrene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**0.38**	3.4	J	0.34	< 4.6	4.6	U	0.46
Tert-butyl alcohol			< 7100	7,100	U	1400	< 76	76	U	15	< 8300	8,300	U	1700	< 89	89	U	18	< 110	110	U	22	< 88	88	U	18	< 67	67	U	13	< 93	93	U	19
tert-Butylbenzene	5,900	100,000	**270**	360	J	36	< 3.8	3.8	U	0.38	< 410	410	U	41	**8.9**	4.4	-	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Tetrachloroethene	1,300	19,000	< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Tetrahydrofuran (THF)			< 710	710	U	180	**4**	7.6	J	1.9	< 830	830	U	210	< 8.9	8.9	U	2.2	< 11	11	U	2.7	< 8.8	8.8	U	2.2	< 6.7	6.7	U	1.7	< 9.3	9.3	U	2.3
Toluene	700	100,000	**96**	360	J	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	**44**	420	J	42	**3.3**	4.4	J	0.44	**21**	3.4	-	0.34	< 4.6	4.6	U	0.46
trans-1,2-Dichloroethene	190	100,000	< 190	190	U	36	< 3.8	3.8	U	0.38	< 190	190	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	**0.57**	3.4	J	0.34	< 4.6	4.6	U	0.46
trans-1,3-Dichloropropene			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
trabs-1,4-dichloro-2-butene			< 710	710	U	180	< 7.6	7.6	U	1.9	< 830	830	U	210	< 8.9	8.9	U	2.2	< 11	11	U	2.7	< 8.8	8.8	U	2.2	< 6.7	6.7	U	1.7	< 9.3	9.3	U	2.3
Trichloroethene	470	21,000	< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Trichlorofluoromethane			< 360	360	U	71	< 3.8	3.8	U	0.76	< 410	410	U	83	< 4.4	4.4	U	0.89	< 5.4	5.4	U	1.1	< 4.4	4.4	U	0.88	< 3.4	3.4	U	0.67	< 4.6	4.6	U	0.93
Trichlorotrifluoroethane			< 360	360	U	36	< 3.8	3.8	U	0.38	< 410	410	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
Vinyl Chloride	20	900	< 36	36	U	36	< 3.8	3.8	U	0.38	< 41	41	U	41	< 4.4	4.4	U	0.44	< 5.4	5.4	U	0.54	< 4.4	4.4	U	0.44	< 3.4	3.4	U	0.34	< 4.6	4.6	U	0.46
1,4- dioxane	100	13,000	< 2800	2,800	U	2800	< 57	57	U	30	< 3300	3,300	U	3300	< 66	66	U	35	< 81	81	U	43	< 66	66	U	35	< 50	50	U	27	< 70	70	U	37
Total BTEX Concentration			17,286				42.04				420				1029				154.7				23.1				207				4.92			
Total VOCs Concentration			123,066				57.33				7470				8,345.1				156.87				25.36				261.42				9.12			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B5												15B6							
			(0-2') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(15-17') 11/10/2016 µg/Kg				(5-7') 11/11/2016 µg/Kg				(12-14') 11/11/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 1200	1,200	U	62	< 18	18	U	0.90
1,1,1-Trichloroethane	680	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,1,2,2-Tetrachloroethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,1,2-Trichloroethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,1-Dichloroethane	270	26,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 270	270	U	62	< 4.5	4.5	U	0.90
1,1-Dichloroethene	330	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,1-Dichloropropene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,2,3-Trichlorobenzene			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,2,3-Trichloropropane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,2,4-Trichlorobenzene			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,2,4-Trimethylbenzene	3,600	52,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**56,000**	3,200	D	320	**75**	4.5	-	0.45
1,2-Dibromo-3-chloropropane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,2-Dibromomethane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,2-Dichlorobenzene	1,100	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,2-Dichloroethane	20	3,100	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 31	31	U	31	< 4.5	4.5	U	0.45
1,2-Dichloropropane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,3,5-Trimethylbenzene	8,400	52,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**15,000**	3,200	D	320	**19**	4.5	-	0.45
1,3-Dichlorobenzene	2,400	4,900	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
1,3-Dichloropropane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
1,4-Dichlorobenzene	1,800	13,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
2,2-Dichloropropane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
2-Chlorotoluene			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
2-Hexanone (Methyl Butyl Ketone)			< 21	21	U	4.3	< 16	16	U	3.3	< 23	23	U	4.6	< 1600	1,600	U	310	< 23	23	U	4.5
2-Isopropyltoluene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**110**	310	J	31	< 4.5	4.5	U	0.45
4-Chlorotoluene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
4-Methyl-2-Pentanone			< 21	21	U	4.3	**9.7**	16	J	3.3	< 23	23	U	4.6	< 1600	1,600	U	310	< 23	23	U	4.5
Acetone	50	100,000	< 21	21	U	4.3	**560**	260	S	260	**12**	23	JS	4.6	**550**	310	S	310	**28**	23	S	4.5
Acrolein			< 17	17	U	2.1	< 13	13	U	1.6	< 18	18	U	2.3	< 1200	1,200	U	160	< 18	18	U	2.3
Acrylonitrile			< 8.6	8.6	U	0.86	< 6.6	6.6	U	0.66	< 9.2	9.2	U	0.92	< 1200	1,200	U	31	< 18	18	U	0.45
Benzene	60	4,800	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 60	60	U	31	**4.6**	4.5	-	0.45
Bromobenzene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Bromochloromethane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Bromodichloromethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Bromoform			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Bromomethane			< 4.3	4.3	U	1.7	< 3.3	3.3	U	1.3	< 4.6	4.6	U	1.8	< 310	310	U	120	< 4.5	4.5	U	1.8
Carbon Disulfide			< 4.3	4.3	U	0.86	**1.9**	3.3	J	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	**2.2**	4.5	J	0.90
Carbon tetrachloride	760	2,400	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Chlorobenzene	1,100	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Chloroethane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Chloroform	370	49,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Chloromethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
cis-1,2-Dichloroethene	250	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 250	250	U	31	< 4.5	4.5	U	0.45
cis-1,3-Dichloropropene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Dibromochloromethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Dibromomethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Dichlorodifluoromethane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Ethylbenzene	1,000	41,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**4,700**	310	-	31	**16**	4.5	-	0.45
Hexachlorobutadiene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Isopropylbenzene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**1,600**	310	-	31	**1.7**	4.5	J	0.45
m&p-Xylenes	260	100,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	**24,000**	310	-	62	**75**	4.5	-	0.90
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 26	26	U	4.3	**19**	20	J	3.3	< 28	28	U	4.6	< 310	310	U	310	**5.5**	27	J	4.5
Methyl t-butyl ether (MTBE)	930	100,000	< 8.6	8.6	U	0.86	< 6.6	6.6	U	0.66	< 9.2	9.2	U	0.92	< 620	620	U	62	**4.6**	9.0	J	0.90
Methylene chloride	50	100,000	< 4.3	4.3	U	4.3	< 3.3	3.3	U	3.3	< 4.6	4.6	U	4.6	< 310	310	U	310	< 4.5	4.5	U	4.5
Naphthalene	12,000	100,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	**11,000**	3,200	D	650	**37**	4.5	-	0.90
n-Butylbenzene	12,000	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**3,400**	3,200	D	320	< 4.5	4.5	U	0.45
n-Propylbenzene	3,900	100,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	**4,900**	310	-	62	**3.4**	4.5	J	0.90
o-Xylene	260	100,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	**9,100**	310	-	62	**26**	4.5	-	0.90
p-Isopropyltoluene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**800**	310	-	31	< 4.5	4.5	U	0.45
sec-Butylbenzene	11,000	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**1,000**	310	-	31	< 4.5	4.5	U	0.45
Styrene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Tert-butyl alcohol			< 86	86	U	17	< 66	66	U	13	< 92	92	U	18	< 6200	6,200	U	1200	< 90	90	U	18
tert-Butylbenzene	5,900	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**32**	310	J	31	< 4.5	4.5	U	0.45
Tetrachloroethene	1,300	19,000	< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Tetrahydrofuran (THF)			< 8.6	8.6	U	2.1	< 6.6	6.6	U	1.6	< 9.2	9.2	U	2.3	< 620	620	U	160	< 9.0	9.0	U	2.3
Toluene	700	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	**390**	310	-	31	**2.2**	4.5	J	0.45
trans-1,2-Dichloroethene	190	100,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 190	190	U	31	< 4.5	4.5	U	0.45
trans-1,3-Dichloropropene			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
trabs-1,4-dichloro-2-butene			< 8.6	8.6	U	2.1	< 6.6	6.6	U	1.6	< 9.2	9.2	U	2.3	< 620	620	U	160	< 9.0	9.0	U	2.3
Trichloroethene	470	21,000	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Trichlorofluoromethane			< 4.3	4.3	U	0.86	< 3.3	3.3	U	0.66	< 4.6	4.6	U	0.92	< 310	310	U	62	< 4.5	4.5	U	0.90
Trichlorotrifluoroethane			< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 310	310	U	31	< 4.5	4.5	U	0.45
Vinyl Chloride	20	900	< 4.3	4.3	U	0.43	< 3.3	3.3	U	0.33	< 4.6	4.6	U	0.46	< 31	31	U	31	< 4.5	4.5	U	0.45
1,4- dioxane	100	13,000	< 64	64	U	34	< 49	49	U	26	< 69	69	U	37	< 2500	2,500	U	2500	< 68	68	U	36
Total BTEX Concentration			0				0				0				38,190				123.8			
Total VOCs Concentration			0				590.6				12				132,582				300.2			

COMPOUND	15B7												15B8							
	(12-14') 11/11/2016 µg/Kg				(18-20') 11/11/2016 µg/Kg				(23-25') 11/11/2016 µg/Kg				(0-2') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane	< 19	19	U	0.95	< 460	460	U	93	< 18	18	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,1,1-Trichloroethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,1,2,2-Tetrachloroethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,1,2-Trichloroethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,1-Dichloroethane	< 4.8	4.8	U	0.95	< 270	270	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,1-Dichloroethene	< 4.8	4.8	U	0.48	< 330	330	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,1-Dichloropropene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,2,3-Trichlorobenzene	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,2,3-Trichloropropane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,2,4-Trichlorobenzene	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,2,4-Trimethylbenzene	**2.3**	4.8	J	0.48	**1,200**	460	-	46	**280**	250	-	44	**520**	330	-	33	< 5.3	5.3	U	0.53
1,2-Dibromo-3-chloropropane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,2-Dibromomethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,2-Dichlorobenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,2-Dichloroethane	< 4.8	4.8	U	0.48	< 46	46	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,2-Dichloropropane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,3,5-Trimethylbenzene	**0.81**	4.8	J	0.48	< 460	460	U	46	**80**	4.4	-	0.44	**350**	330	-	33	< 5.3	5.3	U	0.53
1,3-Dichlorobenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,3-Dichloropropane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
1,4-Dichlorobenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
2,2-Dichloropropane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
2-Chlorotoluene	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
2-Hexanone (Methyl Butyl Ketone)	< 24	24	U	4.8	< 2300	2,300	U	460	< 22	22	U	4.4	< 27	27	U	5.3	< 27	27	U	5.3
2-Isopropyltoluene	< 4.8	4.8	U	0.48	< 460	460	U	46	**0.56**	4.4	J	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
4-Chlorotoluene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
4-Methyl-2-Pentanone	< 24	24	U	4.8	< 2300	2,300	U	460	**21**	22	J	4.4	< 27	27	U	5.3	< 27	27	U	5.3
Acetone	**24**	24	S	4.8	< 460	460	U	460	**500**	440	S	440	< 27	27	U	5.3	**9.5**	27	JS	5.3
Acrolein	< 19	19	U	2.4	< 1900	1,900	U	230	< 18	18	U	2.2	< 21	21	U	2.7	< 21	21	U	2.7
Acrylonitrile	< 19	19	U	0.48	< 930	930	U	93	< 18	18	U	0.44	< 11	11	U	1.1	< 11	11	U	1.1
Benzene	**1.9**	4.8	J	0.48	**53**	60	J	46	**7.4**	4.4	-	0.44	**110**	60	-	33	< 5.3	5.3	U	0.53
Bromobenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Bromochloromethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Bromodichloromethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Bromoform	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Bromomethane	< 4.8	4.8	U	1.9	< 460	460	U	190	< 4.4	4.4	U	1.8	< 5.3	5.3	U	2.1	< 5.3	5.3	U	2.1
Carbon Disulfide	< 4.8	4.8	U	0.95	< 460	460	U	93	**4.3**	4.4	J	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Carbon tetrachloride	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Chlorobenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Chloroethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Chloroform	< 4.8	4.8	U	0.48	< 370	370	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Chloromethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
cis-1,2-Dichloroethene	< 4.8	4.8	U	0.48	< 250	250	U	46	**1.5**	4.4	J	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
cis-1,3-Dichloropropene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Dibromochloromethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Dibromomethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Dichlorodifluoromethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Ethylbenzene	**2.8**	4.8	J	0.48	**520**	460	-	46	**34**	4.4	-	0.44	**220**	330	J	33	< 5.3	5.3	U	0.53
Hexachlorobutadiene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Isopropylbenzene	< 4.8	4.8	U	0.48	**160**	460	J	46	**5.9**	4.4	-	0.44	**61**	330	J	33	< 5.3	5.3	U	0.53
m&p-Xylenes	**4.9**	4.8	-	0.95	**530**	460	-	93	**99**	4.4	-	0.88	**580**	330	-	67	< 5.3	5.3	U	1.1
Methyl Ethyl Ketone (2-Butanone)	< 29	29	U	4.8	< 460	460	U	460	**160**	26	-	4.4	< 32	32	U	5.3	< 32	32	U	5.3
Methyl t-butyl ether (MTBE)	**7.5**	9.5	J	0.95	< 930	930	U	93	**4.7**	8.8	J	0.88	**140**	670	J	67	**2.2**	11	J	1.1
Methylene chloride	< 4.8	4.8	U	4.8	< 460	460	U	460	< 4.4	4.4	U	4.4	< 5.3	5.3	U	5.3	< 5.3	5.3	U	5.3
Naphthalene	**1.1**	4.8	J	0.95	< 460	460	U	93	**57**	4.4	-	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
n-Butylbenzene	< 4.8	4.8	U	0.48	**6,300**	460	-	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
n-Propylbenzene	< 4.8	4.8	U	0.95	**910**	460	-	93	**14**	4.4	-	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
o-Xylene	**2.7**	4.8	J	0.95	**380**	460	J	93	**24**	4.4	-	0.88	**100**	330	J	67	< 5.3	5.3	U	1.1
p-Isopropyltoluene	< 4.8	4.8	U	0.48	**2,100**	460	-	46	**1**	4.4	J	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
sec-Butylbenzene	< 4.8	4.8	U	0.48	**4,200**	460	-	46	**3.3**	4.4	J	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Styrene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Tert-butyl alcohol	**200**	95	-	19	< 9300	9,300	U	1900	**20**	88	J	18	< 110	110	U	21	< 110	110	U	21
tert-Butylbenzene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Tetrachloroethene	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Tetrahydrofuran (THF)	< 9.5	9.5	U	2.4	< 930	930	U	230	< 8.8	8.8	U	2.2	< 11	11	U	2.7	< 11	11	U	2.7
Toluene	< 4.8	4.8	U	0.48	**610**	460	-	46	**14**	4.4	-	0.44	**85**	330	J	33	< 5.3	5.3	U	0.53
trans-1,2-Dichloroethene	< 4.8	4.8	U	0.48	< 190	190	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
trans-1,3-Dichloropropene	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
trabs-1,4-dichloro-2-butene	< 9.5	9.5	U	2.4	< 930	930	U	230	< 8.8	8.8	U	2.2	< 11	11	U	2.7	< 11	11	U	2.7
Trichloroethene	< 4.8	4.8	U	0.48	< 460	460	U	46	**0.79**	4.4	J	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Trichlorofluoromethane	< 4.8	4.8	U	0.95	< 460	460	U	93	< 4.4	4.4	U	0.88	< 5.3	5.3	U	1.1	< 5.3	5.3	U	1.1
Trichlorotrifluoroethane	< 4.8	4.8	U	0.48	< 460	460	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
Vinyl Chloride	< 4.8	4.8	U	0.48	< 46	46	U	46	< 4.4	4.4	U	0.44	< 5.3	5.3	U	0.53	< 5.3	5.3	U	0.53
1,4- dioxane	< 71	71	U	38	< 3700	3,700	U	3700	< 66	66	U	35	< 80	80	U	43	< 80	80	U	42
Total BTEX Concentration	12.3				2,093				178.4				1,095				0			
Total VOCs Concentration	248.01				16,963				1,332.45				2,166				11.7			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B9								15B10				15B11												15B12								15B13			
			(3-5') 11/14/2016 µg/Kg				(10-15') 11/14/2016 µg/Kg				(10-15') 11/14/2016 µg/Kg				(0-2') 11/10/2016 µg/Kg				(3-5') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(20-22') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 1400	1,400	U	72	< 18	18	U	0.88	< 14	14	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,1,1-Trichloroethane	680	100,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,1,2,2-Tetrachloroethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,1,2-Trichloroethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,1-Dichloroethane	270	26,000	< 270	270	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 270	270	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 270	270	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,1-Dichloroethene	330	100,000	< 330	330	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 330	330	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,1-Dichloropropene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,2,3-Trichlorobenzene			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,2,3-Trichloropropane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,2,4-Trichlorobenzene			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,2,4-Trimethylbenzene	3,600	52,000	**44,000**	3,600	D	720	**0.86**	4.4	J	0.44	**0.66**	3.6	J	0.36	**16,000**	1,800	D	180	**1.5**	3.3	J	0.33	< 5.1	5.1	U	0.51	**14,000**	630	D	63	**0.67**	4.6	J	0.46	< 5.5	5.5	U	0.55
1,2-Dibromo-3-chloropropane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,2-Dibromomethane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,2-Dichlorobenzene	1,100	100,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,2-Dichloroethane	20	3,100	< 36	36	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 36	36	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 31	31	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,2-Dichloropropane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,3,5-Trimethylbenzene	8,400	52,000	**13,000**	7,200	D	720	< 4.4	4.4	U	0.44	**0.51**	3.6	J	0.36	**7,100**	360	-	36	**0.55**	3.3	J	0.33	< 5.1	5.1	U	0.51	**4,200**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,3-Dichlorobenzene	2,400	4,900	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,3-Dichloropropane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
1,4-Dichlorobenzene	1,800	13,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
2,2-Dichloropropane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
2-Chlorotoluene			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
2-Hexanone (Methyl Butyl Ketone)			< 1800	1,800	U	360	< 22	22	U	4.4	< 18	18	U	3.6	< 1800	1,800	U	360	< 16	16	U	3.3	< 25	25	U	5.1	< 1600	1,600	U	310	< 23	23	U	4.6	< 28	28	U	5.5
2-Isopropyltoluene			**160**	360	J	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**82**	360	J	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**37**	310	J	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
4-Chlorotoluene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
4-Methyl-2-Pentanone			< 1800	1,800	U	360	< 22	22	U	4.4	< 18	18	U	3.6	< 1800	1,800	U	360	< 16	16	U	3.3	< 25	25	U	5.1	< 1600	1,600	U	310	< 23	23	U	4.6	< 28	28	U	5.5
Acetone	50	100,000	**640**	360	S	360	**53**	22	S	4.4	**4.8**	18	JS	3.6	**920**	360	S	360	**36**	16	S	3.3	**27**	25	S	5.1	< 310	310	U	310	**16**	23	JS	4.6	**43**	28	S	5.5
Acrolein			< 1400	1,400	U	180	< 18	18	U	2.2	< 14	14	U	1.8	< 1400	1,400	U	180	< 13	13	U	1.6	< 20	20	U	2.5	< 1300	1,300	U	160	< 18	18	U	2.3	< 22	22	U	2.8
Acrylonitrile			< 1400	1,400	U	36	< 18	18	U	0.44	< 14	14	U	0.36	< 720	720	U	72	< 6.6	6.6	U	0.66	< 10	10	U	1.0	< 630	630	U	63	< 9.1	9.1	U	0.91	< 11	11	U	1.1
Benzene	60	4,800	**800**	720	D	720	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**1,900**	60	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**650**	60	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Bromobenzene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Bromochloromethane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Bromodichloromethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Bromoform			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Bromomethane			< 360	360	U	140	< 4.4	4.4	U	1.8	< 3.6	3.6	U	1.4	< 360	360	U	140	< 3.3	3.3	U	1.3	< 5.1	5.1	U	2.0	< 310	310	U	130	< 4.6	4.6	U	1.8	< 5.5	5.5	U	2.2
Carbon Disulfide			< 360	360	U	72	**1.6**	4.4	J	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	**1.3**	5.1	J	1.0	< 310	310	U	63	**2.9**	4.6	J	0.91	**1.3**	5.5	J	1.1
Carbon tetrachloride	760	2,400	< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Chlorobenzene	1,100	100,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Chloroethane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Chloroform	370	49,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Chloromethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
cis-1,2-Dichloroethene	250	100,000	< 250	250	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**27,000**	250	D	180	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 250	250	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
cis-1,3-Dichloropropene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Dibromochloromethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Dibromomethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Dichlorodifluoromethane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Ethylbenzene	1,000	41,000	**8,300**	360	-	36	**0.56**	4.4	J	0.44	**0.6**	3.6	J	0.36	**4,500**	360	-	36	**0.38**	3.3	J	0.33	< 5.1	5.1	U	0.51	**3,900**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Hexachlorobutadiene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Isopropylbenzene			**2,200**	360	-	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**600**	360	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**940**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
m&p-Xylenes	260	100,000	**32,000**	7,200	D	1400	**1.2**	4.4	J	0.88	**1.5**	3.6	J	0.71	**9,600**	360	-	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	**16,000**	310	-	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 360	360	U	360	**13**	26	J	4.4	< 21	21	U	3.6	< 360	360	U	360	**6.5**	20	J	3.3	< 30	30	U	5.1	< 310	310	U	310	< 27	27	U	4.6	< 33	33	U	5.5
Methyl t-butyl ether (MTBE)	930	100,000	**99**	720	J	72	**6.7**	8.8	J	0.88	< 7.1	7.1	U	0.71	< 720	720	U	72	**1.1**	6.6	J	0.66	**22**	10	-	1.0	**290**	630	J	63	< 9.1	9.1	U	0.91	**70**	11	-	1.1
Methylene chloride	50	100,000	< 360	360	U	360	< 4.4	4.4	U	4.4	< 3.6	3.6	U	3.6	< 360	360	U	360	< 3.3	3.3	U	3.3	< 5.1	5.1	U	5.1	< 310	310	U	310	< 4.6	4.6	U	4.6	< 5.5	5.5	U	5.5
Naphthalene	12,000	100,000	**10,000**	360	-	72	**2.5**	4.4	J	0.88	**240**	210	-	43	**3,400**	360	-	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	**4,400**	310	-	63	< 4.6	4.6	U	0.91	**1.3**	5.5	J	1.1
n-Butylbenzene	12,000	100,000	**2,700**	360	-	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**820**	360	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**810**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
n-Propylbenzene	3,900	100,000	**5,600**	360	-	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	**1,600**	360	-	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	**1,800**	310	-	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
o-Xylene	260	100,000	**13,000**	360	-	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	**5,600**	360	-	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	**6,700**	310	-	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
p-Isopropyltoluene			**1,100**	360	-	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**440**	360	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**230**	310	J	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
sec-Butylbenzene	11,000	100,000	**1,300**	360	-	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**450**	360	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**380**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Styrene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**96**	360	J	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Tert-butyl alcohol			< 7200	7,200	U	1400	< 88	88	U	18	< 71	71	U	14	< 7200	7,200	U	1400	**17**	66	J	13	**32**	100	J	20	< 6300	6,300	U	1300	< 91	91	U	18	< 110	110	U	22
tert-Butylbenzene	5,900	100,000	**44**	360	J	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Tetrachloroethene	1,300	19,000	< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	**2,400**	360	-	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Tetrahydrofuran (THF)			< 720	720	U	180	< 8.8	8.8	U	2.2	< 7.1	7.1	U	1.8	< 720	720	U	180	< 6.6	6.6	U	1.6	< 10	10	U	2.5	< 630	630	U	160	< 9.1	9.1	U	2.3	< 11	11	U	2.8
Toluene	700	100,000	**1,900**	720	D	720	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**15,000**	700	D	180	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	**470**	310	-	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
trans-1,2-Dichloroethene	190	100,000	< 190	190	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**2,300**	190	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 190	190	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
trans-1,3-Dichloropropene			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
trabs-1,4-dichloro-2-butene			< 720	720	U	180	< 8.8	8.8	U	2.2	< 7.1	7.1	U	1.8	< 720	720	U	180	< 6.6	6.6	U	1.6	< 10	10	U	2.5	< 630	630	U	160	< 9.1	9.1	U	2.3	< 11	11	U	2.8
Trichloroethene	470	21,000	< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**410**	360	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Trichlorofluoromethane			< 360	360	U	72	< 4.4	4.4	U	0.88	< 3.6	3.6	U	0.71	< 360	360	U	72	< 3.3	3.3	U	0.66	< 5.1	5.1	U	1.0	< 310	310	U	63	< 4.6	4.6	U	0.91	< 5.5	5.5	U	1.1
Trichlorotrifluoroethane			< 360	360	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	< 360	360	U	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 310	310	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
Vinyl Chloride	20	900	< 36	36	U	36	< 4.4	4.4	U	0.44	< 3.6	3.6	U	0.36	**3,000**	36	-	36	< 3.3	3.3	U	0.33	< 5.1	5.1	U	0.51	< 31	31	U	31	< 4.6	4.6	U	0.46	< 5.5	5.5	U	0.55
1,4- dioxane	100	13,000	< 2900	2,900	U	2900	< 66	66	U	35	< 53	53	U	28	< 2900	2,900	U	2900	< 49	49	U	26	< 76	76	U	40	< 2500	2,500	U	2500	< 68	68	U	37	< 83	83	U	44
Total BTEX Concentration			56,000				1.76				2.1				36,600				0.38				0				27,720				0				0			
Total VOCs Concentration			136,843				79.42				248.07				103,218				63.03				82.3				54,807				19.57				115.60			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B14 (1-3') 11/10/2016 µg/Kg				15B14 (12-14') 11/10/2016 µg/Kg				15B14 (14-16') 11/10/2016 µg/Kg				15B19 (0-2') 11/14/2016 µg/Kg				15B19 (12-14') 11/14/2016 µg/Kg				15B19 (18-20') 11/14/2016 µg/Kg				15B19 (20-25') 11/14/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 23	23	U	1.2	< 20	20	U	0.99	< 31000	31,000	U	1600	< 32	32	U	1.6
1,1,1-Trichloroethane	680	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
1,1,2,2-Tetrachloroethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,1,2-Trichloroethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,1-Dichloroethane	270	26,000	< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 1600	1,600	U	1600	< 7.9	7.9	U	1.6
1,1-Dichloroethene	330	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
1,1-Dichloropropene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
1,2,3-Trichlorobenzene			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,2,3-Trichloropropane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
1,2,4-Trichlorobenzene			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,2,4-Trimethylbenzene	3,600	52,000	< 4.5	4.5	U	0.45	**9.2**	3.9	-	0.39	**1**	4.9	J	0.49	**0.58**	5.8	J	0.58	**0.99**	4.9	J	0.49	**910,000**	16,000	D	16000	**1,400**	460	-	46
1,2-Dibromo-3-chloropropane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,2-Dibromomethane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
1,2-Dichlorobenzene	1,100	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 1100	1,100	U	780	< 7.9	7.9	U	0.79
1,2-Dichloroethane	20	3,100	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
1,2-Dichloropropane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,3,5-Trimethylbenzene	8,400	52,000	< 4.5	4.5	U	0.45	**2.4**	3.9	J	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**320,000**	16,000	D	16000	**490**	460	-	46
1,3-Dichlorobenzene	2,400	4,900	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 2400	2,400	U	780	< 7.9	7.9	U	0.79
1,3-Dichloropropane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
1,4-Dichlorobenzene	1,800	13,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 1800	1,800	U	780	< 7.9	7.9	U	0.79
2,2-Dichloropropane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
2-Chlorotoluene			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
2-Hexanone (Methyl Butyl Ketone)			< 22	22	U	4.5	< 19	19	U	3.9	< 25	25	U	4.9	< 29	29	U	5.8	< 25	25	U	4.9	< 39000	39,000	U	7800	< 40	40	U	7.9
2-Isopropyltoluene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**1,400**	7,800	J	780	**1.4**	7.9	J	0.79
4-Chlorotoluene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
4-Methyl-2-Pentanone			< 22	22	U	4.5	< 19	19	U	3.9	< 25	25	U	4.9	< 29	29	U	5.8	< 25	25	U	4.9	< 39000	39,000	U	7800	< 40	40	U	7.9
Acetone	50	100,000	**64**	22	S	4.5	**19**	19	JS	3.9	**13**	25	JS	4.9	< 29	29	U	5.8	< 25	25	U	4.9	< 7800	7,800	U	7800	< 40	40	U	7.9
Acrolein			< 18	18	U	2.2	< 15	15	U	1.9	< 20	20	U	2.5	< 23	23	U	2.9	< 20	20	U	2.5	< 31000	31,000	U	3900	< 32	32	U	4.0
Acrylonitrile			< 8.9	8.9	U	0.89	< 7.7	7.7	U	0.77	< 9.9	9.9	U	0.99	< 23	23	U	0.58	< 20	20	U	0.49	< 31000	31,000	U	780	< 32	32	U	0.79
Benzene	60	4,800	**240**	60	-	31	**0.99**	3.9	J	0.39	**1.3**	4.9	J	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	**3**	7.9	J	0.79
Bromobenzene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Bromochloromethane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Bromodichloromethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Bromoform			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Bromomethane			< 4.5	4.5	U	1.8	< 3.9	3.9	U	1.5	< 4.9	4.9	U	2.0	< 5.8	5.8	U	2.3	< 4.9	4.9	U	2.0	< 7800	7,800	U	3100	< 7.9	7.9	U	3.2
Carbon Disulfide			< 4.5	4.5	U	0.89	**1.4**	3.9	J	0.77	**1.9**	4.9	J	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Carbon tetrachloride	760	2,400	< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 1600	1,600	U	1600	< 7.9	7.9	U	1.6
Chlorobenzene	1,100	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 1100	1,100	U	780	< 7.9	7.9	U	0.79
Chloroethane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Chloroform	370	49,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
Chloromethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
cis-1,2-Dichloroethene	250	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
cis-1,3-Dichloropropene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Dibromochloromethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Dibromomethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Dichlorodifluoromethane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Ethylbenzene	1,000	41,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	**0.9**	4.9	J	0.49	< 5.8	5.8	U	0.58	**0.95**	4.9	J	0.49	**190,000**	1,000	-	780	**410**	400	-	46
Hexachlorobutadiene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Isopropylbenzene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**42,000**	7,800	-	780	**15**	7.9	-	0.79
m&p-Xylenes	260	100,000	< 4.5	4.5	U	0.89	**5.6**	3.9	-	0.77	**2**	4.9	J	0.99	< 5.8	5.8	U	1.2	**2.3**	4.9	J	0.99	**720,000**	######	D	31000	**2,000**	460	-	91
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 27	27	U	4.5	< 23	23	U	3.9	< 30	30	U	4.9	< 35	35	U	5.8	< 30	30	U	4.9	< 7800	7,800	U	7800	< 47	47	U	7.9
Methyl t-butyl ether (MTBE)	930	100,000	**760**	610	-	61	**49**	7.7	-	0.77	**9.5**	9.9	J	0.99	< 12	12	U	1.2	< 9.9	9.9	U	0.99	< 1600	1,600	U	1600	< 16	16	U	1.6
Methylene chloride	50	100,000	< 4.5	4.5	U	4.5	< 3.9	3.9	U	3.9	< 4.9	4.9	U	4.9	< 5.8	5.8	U	5.8	< 4.9	4.9	U	4.9	< 7800	7,800	U	7800	< 7.9	7.9	U	7.9
Naphthalene	12,000	100,000	< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	**210**	330	J	66	< 4.9	4.9	U	0.99	**89,000**	7,800	-	1600	**250**	7.9	-	1.6
n-Butylbenzene	12,000	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**70,000**	16,000	D	16000	**19**	7.9	-	0.79
n-Propylbenzene	3,900	100,000	< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	**140,000**	3,900	-	1600	**48**	7.9	-	1.6
o-Xylene	260	100,000	< 4.5	4.5	U	0.89	**2.4**	3.9	J	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	**260,000**	7,800	-	1600	**640**	460	-	91
p-Isopropyltoluene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**13,000**	7,800	-	780	**5.4**	7.9	J	0.79
sec-Butylbenzene	11,000	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**23,000**	16,000	D	16000	**9.6**	7.9	-	0.79
Styrene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Tert-butyl alcohol			< 89	89	U	18	< 77	77	U	15	< 99	99	U	20	< 120	120	U	23	< 99	99	U	20	< 160000	######	U	31000	< 160	160	U	32
tert-Butylbenzene	5,900	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**990**	5,900	J	780	< 7.9	7.9	U	0.79
Tetrachloroethene	1,300	19,000	< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	**22,000**	1,600	-	1600	**3**	7.9	J	1.6
Tetrahydrofuran (THF)			< 8.9	8.9	U	2.2	< 7.7	7.7	U	1.9	< 9.9	9.9	U	2.5	< 12	12	U	2.9	< 9.9	9.9	U	2.5	< 16000	16,000	U	3900	< 16	16	U	4.0
Toluene	700	100,000	**120**	310	J	31	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	**20,000**	16,000	D	16000	**26**	7.9	-	0.79
trans-1,2-Dichloroethene	190	100,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
trans-1,3-Dichloropropene			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
trabs-1,4-dichloro-2-butene			< 8.9	8.9	U	2.2	< 7.7	7.7	U	1.9	< 9.9	9.9	U	2.5	< 12	12	U	2.9	< 9.9	9.9	U	2.5	< 16000	16,000	U	3900	< 16	16	U	4.0
Trichloroethene	470	21,000	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
Trichlorofluoromethane			< 4.5	4.5	U	0.89	< 3.9	3.9	U	0.77	< 4.9	4.9	U	0.99	< 5.8	5.8	U	1.2	< 4.9	4.9	U	0.99	< 7800	7,800	U	1600	< 7.9	7.9	U	1.6
Trichlorotrifluoroethane			< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 7800	7,800	U	780	< 7.9	7.9	U	0.79
Vinyl Chloride	20	900	< 4.5	4.5	U	0.45	< 3.9	3.9	U	0.39	< 4.9	4.9	U	0.49	< 5.8	5.8	U	0.58	< 4.9	4.9	U	0.49	< 780	780	U	780	< 7.9	7.9	U	0.79
1,4- dioxane	100	13,000	< 67	67	U	36	< 58	58	U	31	< 74	74	U	40	< 87	87	U	46	< 74	74	U	40	< 63000	63,000	U	63000	< 100	100	U	63
Total BTEX Concentration			360				8.99				4				0				3.25				1,190,000				3,079			
Total VOCs Concentration			1,184				89.99				30				210.58				4.24				2,821,390				5,320.4			

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B20								Duplicate 15B20				Duplicate 2 15B7				Duplicate 3 15B19				Duplicate 4 15B2			
			(0-2') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(12-14') 11/11/2016 µg/Kg				(0-2') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 21	21	U	1.0	< 17	17	U	0.83	< 1000	1,000	U	52
1,1,1-Trichloroethane	680	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,1,2,2-Tetrachloroethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,1,2-Trichloroethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,1-Dichloroethane	270	26,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,1-Dichloroethene	330	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,1-Dichloropropene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,2,3-Trichlorobenzene			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,2,3-Trichloropropane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,2,4-Trichlorobenzene			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,2,4-Trimethylbenzene	3,600	52,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	**1**	5.2	J	0.52	**0.91**	4.1	J	0.41	**17,000**	3,600	D	520
1,2-Dibromo-3-chloropropane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,2-Dibromomethane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,2-Dichlorobenzene	1,100	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,2-Dichloroethane	20	3,100	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 26	26	U	26
1,2-Dichloropropane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,3,5-Trimethylbenzene	8,400	52,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	**0.67**	4.1	J	0.41	**5,200**	260	-	26
1,3-Dichlorobenzene	2,400	4,900	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
1,3-Dichloropropane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
1,4-Dichlorobenzene	1,800	13,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
2,2-Dichloropropane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
2-Chlorotoluene			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
2-Hexanone (Methyl Butyl Ketone)			< 13	13	U	2.5	< 21	21	U	4.3	< 23	23	U	4.7	< 26	26	U	5.2	< 21	21	U	4.1	< 1300	1,300	U	260
2-Isopropyltoluene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**100**	260	J	26
4-Chlorotoluene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
4-Methyl-2-Pentanone			< 13	13	U	2.5	< 21	21	U	4.3	< 23	23	U	4.7	< 26	26	U	5.2	< 21	21	U	4.1	< 1300	1,300	U	260
Acetone	50	100,000	< 13	13	U	2.5	< 21	21	U	4.3	< 23	23	U	4.7	**26**	26	JS	5.2	< 21	21	U	4.1	**400**	260	S	260
Acrolein			< 10	10	U	1.3	< 17	17	U	2.1	< 19	19	U	2.3	< 21	21	U	2.6	< 17	17	U	2.1	< 1000	1,000	U	130
Acrylonitrile			< 5.0	5.0	U	0.50	< 8.5	8.5	U	0.85	< 9.3	9.3	U	0.93	< 21	21	U	0.52	< 17	17	U	0.41	< 1000	1,000	U	26
Benzene	60	4,800	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	**0.86**	5.2	J	0.52	< 4.1	4.1	U	0.41	< 60	60	U	26
Bromobenzene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Bromochloromethane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Bromodichloromethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Bromoform			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Bromomethane			< 2.5	2.5	U	1.0	< 4.3	4.3	U	1.7	< 4.7	4.7	U	1.9	< 5.2	5.2	U	2.1	< 4.1	4.1	U	1.7	< 260	260	U	100
Carbon Disulfide			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	**1.2**	5.2	J	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Carbon tetrachloride	760	2,400	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Chlorobenzene	1,100	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Chloroethane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Chloroform	370	49,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Chloromethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
cis-1,2-Dichloroethene	250	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 250	250	U	26
cis-1,3-Dichloropropene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Dibromochloromethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Dibromomethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Dichlorodifluoromethane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Ethylbenzene	1,000	41,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	**1.3**	5.2	J	0.52	**0.58**	4.1	J	0.41	**3,200**	260	-	26
Hexachlorobutadiene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Isopropylbenzene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**1,600**	260	-	26
m&p-Xylenes	260	100,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	**2.1**	5.2	J	1.0	**1.4**	4.1	J	0.83	**2,500**	260	-	52
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 15	15	U	2.5	< 26	26	U	4.3	< 28	28	U	4.7	< 31	31	U	5.2	< 25	25	U	4.1	< 260	260	U	260
Methyl t-butyl ether (MTBE)	930	100,000	< 5.0	5.0	U	0.50	< 8.5	8.5	U	0.85	< 9.3	9.3	U	0.93	**5.1**	10	J	1.0	< 8.3	8.3	U	0.83	< 520	520	U	52
Methylene chloride	50	100,000	< 2.5	2.5	U	2.5	< 4.3	4.3	U	4.3	< 4.7	4.7	U	4.7	< 5.2	5.2	U	5.2	< 4.1	4.1	U	4.1	< 260	260	U	260
Naphthalene	12,000	100,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	**0.97**	4.1	J	0.83	**3,000**	260	-	52
n-Butylbenzene	12,000	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**1,700**	260	-	26
n-Propylbenzene	3,900	100,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	**6,100**	3,900	D	1000
o-Xylene	260	100,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
p-Isopropyltoluene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**510**	260	-	26
sec-Butylbenzene	11,000	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**800**	260	-	26
Styrene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Tert-butyl alcohol			< 50	50	U	10	< 85	85	U	17	< 93	93	U	19	**300**	100	-	21	< 83	83	U	17	< 5200	5,200	U	1000
tert-Butylbenzene	5,900	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	**51**	260	J	26
Tetrachloroethene	1,300	19,000	< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Tetrahydrofuran (THF)			< 5.0	5.0	U	1.3	< 8.5	8.5	U	2.1	< 9.3	9.3	U	2.3	< 10	10	U	2.6	< 8.3	8.3	U	2.1	< 520	520	U	130
Toluene	700	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
trans-1,2-Dichloroethene	190	100,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 190	190	U	26
trans-1,3-Dichloropropene			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
trabs-1,4-dichloro-2-butene			< 5.0	5.0	U	1.3	< 8.5	8.5	U	2.1	< 9.3	9.3	U	2.3	< 10	10	U	2.6	< 8.3	8.3	U	2.1	< 520	520	U	130
Trichloroethene	470	21,000	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Trichlorofluoromethane			< 2.5	2.5	U	0.50	< 4.3	4.3	U	0.85	< 4.7	4.7	U	0.93	< 5.2	5.2	U	1.0	< 4.1	4.1	U	0.83	< 260	260	U	52
Trichlorotrifluoroethane			< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 260	260	U	26
Vinyl Chloride	20	900	< 2.5	2.5	U	0.25	< 4.3	4.3	U	0.43	< 4.7	4.7	U	0.47	< 5.2	5.2	U	0.52	< 4.1	4.1	U	0.41	< 26	26	U	26
1,4- dioxane	100	13,000	< 38	38	U	20	< 64	64	U	34	< 70	70	U	37	< 79	79	U	42	< 62	62	U	33	< 2100	2,100	U	2100
Total BTEX Concentration			**0**				**0**				**0**				**4.26**				**1.98**				**5,700**			
Total VOCs Concentration			**0**				**0**				**0**				**337.56**				**4.53**				**42,161**			

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B1								15B2								15B3				15B4											
			(12-14') 11/14/2016 µg/Kg				(18-20') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(22.5-25') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(12-14') 11/14/2016 µg/Kg				(15-17') 11/14/2016 µg/Kg				(18-20') 11/14/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 290	290	U	150	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	140	< 270	270	U	140	< 290	290	U	150	< 280	280	U	140
1,2,4-Trichlorobenzene			< 290	290	U	130	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
1,2-Dichlorobenzene			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
1,2-Diphenylhydrazine			< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
1,3-Dichlorobenzene			< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	120	< 290	290	U	120	< 280	280	U	120
1,4-Dichlorobenzene			< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	120	< 290	290	U	120	< 280	280	U	120
2,4,5-Trichlorophenol			< 290	290	U	230	< 280	280	U	220	< 280	280	U	220	< 290	290	U	230	< 270	270	U	210	< 270	270	U	210	< 290	290	U	230	< 280	280	U	220
2,4,6-Trichlorophenol			< 210	210	U	130	< 200	200	U	130	< 200	200	U	130	< 210	210	U	130	< 190	190	U	120	< 200	200	U	130	< 210	210	U	130	< 200	200	U	130
2,4-Dichlorophenol			< 210	210	U	150	< 200	200	U	140	< 200	200	U	140	< 210	210	U	140	< 190	190	U	140	< 200	200	U	140	< 210	210	U	150	< 200	200	U	140
2,4-Dimethylphenol			< 290	290	U	100	< 280	280	U	100	< 280	280	U	100	< 290	290	U	100	< 270	270	U	96	< 270	270	U	97	< 290	290	U	100	< 280	280	U	98
2,4-Dinitrophenol			< 290	290	U	290	< 280	280	U	280	< 280	280	U	280	< 290	290	U	290	< 270	270	U	270	< 270	270	U	270	< 290	290	U	290	< 280	280	U	280
2,4-Dinitrotoluene			< 210	210	U	160	< 200	200	U	160	< 200	200	U	160	< 210	210	U	160	< 190	190	U	150	< 200	200	U	150	< 210	210	U	170	< 200	200	U	160
2,6-Dinitrotoluene			< 210	210	U	130	< 200	200	U	130	< 200	200	U	130	< 210	210	U	130	< 190	190	U	120	< 200	200	U	120	< 210	210	U	130	< 200	200	U	120
2-Chloronaphthalene			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
2-Chlorophenol			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
2-Methylnaphthalene			**1,600**	290	-	120	< 280	280	U	120	**1,500**	280	-	120	< 290	290	U	120	< 270	270	U	120	< 270	270	U	120	< 290	290	U	120	< 280	280	U	120
2-Methylphenol (o-cresol)	330	100,000	< 290	290	U	200	< 280	280	U	190	< 280	280	U	190	< 290	290	U	190	< 270	270	U	180	< 270	270	U	180	< 290	290	U	200	< 280	280	U	190
2-Nitroaniline			< 290	290	U	290	< 280	280	U	280	< 280	280	U	280	< 290	290	U	290	< 270	270	U	270	< 270	270	U	270	< 290	290	U	290	< 280	280	U	280
2-Nitrophenol			< 290	290	U	270	< 280	280	U	260	< 280	280	U	260	< 290	290	U	260	< 270	270	U	250	< 270	270	U	250	< 290	290	U	270	< 280	280	U	250
3&4-Methylphenol (m&p-cresol)	330	100,000	< 290	290	U	160	< 280	280	U	160	< 280	280	U	160	< 290	290	U	160	< 270	270	U	150	< 270	270	U	150	< 290	290	U	170	< 280	280	U	160
3,3'-Dichlorobenzidine			< 210	210	U	200	< 200	200	U	190	< 200	200	U	190	< 210	210	U	190	< 190	190	U	180	< 200	200	U	180	< 210	210	U	200	< 200	200	U	190
3-Nitroaniline			< 420	420	U	840	< 400	400	U	810	< 400	400	U	800	< 410	410	U	820	< 390	390	U	770	< 390	390	U	780	< 420	420	U	840	< 390	390	U	790
4,6-Dinitro-2-methylphenol			< 250	250	U	84	< 240	240	U	81	< 240	240	U	80	< 250	250	U	82	< 230	230	U	77	< 230	230	U	78	< 250	250	U	84	< 240	240	U	79
4-Bromophenyl phenyl ether			< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	120
4-Chloro-3-methylphenol			< 290	290	U	150	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	140	< 270	270	U	140	< 290	290	U	150	< 280	280	U	140
4-Chloroaniline			< 330	330	U	190	< 320	320	U	190	< 320	320	U	190	< 330	330	U	190	< 310	310	U	180	< 310	310	U	180	< 340	340	U	200	< 320	320	U	180
4-Chlorophenyl phenyl ether			< 290	290	U	140	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
4-Nitroaniline			< 420	420	U	140	< 400	400	U	130	< 400	400	U	130	< 410	410	U	140	< 390	390	U	130	< 390	390	U	130	< 420	420	U	140	< 390	390	U	130
4-Nitrophenol			< 420	420	U	190	< 400	400	U	180	< 400	400	U	180	< 410	410	U	190	< 390	390	U	170	< 390	390	U	180	< 420	420	U	190	< 390	390	U	180
Acenaphthene	20,000	100,000	< 290	290	U	130	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
Acenaphthylene	100,000	100,000	< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Acetophenone			< 290	290	U	130	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
Aniline			< 330	330	U	330	< 320	320	U	320	< 320	320	U	320	< 330	330	U	330	< 310	310	U	310	< 310	310	U	310	< 340	340	U	340	< 320	320	U	320
Anthracene	100,000	100,000	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Benz(a)anthracene	1,000	1,000	< 290	290	U	140	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Benzidine			< 420	420	U	250	< 400	400	U	240	< 400	400	U	240	< 410	410	U	240	< 390	390	U	230	< 390	390	U	230	< 420	420	U	250	< 390	390	U	230
Benzo(a)pyrene	1,000	1,000	< 210	210	U	140	< 200	200	U	130	< 200	200	U	130	< 210	210	U	130	< 190	190	U	130	< 200	200	U	130	< 210	210	U	140	< 200	200	U	130
Benzo(b)fluoranthene	1,000	1,000	< 290	290	U	140	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Benzo(ghi)perylene	100,000	100,000	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Benzo(k)fluoranthene	800	3,900	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Benzoic acid			< 2100	2,100	U	840	< 2000	2,000	U	810	< 2000	2,000	U	800	< 2100	2,100	U	820	< 1900	1,900	U	770	< 2000	2,000	U	780	< 2100	2,100	U	840	< 2000	2,000	U	790
Benzyl butyl phthalate			< 290	290	U	110	< 280	280	U	100	< 280	280	U	100	< 290	290	U	110	< 270	270	U	100	< 270	270	U	100	< 290	290	U	110	< 280	280	U	100
Bis(2-chloroethoxy)methane			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	110	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Bis(2-chloroethyl)ether			< 210	210	U	110	< 200	200	U	110	< 200	200	U	110	< 210	210	U	110	< 190	190	U	100	< 200	200	U	110	< 210	210	U	110	< 200	200	U	110
Bis(2-chloroisopropyl)ether			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	110	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Bis(2-ethylhexyl)phthalate			< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Carbazole			< 210	210	U	170	< 200	200	U	160	< 200	200	U	160	< 210	210	U	160	< 190	190	U	150	< 200	200	U	160	< 210	210	U	170	< 200	200	U	160
Chrysene	1,000	3,900	< 290	290	U	140	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Dibenz(a,h)anthracene	330	330	< 210	210	U	140	< 200	200	U	130	< 200	200	U	130	< 210	210	U	130	< 190	190	U	130	< 200	200	U	130	< 210	210	U	140	< 200	200	U	130
Dibenzofuran	7,000	59,000	< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	120
Diethyl phthalate			< 290	290	U	130	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
Dimethylphthalate			< 290	290	U	130	< 280	280	U	120	< 280	280	U	120	< 290	290	U	130	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
Di-n-butylphthalate			< 290	290	U	110	< 280	280	U	110	< 280	280	U	110	< 290	290	U	110	< 270	270	U	100	< 270	270	U	100	< 290	290	U	110	< 280	280	U	100
Di-n-octylphthalate			< 290	290	U	110	< 280	280	U	100	< 280	280	U	100	< 290	290	U	110	< 270	270	U	100	< 270	270	U	100	< 290	290	U	110	< 280	280	U	100
Fluoranthene	100,000	100,000	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Fluorene	30,000	100,000	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Hexachlorobenzene			< 210	210	U	120	< 200	200	U	120	< 200	200	U	120	< 210	210	U	120	< 190	190	U	110	< 200	200	U	110	< 210	210	U	120	< 200	200	U	120
Hexachlorobutadiene			< 290	290	U	150	< 280	280	U	150	< 280	280	U	150	< 290	290	U	150	< 270	270	U	140	< 270	270	U	140	< 290	290	U	150	< 280	280	U	140
Hexachlorocyclopentadiene			< 290	290	U	130	< 280	280	U	120	< 280	280	U	120	< 290	290	U	130	< 270	270	U	120	< 270	270	U	120	< 290	290	U	130	< 280	280	U	120
Hexachloroethane			< 210	210	U	130	< 200	200	U	120	< 200	200	U	120	< 210	210	U	120	< 190	190	U	120	< 200	200	U	120	< 210	210	U	130	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	500	500	< 290	290	U	140	< 280	280	U	130	< 280	280	U	130	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	130
Isophorone			< 210	210	U	120	< 200	200	U	110	< 200	200	U	110	< 210	210	U	120	< 190	190	U	110	< 200	200	U	110	< 210	210	U	120	< 200	200	U	110
Naphthalene	12,000	100,000	**3,200**	290	-	120	< 280	280	U	120	**3,000**	280	-	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Nitrobenzene			< 210	210	U	150	< 200	200	U	140	< 200	200	U	140	< 210	210	U	140	< 190	190	U	140	< 200	200	U	140	< 210	210	U	150	< 200	200	U	140
N-Nitrosodimethylamine			< 290	290	U	120	< 280	280	U	110	< 280	280	U	110	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
N-Nitrosodi-n-propylamine			< 210	210	U	140	< 200	200	U	130	< 200	200	U	130	< 210	210	U	130	< 190	190	U	130	< 200	200	U	130	< 210	210	U	140	< 200	200	U	130
N-Nitrosodiphenylamine			< 290	290	U	160	< 280	280	U	150	< 280	280	U	150	< 290	290	U	160	< 270	270	U	150	< 270	270	U	150	< 290	290	U	160	< 280	280	U	150
Pentachloronitrobenzene			< 290	290	U	160	< 280	280	U	150	< 280	280	U	150	< 290	290	U	150	< 270	270	U	140	< 270	270	U	150	< 290	290	U	160	< 280	280	U	150
Pentachlorophenol	800	6,700	< 250	250	U	160	< 240	240	U	150	< 240	240	U	150	< 250	250	U	160	< 230	230	U	150	< 230	230	U	150	< 250	250	U	160	< 240	240	U	150
Phenanthrene	100,000	100,000	< 290	290	U	120	< 280	280	U	120	< 280	280	U	120	< 290	290	U	120	< 270	270	U	110	< 270	270	U	110	< 290	290	U	120	< 280	280	U	110
Phenol	330	100,000	< 290	290	U	130	< 280	280	U	130	< 280	280	U	130	< 290	290	U	130	< 270	270	U	120	< 270	270	U	130	< 290	290	U	130	< 280	280	U	130
Pyrene	100,000	100,000	< 290	290	U	140	< 280	280	U	140	< 280	280	U	140	< 290	290	U	140	< 270	270	U	130	< 270	270	U	130	< 290	290	U	140	< 280	280	U	140
Pyridine			< 290	290	U	100	< 280	280	U	99	< 280	280	U	99	< 290	290	U	100	< 270	270	U	95	< 270	270	U	96	< 290	290	U	100	< 280	280	U	97

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B5												15B6								15B7												15B8							
			(0-2') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg				(15-17') 11/10/2016 µg/Kg				(5-7') 11/11/2016 µg/Kg				(12-14') 11/11/2016 µg/Kg				(12-14') 11/11/2016 µg/Kg				(18-20') 11/11/2016 µg/Kg				(23-25') 11/11/2016 µg/Kg				(0-2') 11/10/2016 µg/Kg				(12-14') 11/10/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 250	250	U	130	< 250	250	U	130	< 270	270	U	140	< 2400	2,400	U	1200	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 260	260	U	130	< 280	280	U	140
1,2,4-Trichlorobenzene			< 250	250	U	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
1,2-Dichlorobenzene			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	970	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	100	< 280	280	U	110
1,2-Diphenylhydrazine			< 250	250	U	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
1,3-Dichlorobenzene			< 250	250	U	110	< 250	250	U	110	< 270	270	U	110	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
1,4-Dichlorobenzene			< 250	250	U	110	< 250	250	U	110	< 270	270	U	110	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
2,4,5-Trichlorophenol			< 250	250	U	200	< 250	250	U	200	< 270	270	U	210	< 2400	2,400	U	1900	< 280	280	U	220	< 280	280	U	220	< 280	280	U	220	< 280	280	U	220	< 260	260	U	200	< 280	280	U	220
2,4,6-Trichlorophenol			< 180	180	U	120	< 180	180	U	120	< 190	190	U	120	< 1700	1,700	U	1100	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
2,4-Dichlorophenol			< 180	180	U	130	< 180	180	U	130	< 190	190	U	140	< 1700	1,700	U	1200	< 200	200	U	140	< 200	200	U	140	< 200	200	U	140	< 200	200	U	140	< 190	190	U	130	< 200	200	U	140
2,4-Dimethylphenol			< 250	250	U	90	< 250	250	U	89	< 270	270	U	96	< 2400	2,400	U	850	< 280	280	U	98	< 280	280	U	99	< 280	280	U	98	< 280	280	U	99	< 260	260	U	92	< 280	280	U	100
2,4-Dinitrophenol			< 250	250	U	250	< 250	250	U	250	< 270	270	U	270	< 2400	2,400	U	2400	< 280	280	U	280	< 280	280	U	280	< 280	280	U	280	< 280	280	U	280	< 260	260	U	260	< 280	280	U	280
2,4-Dinitrotoluene			< 180	180	U	140	< 180	180	U	140	< 190	190	U	150	< 1700	1,700	U	1400	< 200	200	U	160	< 200	200	U	160	< 200	200	U	160	< 200	200	U	160	< 190	190	U	150	< 200	200	U	160
2,6-Dinitrotoluene			< 180	180	U	110	< 180	180	U	110	< 190	190	U	120	< 1700	1,700	U	1100	< 200	200	U	130	< 200	200	U	130	< 200	200	U	120	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
2-Chloronaphthalene			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	980	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	110	< 280	280	U	110
2-Chlorophenol			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	980	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	110	< 280	280	U	110
2-Methylnaphthalene			**420**	250	-	110	< 250	250	U	110	< 270	270	U	110	**6,900**	2,400	-	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
2-Methylphenol (o-cresol)	330	100,000	< 250	250	U	170	< 250	250	U	170	< 270	270	U	180	< 1600	1,600	U	1600	< 280	280	U	190	< 280	280	U	190	< 280	280	U	180	< 280	280	U	190	< 260	260	U	170	< 280	280	U	190
2-Nitroaniline			< 250	250	U	250	< 250	250	U	250	< 270	270	U	270	< 2400	2,400	U	2400	< 280	280	U	280	< 280	280	U	280	< 280	280	U	280	< 280	280	U	280	< 260	260	U	260	< 280	280	U	280
2-Nitrophenol			< 250	250	U	230	< 250	250	U	230	< 270	270	U	240	< 2400	2,400	U	2200	< 280	280	U	250	< 280	280	U	250	< 280	280	U	250	< 280	280	U	250	< 260	260	U	230	< 280	280	U	250
3&4-Methylphenol (m&p-cresol)	330	100,000	< 250	250	U	140	< 250	250	U	140	< 270	270	U	150	< 2400	2,400	U	1400	< 280	280	U	160	< 280	280	U	160	< 280	280	U	160	< 280	280	U	160	< 260	260	U	150	< 280	280	U	160
3,3'-Dichlorobenzidine			< 180	180	U	170	< 180	180	U	170	< 190	190	U	180	< 1700	1,700	U	1600	< 200	200	U	190	< 200	200	U	190	< 200	200	U	190	< 200	200	U	190	< 190	190	U	170	< 200	200	U	190
3-Nitroaniline			< 360	360	U	720	< 360	360	U	720	< 390	390	U	770	< 3400	3,400	U	6900	< 400	400	U	790	< 400	400	U	800	< 390	390	U	790	< 400	400	U	800	< 370	370	U	740	< 400	400	U	800
4,6-Dinitro-2-methylphenol			< 220	220	U	72	< 220	220	U	72	< 230	230	U	77	< 2100	2,100	U	690	< 240	240	U	79	< 240	240	U	80	< 240	240	U	79	< 240	240	U	80	< 220	220	U	74	< 240	240	U	80
4-Bromophenyl phenyl ether			< 250	250	U	110	< 250	250	U	110	< 270	270	U	110	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
4-Chloro-3-methylphenol			< 250	250	U	130	< 250	250	U	130	< 270	270	U	140	< 2400	2,400	U	1200	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 260	260	U	130	< 280	280	U	140
4-Chloroaniline			< 290	290	U	170	< 290	290	U	170	< 310	310	U	180	< 2700	2,700	U	1600	< 320	320	U	180	< 320	320	U	190	< 310	310	U	180	< 320	320	U	190	< 300	300	U	170	< 320	320	U	190
4-Chlorophenyl phenyl ether			< 250	250	U	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1200	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	140
4-Nitroaniline			< 360	360	U	120	< 360	360	U	120	< 390	390	U	130	< 3400	3,400	U	1100	< 400	400	U	130	< 400	400	U	130	< 390	390	U	130	< 400	400	U	130	< 370	370	U	120	< 400	400	U	130
4-Nitrophenol			< 360	360	U	160	< 360	360	U	160	< 390	390	U	170	< 3400	3,400	U	1600	< 400	400	U	180	< 400	400	U	180	< 390	390	U	180	< 400	400	U	180	< 370	370	U	170	< 400	400	U	180
Acenaphthene	20,000	100,000	**120**	250	J	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
Acenaphthylene	100,000	100,000	**240**	250	J	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	960	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	100	< 280	280	U	110
Acetophenone			< 250	250	U	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1100	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	120	< 280	280	U	130
Aniline			< 290	290	U	290	< 290	290	U	290	< 310	310	U	310	< 2700	2,700	U	2700	< 320	320	U	320	< 320	320	U	320	< 310	310	U	310	< 320	320	U	320	< 300	300	U	300	< 320	320	U	320
Anthracene	100,000	100,000	**250**	250	J	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
Benz(a)anthracene	1,000	1,000	**550**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 1200	1,200	U	1200	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	**230**	260	J	120	< 280	280	U	140
Benzidine			< 360	360	U	210	< 360	360	U	210	< 390	390	U	230	< 3400	3,400	U	2000	< 400	400	U	230	< 400	400	U	240	< 390	390	U	230	< 400	400	U	230	< 370	370	U	220	< 400	400	U	240
Benzo(a)pyrene	1,000	1,000	**700**	180	-	120	< 180	180	U	120	< 190	190	U	130	< 1100	1,100	U	1100	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	**240**	190	-	120	< 200	200	U	130
Benzo(b)fluoranthene	1,000	1,000	**800**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 1200	1,200	U	1200	< 280	280	U	140	< 280	280	U	140	< 280	280	U	130	< 280	280	U	140	**220**	260	J	130	< 280	280	U	140
Benzo(ghi)perylene	100,000	100,000	**390**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
Benzo(k)fluoranthene	800	3,900	**700**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 1100	1,100	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	**220**	260	J	120	< 280	280	U	130
Benzoic acid			< 1800	1,800	U	720	< 1800	1,800	U	720	< 1900	1,900	U	770	< 17000	17,000	U	6900	< 2000	2,000	U	790	< 2000	2,000	U	800	< 2000	2,000	U	790	**3,300**	2,000	-	800	< 1900	1,900	U	740	< 2000	2,000	U	800
Benzyl butyl phthalate			**440**	250	-	93	< 250	250	U	93	< 270	270	U	99	< 2400	2,400	U	890	< 280	280	U	100	< 280	280	U	100	< 280	280	U	100	< 280	280	U	100	< 260	260	U	96	< 280	280	U	100
Bis(2-chloroethoxy)methane			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	950	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	100	< 280	280	U	110
Bis(2-chloroethyl)ether			< 180	180	U	98	< 180	180	U	97	< 190	190	U	100	< 1700	1,700	U	930	< 200	200	U	110	< 200	200	U	110	< 200	200	U	110	< 200	200	U	110	< 190	190	U	100	< 200	200	U	110
Bis(2-chloroisopropyl)ether			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	950	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	100	< 280	280	U	110
Bis(2-ethylhexyl)phthalate			**110**	250	J	100	< 250	250	U	100	< 270	270	U	110	**2,600**	2,400	-	990	< 280	280	U	110	< 280	280	U	120	< 280	280	U	110	< 280	280	U	110	< 260	260	U	110	< 280	280	U	120
Carbazole			< 180	180	U	140	< 180	180	U	140	< 190	190	U	150	< 1700	1,700	U	1400	< 200	200	U	160	< 200	200	U	160	< 200	200	U	160	< 200	200	U	160	< 190	190	U	150	< 200	200	U	160
Chrysene	1,000	3,900	**690**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 1200	1,200	U	1200	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	**280**	260	-	120	< 280	280	U	140
Dibenz(a,h)anthracene	330	330	**120**	180	J	120	< 180	180	U	120	< 190	190	U	120	< 1100	1,100	U	1100	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
Dibenzofuran	7,000	59,000	**160**	250	J	110	< 250	250	U	110	< 270	270	U	110	< 2400	2,400	U	1000	< 280	280	U	120	< 280	280	U	120	< 280	280	U	110	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
Diethyl phthalate			< 250	250	U	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	120	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
Dimethylphthalate			< 250	250	U	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1100	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
Di-n-butylphthalate			< 250	250	U	96	< 250	250	U	96	< 270	270	U	100	< 2400	2,400	U	910	< 280	280	U	110	< 280	280	U	110	< 280	280	U	100	< 280	280	U	110	< 260	260	U	99	< 280	280	U	110
Di-n-octylphthalate			< 250	250	U	93	< 250	250	U	93	< 270	270	U	99	< 2400	2,400	U	890	< 280	280	U	100	< 280	280	U	100	< 280	280	U	100	< 280	280	U	100	< 260	260	U	96	< 280	280	U	100
Fluoranthene	100,000	100,000	**620**	250	-	120	< 250	250	U	120	< 270	270	U	120	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	**510**	260	-	120	< 280	280	U	130
Fluorene	30,000	100,000	**140**	250	J	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
Hexachlorobenzene			< 180	180	U	110	< 180	180	U	110	< 190	190	U	110	< 1700	1,700	U	1000	< 200	200	U	120	< 200	200	U	120	< 200	200	U	110	< 200	200	U	120	< 190	190	U	110	< 200	200	U	120
Hexachlorobutadiene			< 250	250	U	130	< 250	250	U	130	< 270	270	U	140	< 2400	2,400	U	1200	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 260	260	U	130	< 280	280	U	150
Hexachlorocyclopentadiene			< 250	250	U	110	< 250	250	U	110	< 270	270	U	120	< 2400	2,400	U	1100	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 280	280	U	120	< 260	260	U	110	< 280	280	U	120
Hexachloroethane			< 180	180	U	110	< 180	180	U	110	< 190	190	U	120	< 1700	1,700	U	1000	< 200	200	U	120	< 200	200	U	120	< 200	200	U	120	< 200	200	U	120	< 190	190	U	110	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	500	500	**530**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 1100	1,100	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	**150**	260	J	120	< 280	280	U	130
Isophorone			< 180	180	U	100	< 180	180	U	100	< 190	190	U	110	< 1700	1,700	U	960	< 200	200	U	110	< 200	200	U	110	< 200	200	U	110	< 200	200	U	110	< 190	190	U	100	< 200	200	U	110
Naphthalene	12,000	100,000	**520**	250	-	100	< 250	250	U	100	< 270	270	U	110	**5,600**	2,400	-	990	< 280	280	U	110	< 280	280	U	120	< 280	280	U	110	< 280	280	U	110	< 260	260	U	110	< 280	280	U	120
Nitrobenzene			< 180	180	U	130	< 180	180	U	130	< 190	190	U	130	< 1700	1,700	U	1200	< 200	200	U	140	< 200	200	U	140	< 200	200	U	140	< 200	200	U	140	< 190	190	U	130	< 200	200	U	140
N-Nitrosodimethylamine			< 250	250	U	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	970	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 260	260	U	100	< 280	280	U	110
N-Nitrosodi-n-propylamine			< 180	180	U	120	< 180	180	U	120	< 190	190	U	120	< 1700	1,700	U	1100	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
N-Nitrosodiphenylamine			< 250	250	U	140	< 250	250	U	140	< 270	270	U	150	< 2400	2,400	U	1300	< 280	280	U	150	< 280	280	U	150	< 280	280	U	150	< 280	280	U	150	< 260	260	U	140	< 280	280	U	150
Pentachloronitrobenzene			< 250	250	U	130	< 250	250	U	130	< 270	270	U	140	< 2400	2,400	U	1300	< 280	280	U	150	< 280	280	U	150	< 280	280	U	150	< 280	280	U	150	< 260	260	U	140	< 280	280	U	150
Pentachlorophenol	800	6,700	< 220	220	U	140	< 220	220	U	140	< 230	230	U	150	< 1300	1,300	U	1300	< 240	240	U	150	< 240	240	U	150	< 240	240	U	150	< 240	240	U	150	< 220	220	U	140	< 240	240	U	150
Phenanthrene	100,000	100,000	**620**	250	-	100	< 250	250	U	100	< 270	270	U	110	< 2400	2,400	U	980	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	< 280	280	U	110	**530**	260	-	110	< 280	280	U	110
Phenol	330	100,000	< 250	250	U	120	< 250	250	U	120	< 270	270	U	120	< 1100	1,100	U	1100	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 280	280	U	130	< 260	260	U	120	< 280	280	U	130
Pyrene	100,000	100,000	**650**	250	-	120	< 250	250	U	120	< 270	270	U	130	< 2400	2,400	U	1200	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	< 280	280	U	140	**460**	260	-	130	< 280	280	U	140
Pyridine			< 250	250	U	89	< 250	250	U	89	< 270	270	U	95	< 2400	2,400	U	840	< 280	280	U	98	< 280	280	U	98	< 280	280	U	97	< 280	280	U	98	< 260	260	U	91	< 280	280	U	99

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B9 (3-5') 11/14/2016 µg/Kg				15B9 (10-15') 11/14/2016 µg/Kg				15B10 (10-15') 11/14/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 260	260	U	130	< 250	250	U	130	< 250	250	U	130
1,2,4-Trichlorobenzene			< 260	260	U	110	< 250	250	U	110	< 250	250	U	110
1,2-Dichlorobenzene			**120**	260	J	100	< 250	250	U	100	< 250	250	U	100
1,2-Diphenylhydrazine			< 260	260	U	120	< 250	250	U	120	< 250	250	U	120
1,3-Dichlorobenzene			< 260	260	U	110	< 250	250	U	110	< 250	250	U	110
1,4-Dichlorobenzene			< 260	260	U	110	< 250	250	U	110	< 250	250	U	110
2,4,5-Trichlorophenol			< 260	260	U	200	< 250	250	U	200	< 250	250	U	200
2,4,6-Trichlorophenol			< 190	190	U	120	< 180	180	U	110	< 180	180	U	120
2,4-Dichlorophenol			< 190	190	U	130	< 180	180	U	130	< 180	180	U	130
2,4-Dimethylphenol			**170**	260	J	92	< 250	250	U	89	< 250	250	U	90
2,4-Dinitrophenol			< 260	260	U	260	< 250	250	U	250	< 250	250	U	250
2,4-Dinitrotoluene			< 190	190	U	150	< 180	180	U	140	< 180	180	U	140
2,6-Dinitrotoluene			< 190	190	U	120	< 180	180	U	110	< 180	180	U	110
2-Chloronaphthalene			< 260	260	U	110	< 250	250	U	100	< 250	250	U	100
2-Chlorophenol			< 260	260	U	110	< 250	250	U	100	< 250	250	U	100
2-Methylnaphthalene			**1,600**	260	-	110	< 250	250	U	110	< 250	250	U	110
2-Methylphenol (o-cresol)	330	100,000	< 260	260	U	170	< 250	250	U	170	< 250	250	U	170
2-Nitroaniline			< 260	260	U	260	< 250	250	U	250	< 250	250	U	250
2-Nitrophenol			< 260	260	U	240	< 250	250	U	230	< 250	250	U	230
3&4-Methylphenol (m&p-cresol)	330	100,000	< 260	260	U	150	< 250	250	U	140	< 250	250	U	140
3,3'-Dichlorobenzidine			< 190	190	U	180	< 180	180	U	170	< 180	180	U	170
3-Nitroaniline			< 370	370	U	740	< 360	360	U	710	< 360	360	U	730
4,6-Dinitro-2-methylphenol			< 220	220	U	74	< 210	210	U	71	< 220	220	U	73
4-Bromophenyl phenyl ether			< 260	260	U	110	< 250	250	U	110	< 250	250	U	110
4-Chloro-3-methylphenol			< 260	260	U	130	< 250	250	U	130	< 250	250	U	130
4-Chloroaniline			< 300	300	U	170	< 290	290	U	170	< 290	290	U	170
4-Chlorophenyl phenyl ether			< 260	260	U	120	< 250	250	U	120	< 250	250	U	120
4-Nitroaniline			< 370	370	U	120	< 360	360	U	120	< 360	360	U	120
4-Nitrophenol			< 370	370	U	170	< 360	360	U	160	< 360	360	U	160
Acenaphthene	20,000	100,000	**410**	260	-	110	< 250	250	U	110	< 250	250	U	110
Acenaphthylene	100,000	100,000	**170**	260	J	100	< 250	250	U	100	< 250	250	U	100
Acetophenone			< 260	260	U	120	< 250	250	U	110	< 250	250	U	110
Aniline			< 300	300	U	300	< 290	290	U	290	< 290	290	U	290
Anthracene	100,000	100,000	**660**	260	-	120	< 250	250	U	120	< 250	250	U	120
Benz(a)anthracene	1,000	1,000	**1,500**	260	-	120	< 250	250	U	120	< 250	250	U	120
Benzidine			< 370	370	U	220	< 360	360	U	210	< 360	360	U	210
Benzo(a)pyrene	1,000	1,000	**1,100**	190	-	120	< 180	180	U	120	< 180	180	U	120
Benzo(b)fluoranthene	1,000	1,000	**1,100**	260	-	130	< 250	250	U	120	< 250	250	U	120
Benzo(ghi)perylene	100,000	100,000	**640**	260	-	120	< 250	250	U	120	< 250	250	U	120
Benzo(k)fluoranthene	800	3,900	**900**	260	-	120	< 250	250	U	120	< 250	250	U	120
Benzoic acid			< 1900	1,900	U	740	< 1800	1,800	U	710	< 1800	1,800	U	730
Benzyl butyl phthalate			< 260	260	U	96	< 250	250	U	92	< 250	250	U	94
Bis(2-chloroethoxy)methane			< 260	260	U	100	< 250	250	U	99	< 250	250	U	100
Bis(2-chloroethyl)ether			< 190	190	U	100	< 180	180	U	96	< 180	180	U	98
Bis(2-chloroisopropyl)ether			< 260	260	U	100	< 250	250	U	99	< 250	250	U	100
Bis(2-ethylhexyl)phthalate			**1,600**	260	-	110	< 250	250	U	100	< 250	250	U	100
Carbazole			**360**	190	-	150	< 180	180	U	140	< 180	180	U	150
Chrysene	1,000	3,900	**1,600**	260	-	120	< 250	250	U	120	< 250	250	U	120
Dibenz(a,h)anthracene	330	330	< 190	190	U	120	< 180	180	U	120	< 180	180	U	120
Dibenzofuran	7,000	59,000	**340**	260	-	110	< 250	250	U	100	< 250	250	U	110
Diethyl phthalate			< 260	260	U	120	< 250	250	U	110	< 250	250	U	110
Dimethylphthalate			< 260	260	U	120	< 250	250	U	110	< 250	250	U	110
Di-n-butylphthalate			< 260	260	U	99	< 250	250	U	95	< 250	250	U	97
Di-n-octylphthalate			< 260	260	U	96	< 250	250	U	92	< 250	250	U	94
Fluoranthene	100,000	100,000	**6,100**	260	-	120	< 250	250	U	120	< 250	250	U	120
Fluorene	30,000	100,000	**590**	260	-	120	< 250	250	U	120	< 250	250	U	120
Hexachlorobenzene			< 190	190	U	110	< 180	180	U	100	< 180	180	U	110
Hexachlorobutadiene			< 260	260	U	130	< 250	250	U	130	< 250	250	U	130
Hexachlorocyclopentadiene			< 260	260	U	110	< 250	250	U	110	< 250	250	U	110
Hexachloroethane			< 190	190	U	110	< 180	180	U	110	< 180	180	U	110
Indeno(1,2,3-cd)pyrene	500	500	**630**	260	-	120	< 250	250	U	120	< 250	250	U	120
Isophorone			< 190	190	U	100	< 180	180	U	100	< 180	180	U	100
Naphthalene	12,000	100,000	**1,000**	260	-	110	< 250	250	U	100	< 250	250	U	100
Nitrobenzene			< 190	190	U	130	< 180	180	U	130	< 180	180	U	130
N-Nitrosodimethylamine			< 260	260	U	100	< 250	250	U	100	< 250	250	U	100
N-Nitrosodi-n-propylamine			< 190	190	U	120	< 180	180	U	120	< 180	180	U	120
N-Nitrosodiphenylamine			< 260	260	U	140	< 250	250	U	140	< 250	250	U	140
Pentachloronitrobenzene			< 260	260	U	140	< 250	250	U	130	< 250	250	U	140
Pentachlorophenol	800	6,700	< 220	220	U	140	< 210	210	U	140	< 220	220	U	140
Phenanthrene	100,000	100,000	**4,100**	260	-	110	< 250	250	U	100	< 250	250	U	100
Phenol	330	100,000	< 260	260	U	120	< 250	250	U	110	< 250	250	U	120
Pyrene	100,000	100,000	**5,500**	260	-	130	< 250	250	U	120	< 250	250	U	130
Pyridine			< 260	260	U	91	< 250	250	U	88	< 250	250	U	90

COMPOUND	15B11 (0-2') 11/10/2016 µg/Kg				15B11 (3-5') 11/10/2016 µg/Kg				15B11 (12-14') 11/10/2016 µg/Kg				15B12 (12-14') 11/10/2016 µg/Kg				15B12 (20-22') 11/10/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene	< 260	260	U	130	< 250	250	U	120	< 280	280	U	140	< 270	270	U	140	< 280	280	U	140
1,2,4-Trichlorobenzene	< 260	260	U	110	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	120
1,2-Dichlorobenzene	< 260	260	U	110	< 250	250	U	99	< 280	280	U	110	< 270	270	U	110	< 280	280	U	110
1,2-Diphenylhydrazine	< 260	260	U	120	< 250	250	U	110	< 280	280	U	130	< 270	270	U	130	< 280	280	U	130
1,3-Dichlorobenzene	< 260	260	U	110	< 250	250	U	100	< 280	280	U	120	< 270	270	U	110	< 280	280	U	120
1,4-Dichlorobenzene	< 260	260	U	110	< 250	250	U	100	< 280	280	U	120	< 270	270	U	110	< 280	280	U	120
2,4,5-Trichlorophenol	< 260	260	U	210	< 250	250	U	190	< 280	280	U	220	< 270	270	U	210	< 280	280	U	220
2,4,6-Trichlorophenol	< 190	190	U	120	< 180	180	U	110	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
2,4-Dichlorophenol	< 190	190	U	130	< 180	180	U	120	< 200	200	U	140	< 190	190	U	140	< 200	200	U	140
2,4-Dimethylphenol	< 260	260	U	93	< 250	250	U	87	< 280	280	U	98	< 270	270	U	96	< 280	280	U	100
2,4-Dinitrophenol	< 260	260	U	260	< 250	250	U	250	< 280	280	U	280	< 270	270	U	270	< 280	280	U	280
2,4-Dinitrotoluene	< 190	190	U	150	< 180	180	U	140	< 200	200	U	160	< 190	190	U	150	< 200	200	U	160
2,6-Dinitrotoluene	< 190	190	U	120	< 180	180	U	110	< 200	200	U	120	< 190	190	U	120	< 200	200	U	130
2-Chloronaphthalene	< 260	260	U	110	< 250	250	U	100	< 280	280	U	110	< 270	270	U	110	< 280	280	U	120
2-Chlorophenol	< 260	260	U	110	< 250	250	U	100	< 280	280	U	110	< 270	270	U	110	< 280	280	U	120
2-Methylnaphthalene	**330**	260	-	110	< 250	250	U	100	< 280	280	U	120	**1,300**	270	-	110	< 280	280	U	120
2-Methylphenol (o-cresol)	< 260	260	U	180	< 250	250	U	170	< 280	280	U	190	< 270	270	U	180	< 280	280	U	190
2-Nitroaniline	< 260	260	U	260	< 250	250	U	250	< 280	280	U	280	< 270	270	U	270	< 280	280	U	280
2-Nitrophenol	< 260	260	U	240	< 250	250	U	220	< 280	280	U	250	< 270	270	U	240	< 280	280	U	260
3&4-Methylphenol (m&p-cresol)	< 260	260	U	150	< 250	250	U	140	< 280	280	U	160	< 270	270	U	150	< 280	280	U	160
3,3'-Dichlorobenzidine	< 190	190	U	180	< 180	180	U	170	< 200	200	U	190	< 190	190	U	180	< 200	200	U	190
3-Nitroaniline	< 370	370	U	750	< 350	350	U	700	< 390	390	U	790	< 390	390	U	770	< 410	410	U	810
4,6-Dinitro-2-methylphenol	< 220	220	U	75	**130**	210	J	70	< 240	240	U	79	< 230	230	U	77	< 240	240	U	81
4-Bromophenyl phenyl ether	< 260	260	U	110	< 250	250	U	100	< 280	280	U	120	< 270	270	U	110	< 280	280	U	120
4-Chloro-3-methylphenol	< 260	260	U	130	< 250	250	U	120	< 280	280	U	140	< 270	270	U	140	< 280	280	U	140
4-Chloroaniline	< 300	300	U	170	< 280	280	U	160	< 320	320	U	180	< 310	310	U	180	< 320	320	U	190
4-Chlorophenyl phenyl ether	< 260	260	U	130	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	140
4-Nitroaniline	< 370	370	U	130	< 350	350	U	120	< 390	390	U	130	< 390	390	U	130	< 410	410	U	140
4-Nitrophenol	< 370	370	U	170	< 350	350	U	160	< 390	390	U	180	< 390	390	U	170	< 410	410	U	180
Acenaphthene	< 260	260	U	110	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	120
Acenaphthylene	**190**	260	J	100	< 250	250	U	98	< 280	280	U	110	< 270	270	U	110	< 280	280	U	110
Acetophenone	< 260	260	U	120	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	130
Aniline	< 300	300	U	300	< 280	280	U	280	< 320	320	U	320	< 310	310	U	310	< 320	320	U	320
Anthracene	**170**	260	J	120	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	130
Benz(a)anthracene	**480**	260	-	130	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	140
Benzidine	< 370	370	U	220	< 350	350	U	210	< 390	390	U	230	< 390	390	U	230	< 410	410	U	240
Benzo(a)pyrene	**870**	190	-	120	< 180	180	U	110	< 200	200	U	130	< 190	190	U	130	< 200	200	U	130
Benzo(b)fluoranthene	**920**	260	-	130	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	140
Benzo(ghi)perylene	**620**	260	-	120	< 250	250	U	110	< 280	280	U	130	< 270	270	U	120	< 280	280	U	130
Benzo(k)fluoranthene	**770**	260	-	120	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	130
Benzoic acid	< 1900	1,900	U	750	< 1800	1,800	U	700	< 2000	2,000	U	790	< 1900	1,900	U	770	< 2000	2,000	U	810
Benzyl butyl phthalate	< 260	260	U	97	< 250	250	U	91	< 280	280	U	100	< 270	270	U	99	< 280	280	U	100
Bis(2-chloroethoxy)methane	< 260	260	U	100	< 250	250	U	97	< 280	280	U	110	< 270	270	U	110	< 280	280	U	110
Bis(2-chloroethyl)ether	< 190	190	U	100	< 180	180	U	95	< 200	200	U	110	< 190	190	U	100	< 200	200	U	110
Bis(2-chloroisopropyl)ether	< 260	260	U	100	< 250	250	U	98	< 280	280	U	110	< 270	270	U	110	< 280	280	U	110
Bis(2-ethylhexyl)phthalate	**5,000**	260	-	110	< 250	250	U	100	< 280	280	U	110	**970**	270	-	110	< 280	280	U	120
Carbazole	< 190	190	U	150	< 180	180	U	140	< 200	200	U	160	< 190	190	U	150	< 200	200	U	160
Chrysene	**670**	260	-	130	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	140
Dibenz(a,h)anthracene	**170**	190	J	120	< 180	180	U	110	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
Dibenzofuran	< 260	260	U	110	< 250	250	U	100	< 280	280	U	120	< 270	270	U	110	< 280	280	U	120
Diethyl phthalate	< 260	260	U	120	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	130
Dimethylphthalate	< 260	260	U	120	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	130
Di-n-butylphthalate	< 260	260	U	100	< 250	250	U	93	< 280	280	U	100	< 270	270	U	100	< 280	280	U	110
Di-n-octylphthalate	< 260	260	U	97	< 250	250	U	91	< 280	280	U	100	< 270	270	U	99	< 280	280	U	100
Fluoranthene	**950**	260	-	120	< 250	250	U	110	< 280	280	U	130	< 270	270	U	120	< 280	280	U	130
Fluorene	< 260	260	U	120	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	130
Hexachlorobenzene	< 190	190	U	110	< 180	180	U	100	< 200	200	U	120	< 190	190	U	110	< 200	200	U	120
Hexachlorobutadiene	< 260	260	U	140	< 250	250	U	130	< 280	280	U	140	< 270	270	U	140	< 280	280	U	150
Hexachlorocyclopentadiene	< 260	260	U	110	< 250	250	U	110	< 280	280	U	120	< 270	270	U	120	< 280	280	U	120
Hexachloroethane	< 190	190	U	110	< 180	180	U	110	< 200	200	U	120	< 190	190	U	120	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	**720**	260	-	120	< 250	250	U	120	< 280	280	U	130	< 270	270	U	130	< 280	280	U	130
Isophorone	< 190	190	U	100	< 180	180	U	98	< 200	200	U	110	< 190	190	U	110	< 200	200	U	110
Naphthalene	**280**	260	-	110	< 250	250	U	100	< 280	280	U	110	**770**	270	-	110	< 280	280	U	120
Nitrobenzene	< 190	190	U	130	< 180	180	U	120	< 200	200	U	140	< 190	190	U	130	< 200	200	U	140
N-Nitrosodimethylamine	< 260	260	U	110	< 250	250	U	99	< 280	280	U	110	< 270	270	U	110	< 280	280	U	110
N-Nitrosodi-n-propylamine	< 190	190	U	120	< 180	180	U	110	< 200	200	U	130	< 190	190	U	120	< 200	200	U	130
N-Nitrosodiphenylamine	< 260	260	U	140	< 250	250	U	130	< 280	280	U	150	< 270	270	U	150	< 280	280	U	160
Pentachloronitrobenzene	< 260	260	U	140	< 250	250	U	130	< 280	280	U	150	< 270	270	U	140	< 280	280	U	150
Pentachlorophenol	< 220	220	U	140	< 210	210	U	130	< 240	240	U	150	< 230	230	U	150	< 240	240	U	150
Phenanthrene	**620**	260	-	110	< 250	250	U	100	< 280	280	U	110	< 270	270	U	110	< 280	280	U	120
Phenol	< 260	260	U	120	< 250	250	U	110	< 280	280	U	130	< 270	270	U	120	< 280	280	U	130
Pyrene	**1,500**	260	-	130	< 250	250	U	120	< 280	280	U	140	< 270	270	U	130	< 280	280	U	140
Pyridine	< 260	260	U	92	< 250	250	U	86	< 280	280	U	97	< 270	270	U	95	< 280	280	U	100

COMPOUND	15B13 (12-14') 11/10/2016 µg/Kg				15B14 (1-3') 11/10/2016 µg/Kg				15B14 (12-14') 11/10/2016 µg/Kg				15B14 (14-16') 11/10/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene	< 280	280	U	140	< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
1,2,4-Trichlorobenzene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
1,2-Dichlorobenzene	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
1,2-Diphenylhydrazine	< 280	280	U	130	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
1,3-Dichlorobenzene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
1,4-Dichlorobenzene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
2,4,5-Trichlorophenol	< 280	280	U	220	< 260	260	U	200	< 270	270	U	220	< 280	280	U	220
2,4,6-Trichlorophenol	< 200	200	U	130	< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
2,4-Dichlorophenol	< 200	200	U	140	< 180	180	U	130	< 200	200	U	140	< 200	200	U	140
2,4-Dimethylphenol	< 280	280	U	99	< 260	260	U	91	< 270	270	U	97	< 280	280	U	99
2,4-Dinitrophenol	< 280	280	U	280	< 260	260	U	260	< 270	270	U	270	< 280	280	U	280
2,4-Dinitrotoluene	< 200	200	U	160	< 180	180	U	140	< 200	200	U	150	< 200	200	U	160
2,6-Dinitrotoluene	< 200	200	U	130	< 180	180	U	120	< 200	200	U	120	< 200	200	U	130
2-Chloronaphthalene	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
2-Chlorophenol	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
2-Methylnaphthalene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
2-Methylphenol (o-cresol)	< 280	280	U	190	< 260	260	U	170	< 270	270	U	180	< 280	280	U	190
2-Nitroaniline	< 280	280	U	280	< 260	260	U	260	< 270	270	U	270	< 280	280	U	280
2-Nitrophenol	< 280	280	U	250	< 260	260	U	230	< 270	270	U	250	< 280	280	U	250
3&4-Methylphenol (m&p-cresol)	< 280	280	U	160	< 260	260	U	140	< 270	270	U	150	< 280	280	U	160
3,3'-Dichlorobenzidine	< 200	200	U	190	< 180	180	U	170	< 200	200	U	190	< 200	200	U	190
3-Nitroaniline	< 400	400	U	790	< 370	370	U	730	< 390	390	U	790	< 400	400	U	800
4,6-Dinitro-2-methylphenol	< 240	240	U	79	< 220	220	U	73	< 240	240	U	79	< 240	240	U	80
4-Bromophenyl phenyl ether	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
4-Chloro-3-methylphenol	< 280	280	U	140	< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
4-Chloroaniline	< 320	320	U	190	< 290	290	U	170	< 310	310	U	180	< 320	320	U	190
4-Chlorophenyl phenyl ether	< 280	280	U	130	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
4-Nitroaniline	< 400	400	U	130	< 370	370	U	120	< 390	390	U	130	< 400	400	U	130
4-Nitrophenol	< 400	400	U	180	< 370	370	U	170	< 390	390	U	180	< 400	400	U	180
Acenaphthene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Acenaphthylene	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Acetophenone	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Aniline	< 320	320	U	320	< 290	290	U	290	< 310	310	U	310	< 320	320	U	320
Anthracene	< 280	280	U	130	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Benz(a)anthracene	< 280	280	U	130	**330**	260	-	120	< 270	270	U	130	< 280	280	U	130
Benzidine	< 400	400	U	230	< 370	370	U	220	< 390	390	U	230	< 400	400	U	240
Benzo(a)pyrene	< 200	200	U	130	**300**	180	-	120	< 200	200	U	130	< 200	200	U	130
Benzo(b)fluoranthene	< 280	280	U	140	**380**	260	-	130	< 270	270	U	130	< 280	280	U	140
Benzo(ghi)perylene	< 280	280	U	130	**180**	260	J	120	< 270	270	U	130	< 280	280	U	130
Benzo(k)fluoranthene	< 280	280	U	130	**300**	260	-	120	< 270	270	U	130	< 280	280	U	130
Benzoic acid	< 2000	2,000	U	790	< 1800	1,800	U	730	< 2000	2,000	U	790	< 2000	2,000	U	800
Benzyl butyl phthalate	< 280	280	U	100	< 260	260	U	94	< 270	270	U	100	< 280	280	U	100
Bis(2-chloroethoxy)methane	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Bis(2-chloroethyl)ether	< 200	200	U	110	< 180	180	U	99	< 200	200	U	110	< 200	200	U	110
Bis(2-chloroisopropyl)ether	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Bis(2-ethylhexyl)phthalate	< 280	280	U	110	**170**	260	J	110	< 270	270	U	110	< 280	280	U	120
Carbazole	< 200	200	U	160	< 180	180	U	150	< 200	200	U	160	< 200	200	U	160
Chrysene	< 280	280	U	130	**420**	260	-	120	< 270	270	U	130	< 280	280	U	130
Dibenz(a,h)anthracene	< 200	200	U	130	< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
Dibenzofuran	< 280	280	U	120	< 260	260	U	110	< 270	270	U	110	< 280	280	U	120
Diethyl phthalate	< 280	280	U	130	< 260	260	U	120	< 270	270	U	120	< 280	280	U	130
Dimethylphthalate	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Di-n-butylphthalate	< 280	280	U	110	< 260	260	U	97	< 270	270	U	100	< 280	280	U	110
Di-n-octylphthalate	< 280	280	U	100	< 260	260	U	94	< 270	270	U	100	< 280	280	U	100
Fluoranthene	< 280	280	U	130	**530**	260	-	120	< 270	270	U	130	< 280	280	U	130
Fluorene	< 280	280	U	130	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Hexachlorobenzene	< 200	200	U	120	< 180	180	U	110	< 200	200	U	110	< 200	200	U	120
Hexachlorobutadiene	< 280	280	U	140	< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
Hexachlorocyclopentadiene	< 280	280	U	120	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Hexachloroethane	< 200	200	U	120	< 180	180	U	110	< 200	200	U	120	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	< 280	280	U	130	**180**	260	J	120	< 270	270	U	130	< 280	280	U	130
Isophorone	< 200	200	U	110	**910**	180	-	100	< 200	200	U	110	< 200	200	U	110
Naphthalene	< 280	280	U	110	**130**	260	J	110	< 270	270	U	110	< 280	280	U	120
Nitrobenzene	< 200	200	U	140	< 180	180	U	130	< 200	200	U	140	< 200	200	U	140
N-Nitrosodimethylamine	< 280	280	U	110	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
N-Nitrosodi-n-propylamine	< 200	200	U	130	< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
N-Nitrosodiphenylamine	< 280	280	U	150	< 260	260	U	140	< 270	270	U	150	< 280	280	U	150
Pentachloronitrobenzene	< 280	280	U	150	< 260	260	U	140	< 270	270	U	150	< 280	280	U	150
Pentachlorophenol	< 240	240	U	150	< 220	220	U	140	< 240	240	U	150	< 240	240	U	150
Phenanthrene	< 280	280	U	110	**500**	260	-	100	< 270	270	U	110	< 280	280	U	110
Phenol	< 280	280	U	130	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Pyrene	< 280	280	U	140	**580**	260	-	130	< 270	270	U	140	< 280	280	U	140
Pyridine	< 280	280	U	98	< 260	260	U	90	< 270	270	U	97	< 280	280	U	98

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYSDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B14 (1-3') 11/10/2016 µg/Kg				15B14 (12-14') 11/10/2016 µg/Kg				15B14 (14-16') 11/10/2016 µg/Kg			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
1,2,4-Trichlorobenzene			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
1,2-Dichlorobenzene			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
1,2-Diphenylhydrazine			< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
1,3-Dichlorobenzene			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
1,4-Dichlorobenzene			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
2,4,5-Trichlorophenol			< 260	260	U	200	< 270	270	U	220	< 280	280	U	220
2,4,6-Trichlorophenol			< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
2,4-Dichlorophenol			< 180	180	U	130	< 200	200	U	140	< 200	200	U	140
2,4-Dimethylphenol			< 260	260	U	91	< 270	270	U	97	< 280	280	U	99
2,4-Dinitrophenol			< 260	260	U	260	< 270	270	U	270	< 280	280	U	280
2,4-Dinitrotoluene			< 180	180	U	140	< 200	200	U	150	< 200	200	U	160
2,6-Dinitrotoluene			< 180	180	U	120	< 200	200	U	120	< 200	200	U	130
2-Chloronaphthalene			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
2-Chlorophenol			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
2-Methylnaphthalene			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
2-Methylphenol (o-cresol)	330	100,000	< 260	260	U	170	< 270	270	U	180	< 280	280	U	190
2-Nitroaniline			< 260	260	U	260	< 270	270	U	270	< 280	280	U	280
2-Nitrophenol			< 260	260	U	230	< 270	270	U	250	< 280	280	U	250
3&4-Methylphenol (m&p-cresol)	330	100,000	< 260	260	U	140	< 270	270	U	150	< 280	280	U	160
3,3'-Dichlorobenzidine			< 180	180	U	170	< 200	200	U	190	< 200	200	U	190
3-Nitroaniline			< 370	370	U	730	< 390	390	U	790	< 400	400	U	800
4,6-Dinitro-2-methylphenol			< 220	220	U	73	< 240	240	U	79	< 240	240	U	80
4-Bromophenyl phenyl ether			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
4-Chloro-3-methylphenol			< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
4-Chloroaniline			< 290	290	U	170	< 310	310	U	180	< 320	320	U	190
4-Chlorophenyl phenyl ether			< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
4-Nitroaniline			< 370	370	U	120	< 390	390	U	130	< 400	400	U	130
4-Nitrophenol			< 370	370	U	170	< 390	390	U	180	< 400	400	U	180
Acenaphthene	20,000	100,000	< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Acenaphthylene	100,000	100,000	< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Acetophenone			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Aniline			< 290	290	U	290	< 310	310	U	310	< 320	320	U	320
Anthracene	100,000	100,000	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Benz(a)anthracene	1,000	1,000	**330**	260	-	120	< 270	270	U	130	< 280	280	U	130
Benzidine			< 370	370	U	220	< 390	390	U	230	< 400	400	U	240
Benzo(a)pyrene	1,000	1,000	**300**	180	-	120	< 200	200	U	130	< 200	200	U	130
Benzo(b)fluoranthene	1,000	1,000	**380**	260	-	130	< 270	270	U	130	< 280	280	U	140
Benzo(ghi)perylene	100,000	100,000	**180**	260	J	120	< 270	270	U	130	< 280	280	U	130
Benzo(k)fluoranthene	800	3,900	**300**	260	-	120	< 270	270	U	130	< 280	280	U	130
Benzoic acid			< 1800	1,800	U	730	< 2000	2,000	U	790	< 2000	2,000	U	800
Benzyl butyl phthalate			< 260	260	U	94	< 270	270	U	100	< 280	280	U	100
Bis(2-chloroethoxy)methane			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Bis(2-chloroethyl)ether			< 180	180	U	99	< 200	200	U	110	< 200	200	U	110
Bis(2-chloroisopropyl)ether			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
Bis(2-ethylhexyl)phthalate			**170**	260	J	110	< 270	270	U	110	< 280	280	U	120
Carbazole			< 180	180	U	150	< 200	200	U	160	< 200	200	U	160
Chrysene	1,000	3,900	**420**	260	-	120	< 270	270	U	130	< 280	280	U	130
Dibenz(a,h)anthracene	330	330	< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
Dibenzofuran	7,000	59,000	< 260	260	U	110	< 270	270	U	110	< 280	280	U	120
Diethyl phthalate			< 260	260	U	120	< 270	270	U	120	< 280	280	U	130
Dimethylphthalate			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Di-n-butylphthalate			< 260	260	U	97	< 270	270	U	100	< 280	280	U	110
Di-n-octylphthalate			< 260	260	U	94	< 270	270	U	100	< 280	280	U	100
Fluoranthene	100,000	100,000	**530**	260	-	120	< 270	270	U	130	< 280	280	U	130
Fluorene	30,000	100,000	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Hexachlorobenzene			< 180	180	U	110	< 200	200	U	110	< 200	200	U	120
Hexachlorobutadiene			< 260	260	U	130	< 270	270	U	140	< 280	280	U	140
Hexachlorocyclopentadiene			< 260	260	U	110	< 270	270	U	120	< 280	280	U	120
Hexachloroethane			< 180	180	U	110	< 200	200	U	120	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	500	500	**180**	260	J	120	< 270	270	U	130	< 280	280	U	130
Isophorone			**910**	180	-	100	< 200	200	U	110	< 200	200	U	110
Naphthalene	12,000	100,000	**130**	260	J	110	< 270	270	U	110	< 280	280	U	120
Nitrobenzene			< 180	180	U	130	< 200	200	U	140	< 200	200	U	140
N-Nitrosodimethylamine			< 260	260	U	100	< 270	270	U	110	< 280	280	U	110
N-Nitrosodi-n-propylamine			< 180	180	U	120	< 200	200	U	130	< 200	200	U	130
N-Nitrosodiphenylamine			< 260	260	U	140	< 270	270	U	150	< 280	280	U	150
Pentachloronitrobenzene			< 260	260	U	140	< 270	270	U	150	< 280	280	U	150
Pentachlorophenol	800	6,700	< 220	220	U	140	< 240	240	U	150	< 240	240	U	150
Phenanthrene	100,000	100,000	**500**	260	-	100	< 270	270	U	110	< 280	280	U	110
Phenol	330	100,000	< 260	260	U	120	< 270	270	U	130	< 280	280	U	130
Pyrene	100,000	100,000	**580**	260	-	130	< 270	270	U	140	< 280	280	U	140
Pyridine			< 260	260	U	90	< 270	270	U	97	< 280	280	U	98

COMPOUND	15B19 (0-2') 11/14/2016 µg/Kg				15B19 (12-14') 11/14/2016 µg/Kg				15B19 (18-20') 11/14/2016 µg/Kg				15B19 (20-25') 11/14/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene	< 250	250	U	130	< 280	280	U	140	< 2900	2,900	U	1400	< 290	290	U	140
1,2,4-Trichlorobenzene	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	120
1,2-Dichlorobenzene	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
1,2-Diphenylhydrazine	< 250	250	U	120	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	130
1,3-Dichlorobenzene	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	120
1,4-Dichlorobenzene	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	120
2,4,5-Trichlorophenol	< 250	250	U	200	< 280	280	U	220	< 2900	2,900	U	2200	< 290	290	U	230
2,4,6-Trichlorophenol	< 180	180	U	110	< 200	200	U	130	< 2000	2,000	U	1300	< 210	210	U	130
2,4-Dichlorophenol	< 180	180	U	130	< 200	200	U	140	< 2000	2,000	U	1400	< 210	210	U	140
2,4-Dimethylphenol	< 250	250	U	89	< 280	280	U	99	< 2900	2,900	U	1000	< 290	290	U	100
2,4-Dinitrophenol	< 250	250	U	250	< 280	280	U	280	< 2900	2,900	U	2900	< 290	290	U	290
2,4-Dinitrotoluene	< 180	180	U	140	< 200	200	U	160	< 2000	2,000	U	1600	< 210	210	U	160
2,6-Dinitrotoluene	< 180	180	U	110	< 200	200	U	130	< 2000	2,000	U	1300	< 210	210	U	130
2-Chloronaphthalene	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
2-Chlorophenol	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
2-Methylnaphthalene	< 250	250	U	110	< 280	280	U	120	**11,000**	2,900	-	1200	< 290	290	U	120
2-Methylphenol (o-cresol)	< 250	250	U	170	< 280	280	U	190	< 1900	1,900	U	1900	< 290	290	U	190
2-Nitroaniline	< 250	250	U	250	< 280	280	U	280	< 2900	2,900	U	2900	< 290	290	U	290
2-Nitrophenol	< 250	250	U	230	< 280	280	U	250	< 2900	2,900	U	2600	< 290	290	U	260
3&4-Methylphenol (m&p-cresol)	< 250	250	U	140	< 280	280	U	160	< 2900	2,900	U	1600	< 290	290	U	160
3,3'-Dichlorobenzidine	< 180	180	U	170	< 200	200	U	190	< 2000	2,000	U	1900	< 210	210	U	190
3-Nitroaniline	< 360	360	U	720	< 400	400	U	800	< 4100	4,100	U	8200	< 410	410	U	820
4,6-Dinitro-2-methylphenol	< 220	220	U	72	< 240	240	U	80	< 2500	2,500	U	820	< 250	250	U	82
4-Bromophenyl phenyl ether	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	120
4-Chloro-3-methylphenol	< 250	250	U	130	< 280	280	U	140	< 2900	2,900	U	1400	< 290	290	U	140
4-Chloroaniline	< 290	290	U	170	< 320	320	U	190	< 3300	3,300	U	1900	< 330	330	U	190
4-Chlorophenyl phenyl ether	< 250	250	U	120	< 280	280	U	130	< 2900	2,900	U	1400	< 290	290	U	140
4-Nitroaniline	< 360	360	U	120	< 400	400	U	130	< 4100	4,100	U	1400	< 410	410	U	140
4-Nitrophenol	< 360	360	U	160	< 400	400	U	180	< 4100	4,100	U	1800	< 410	410	U	190
Acenaphthene	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	130
Acenaphthylene	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1100	< 290	290	U	120
Acetophenone	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1300	< 290	290	U	130
Aniline	< 290	290	U	290	< 320	320	U	320	< 3300	3,300	U	3300	< 330	330	U	330
Anthracene	**230**	250	J	120	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	130
Benz(a)anthracene	**910**	250	-	120	< 280	280	U	130	< 1400	1,400	U	1400	< 290	290	U	140
Benzidine	< 360	360	U	210	< 400	400	U	230	< 4100	4,100	U	2400	< 410	410	U	240
Benzo(a)pyrene	**850**	180	-	120	< 200	200	U	130	< 1300	1,300	U	1300	< 210	210	U	130
Benzo(b)fluoranthene	**680**	250	-	120	< 280	280	U	140	< 1400	1,400	U	1400	< 290	290	U	140
Benzo(ghi)perylene	**590**	250	-	120	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	130
Benzo(k)fluoranthene	**670**	250	-	120	< 280	280	U	130	< 1400	1,400	U	1400	< 290	290	U	140
Benzoic acid	< 1800	1,800	U	720	< 2000	2,000	U	800	< 20000	20,000	U	8200	< 2100	2,100	U	820
Benzyl butyl phthalate	< 250	250	U	93	< 280	280	U	100	< 2900	2,900	U	1100	< 290	290	U	110
Bis(2-chloroethoxy)methane	< 250	250	U	99	< 280	280	U	110	< 2900	2,900	U	1100	< 290	290	U	110
Bis(2-chloroethyl)ether	< 180	180	U	97	< 200	200	U	110	< 2000	2,000	U	1100	< 210	210	U	110
Bis(2-chloroisopropyl)ether	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1100	< 290	290	U	110
Bis(2-ethylhexyl)phthalate	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
Carbazole	< 180	180	U	140	< 200	200	U	160	< 2000	2,000	U	1600	< 210	210	U	160
Chrysene	**970**	250	-	120	< 280	280	U	130	< 1400	1,400	U	1400	< 290	290	U	140
Dibenz(a,h)anthracene	**140**	180	J	120	< 200	200	U	130	< 1300	1,300	U	1300	< 210	210	U	130
Dibenzofuran	< 250	250	U	100	< 280	280	U	120	< 2900	2,900	U	1200	< 290	290	U	120
Diethyl phthalate	< 250	250	U	110	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	130
Dimethylphthalate	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1300	< 290	290	U	130
Di-n-butylphthalate	< 250	250	U	96	< 280	280	U	110	< 2900	2,900	U	1100	< 290	290	U	110
Di-n-octylphthalate	< 250	250	U	93	< 280	280	U	100	< 2900	2,900	U	1100	< 290	290	U	110
Fluoranthene	**1,500**	250	-	120	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	130
Fluorene	< 250	250	U	120	< 280	280	U	130	< 2900	2,900	U	1300	< 290	290	U	140
Hexachlorobenzene	< 180	180	U	100	< 200	200	U	120	< 2000	2,000	U	1200	< 210	210	U	120
Hexachlorobutadiene	< 250	250	U	130	< 280	280	U	140	< 2900	2,900	U	1500	< 290	290	U	150
Hexachlorocyclopentadiene	< 250	250	U	110	< 280	280	U	120	< 2900	2,900	U	1300	< 290	290	U	130
Hexachloroethane	< 180	180	U	110	< 200	200	U	120	< 2000	2,000	U	1200	< 210	210	U	120
Indeno(1,2,3-cd)pyrene	**600**	250	-	120	< 280	280	U	130	< 1400	1,400	U	1400	< 290	290	U	140
Isophorone	< 180	180	U	100	< 200	200	U	110	< 2000	2,000	U	1100	< 210	210	U	120
Naphthalene	< 250	250	U	100	< 280	280	U	110	**17,000**	2,900	-	1200	< 290	290	U	120
Nitrobenzene	< 180	180	U	130	< 200	200	U	140	< 2000	2,000	U	1400	< 210	210	U	140
N-Nitrosodimethylamine	< 250	250	U	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
N-Nitrosodi-n-propylamine	< 180	180	U	120	< 200	200	U	130	< 2000	2,000	U	1300	< 210	210	U	130
N-Nitrosodiphenylamine	< 250	250	U	140	< 280	280	U	150	< 2900	2,900	U	1600	< 290	290	U	160
Pentachloronitrobenzene	< 250	250	U	130	< 280	280	U	150	< 2900	2,900	U	1500	< 290	290	U	150
Pentachlorophenol	< 220	220	U	140	< 240	240	U	150	< 1500	1,500	U	1500	< 250	250	U	160
Phenanthrene	**1,100**	250	-	100	< 280	280	U	110	< 2900	2,900	U	1200	< 290	290	U	120
Phenol	< 250	250	U	110	< 280	280	U	130	< 1300	1,300	U	1300	< 290	290	U	130
Pyrene	**1,500**	250	-	120	< 280	280	U	140	< 2900	2,900	U	1400	< 290	290	U	140
Pyridine	< 250	250	U	88	< 280	280	U	98	< 2900	2,900	U	1000	< 290	290	U	100

COMPOUND	15B20 (0-2') 11/10/2016 µg/Kg				15B20 (12-14') 11/10/2016 µg/Kg				Duplicate 15B20 (12-14') 11/10/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene	< 250	250	U	130	< 260	260	U	130	< 260	260	U	130
1,2,4-Trichlorobenzene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	110
1,2-Dichlorobenzene	< 250	250	U	100	< 260	260	U	100	< 260	260	U	110
1,2-Diphenylhydrazine	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
1,3-Dichlorobenzene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	110
1,4-Dichlorobenzene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	110
2,4,5-Trichlorophenol	< 250	250	U	200	< 260	260	U	200	< 260	260	U	210
2,4,6-Trichlorophenol	< 180	180	U	110	< 190	190	U	120	< 190	190	U	120
2,4-Dichlorophenol	< 180	180	U	130	< 190	190	U	130	< 190	190	U	130
2,4-Dimethylphenol	< 250	250	U	89	< 260	260	U	92	< 260	260	U	93
2,4-Dinitrophenol	< 250	250	U	250	< 260	260	U	260	< 260	260	U	260
2,4-Dinitrotoluene	< 180	180	U	140	< 190	190	U	150	< 190	190	U	150
2,6-Dinitrotoluene	< 180	180	U	110	< 190	190	U	120	< 190	190	U	120
2-Chloronaphthalene	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
2-Chlorophenol	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
2-Methylnaphthalene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	110
2-Methylphenol (o-cresol)	< 250	250	U	170	< 260	260	U	170	< 260	260	U	180
2-Nitroaniline	< 250	250	U	250	< 260	260	U	260	< 260	260	U	260
2-Nitrophenol	< 250	250	U	230	< 260	260	U	240	< 260	260	U	240
3&4-Methylphenol (m&p-cresol)	< 250	250	U	140	< 260	260	U	150	< 260	260	U	150
3,3'-Dichlorobenzidine	< 180	180	U	170	< 190	190	U	180	< 190	190	U	180
3-Nitroaniline	< 360	360	U	710	< 370	370	U	740	< 380	380	U	750
4,6-Dinitro-2-methylphenol	< 210	210	U	71	< 220	220	U	74	< 230	230	U	75
4-Bromophenyl phenyl ether	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
4-Chloro-3-methylphenol	< 250	250	U	130	< 260	260	U	130	< 260	260	U	130
4-Chloroaniline	< 290	290	U	170	< 300	300	U	170	< 300	300	U	180
4-Chlorophenyl phenyl ether	< 250	250	U	120	< 260	260	U	120	< 260	260	U	130
4-Nitroaniline	< 360	360	U	120	< 370	370	U	120	< 380	380	U	130
4-Nitrophenol	< 360	360	U	160	< 370	370	U	170	< 380	380	U	170
Acenaphthene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	110
Acenaphthylene	< 250	250	U	100	< 260	260	U	100	< 260	260	U	110
Acetophenone	< 250	250	U	110	< 260	260	U	120	< 260	260	U	120
Aniline	< 290	290	U	290	< 300	300	U	300	< 300	300	U	300
Anthracene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
Benz(a)anthracene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	130
Benzidine	< 360	360	U	210	< 370	370	U	220	< 380	380	U	220
Benzo(a)pyrene	< 180	180	U	120	< 190	190	U	120	< 190	190	U	120
Benzo(b)fluoranthene	< 250	250	U	120	< 260	260	U	130	< 260	260	U	130
Benzo(ghi)perylene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
Benzo(k)fluoranthene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
Benzoic acid	< 1800	1,800	U	710	< 1900	1,900	U	740	< 1900	1,900	U	750
Benzyl butyl phthalate	< 250	250	U	92	< 260	260	U	96	< 260	260	U	97
Bis(2-chloroethoxy)methane	< 250	250	U	99	< 260	260	U	100	< 260	260	U	100
Bis(2-chloroethyl)ether	< 180	180	U	96	< 190	190	U	100	< 190	190	U	100
Bis(2-chloroisopropyl)ether	< 250	250	U	99	< 260	260	U	100	< 260	260	U	100
Bis(2-ethylhexyl)phthalate	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
Carbazole	< 180	180	U	140	< 190	190	U	150	< 190	190	U	150
Chrysene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	130
Dibenz(a,h)anthracene	< 180	180	U	120	< 190	190	U	120	< 190	190	U	120
Dibenzofuran	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
Diethyl phthalate	< 250	250	U	110	< 260	260	U	120	< 260	260	U	120
Dimethylphthalate	< 250	250	U	110	< 260	260	U	120	< 260	260	U	120
Di-n-butylphthalate	< 250	250	U	95	< 260	260	U	99	< 260	260	U	100
Di-n-octylphthalate	< 250	250	U	92	< 260	260	U	96	< 260	260	U	97
Fluoranthene	**160**	250	J	120	< 260	260	U	120	< 260	260	U	120
Fluorene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
Hexachlorobenzene	< 180	180	U	100	< 190	190	U	110	< 190	190	U	110
Hexachlorobutadiene	< 250	250	U	130	< 260	260	U	130	< 260	260	U	140
Hexachlorocyclopentadiene	< 250	250	U	110	< 260	260	U	110	< 260	260	U	120
Hexachloroethane	< 180	180	U	110	< 190	190	U	110	< 190	190	U	110
Indeno(1,2,3-cd)pyrene	< 250	250	U	120	< 260	260	U	120	< 260	260	U	120
Isophorone	< 180	180	U	100	< 190	190	U	100	< 190	190	U	110
Naphthalene	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
Nitrobenzene	< 180	180	U	120	< 190	190	U	130	< 190	190	U	130
N-Nitrosodimethylamine	< 250	250	U	100	< 260	260	U	100	< 260	260	U	110
N-Nitrosodi-n-propylamine	< 180	180	U	120	< 190	190	U	120	< 190	190	U	120
N-Nitrosodiphenylamine	< 250	250	U	140	< 260	260	U	140	< 260	260	U	140
Pentachloronitrobenzene	< 250	250	U	130	< 260	260	U	140	< 260	260	U	140
Pentachlorophenol	< 210	210	U	130	< 220	220	U	140	< 230	230	U	140
Phenanthrene	< 250	250	U	100	< 260	260	U	110	< 260	260	U	110
Phenol	< 250	250	U	110	< 260	260	U	120	< 260	260	U	120
Pyrene	**160**	250	J	120	< 260	260	U	130	< 260	260	U	130
Pyridine	< 250	250	U	88	< 260	260	U	91	< 260	260	U	93

COMPOUND	Duplicate 2 15B7 (12-14') 11/11/2016 µg/Kg				Duplicate 3 15B19 (0-2') 11/14/2016 µg/Kg				Duplicate 4 15B2 (12-14') 11/14/2016 µg/Kg			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene	< 270	270	U	140	< 250	250	U	130	< 280	280	U	140
1,2,4-Trichlorobenzene	< 270	270	U	120	< 250	250	U	110	< 280	280	U	120
1,2-Dichlorobenzene	< 270	270	U	110	< 250	250	U	100	< 280	280	U	110
1,2-Diphenylhydrazine	< 270	270	U	130	< 250	250	U	120	< 280	280	U	130
1,3-Dichlorobenzene	< 270	270	U	110	< 250	250	U	110	< 280	280	U	120
1,4-Dichlorobenzene	< 270	270	U	110	< 250	250	U	110	< 280	280	U	120
2,4,5-Trichlorophenol	< 270	270	U	210	< 250	250	U	200	< 280	280	U	220
2,4,6-Trichlorophenol	< 190	190	U	120	< 180	180	U	110	< 200	200	U	130
2,4-Dichlorophenol	< 190	190	U	140	< 180	180	U	130	< 200	200	U	140
2,4-Dimethylphenol	< 270	270	U	96	< 250	250	U	89	< 280	280	U	100
2,4-Dinitrophenol	< 270	270	U	270	< 250	250	U	250	< 280	280	U	280
2,4-Dinitrotoluene	< 190	190	U	150	< 180	180	U	140	< 200	200	U	160
2,6-Dinitrotoluene	< 190	190	U	120	< 180	180	U	110	< 200	200	U	130
2-Chloronaphthalene	< 270	270	U	110	< 250	250	U	100	< 280	280	U	110
2-Chlorophenol	< 270	270	U	110	< 250	250	U	100	< 280	280	U	110
2-Methylnaphthalene	< 270	270	U	120	< 250	250	U	110	**1,100**	280	-	120
2-Methylphenol (o-cresol)	< 270	270	U	180	< 250	250	U	170	< 280	280	U	190
2-Nitroaniline	< 270	270	U	270	< 250	250	U	250	< 280	280	U	280
2-Nitrophenol	< 270	270	U	240	< 250	250	U	230	< 280	280	U	260
3&4-Methylphenol (m&p-cresol)	< 270	270	U	150	< 250	250	U	140	< 280	280	U	160
3,3'-Dichlorobenzidine	< 190	190	U	180	< 180	180	U	170	< 200	200	U	190
3-Nitroaniline	< 390	390	U	770	< 360	360	U	720	< 400	400	U	810
4,6-Dinitro-2-methylphenol	< 230	230	U	77	< 210	210	U	72	< 240	240	U	81
4-Bromophenyl phenyl ether	< 270	270	U	110	< 250	250	U	110	< 280	280	U	120
4-Chloro-3-methylphenol	< 270	270	U	140	< 250	250	U	130	< 280	280	U	140
4-Chloroaniline	< 310	310	U	180	< 290	290	U	170	< 320	320	U	190
4-Chlorophenyl phenyl ether	< 270	270	U	130	< 250	250	U	120	< 280	280	U	140
4-Nitroaniline	< 390	390	U	130	< 360	360	U	120	< 400	400	U	130
4-Nitrophenol	< 390	390	U	170	< 360	360	U	160	< 400	400	U	180
Acenaphthene	< 270	270	U	120	< 250	250	U	110	< 280	280	U	120
Acenaphthylene	< 270	270	U	110	< 250	250	U	100	< 280	280	U	110
Acetophenone	< 270	270	U	120	< 250	250	U	110	< 280	280	U	130
Aniline	< 310	310	U	310	< 290	290	U	290	< 320	320	U	320
Anthracene	< 270	270	U	130	**210**	250	J	120	< 280	280	U	130
Benz(a)anthracene	< 270	270	U	130	**980**	250	-	120	< 280	280	U	140
Benzidine	< 390	390	U	230	< 360	360	U	210	< 400	400	U	240
Benzo(a)pyrene	< 190	190	U	130	**930**	180	-	120	< 200	200	U	130
Benzo(b)fluoranthene	< 270	270	U	130	**730**	250	-	120	< 280	280	U	140
Benzo(ghi)perylene	< 270	270	U	130	**590**	250	-	120	< 280	280	U	130
Benzo(k)fluoranthene	< 270	270	U	130	**730**	250	-	120	< 280	280	U	130
Benzoic acid	< 1900	1,900	U	770	< 1800	1,800	U	720	< 2000	2,000	U	810
Benzyl butyl phthalate	< 270	270	U	100	< 250	250	U	92	< 280	280	U	100
Bis(2-chloroethoxy)methane	< 270	270	U	110	< 250	250	U	99	< 280	280	U	110
Bis(2-chloroethyl)ether	< 190	190	U	100	< 180	180	U	97	< 200	200	U	110
Bis(2-chloroisopropyl)ether	< 270	270	U	110	< 250	250	U	99	< 280	280	U	110
Bis(2-ethylhexyl)phthalate	< 270	270	U	110	< 250	250	U	100	< 280	280	U	120
Carbazole	< 190	190	U	150	< 180	180	U	140	< 200	200	U	160
Chrysene	< 270	270	U	130	**1,100**	250	-	120	< 280	280	U	140
Dibenz(a,h)anthracene	< 190	190	U	130	**140**	180	J	120	< 200	200	U	130
Dibenzofuran	< 270	270	U	110	< 250	250	U	100	< 280	280	U	120
Diethyl phthalate	< 270	270	U	120	< 250	250	U	110	< 280	280	U	130
Dimethylphthalate	< 270	270	U	120	< 250	250	U	110	< 280	280	U	130
Di-n-butylphthalate	< 270	270	U	100	< 250	250	U	95	< 280	280	U	110
Di-n-octylphthalate	< 270	270	U	100	< 250	250	U	92	< 280	280	U	100
Fluoranthene	< 270	270	U	130	**1,900**	250	-	120	< 280	280	U	130
Fluorene	< 270	270	U	130	< 250	250	U	120	< 280	280	U	130
Hexachlorobenzene	< 190	190	U	110	< 180	180	U	100	< 200	200	U	120
Hexachlorobutadiene	< 270	270	U	140	< 250	250	U	130	< 280	280	U	150
Hexachlorocyclopentadiene	< 270	270	U	120	< 250	250	U	110	< 280	280	U	120
Hexachloroethane	< 190	190	U	120	< 180	180	U	110	< 200	200	U	120
Indeno(1,2,3-cd)pyrene	< 270	270	U	130	**610**	250	-	120	< 280	280	U	130
Isophorone	< 190	190	U	110	< 180	180	U	100	< 200	200	U	110
Naphthalene	< 270	270	U	110	< 250	250	U	100	**1,900**	280	-	120
Nitrobenzene	< 190	190	U	140	< 180	180	U	130	< 200	200	U	140
N-Nitrosodimethylamine	< 270	270	U	110	< 250	250	U	100	< 280	280	U	110
N-Nitrosodi-n-propylamine	< 190	190	U	130	< 180	180	U	120	< 200	200	U	130
N-Nitrosodiphenylamine	< 270	270	U	150	< 250	250	U	140	< 280	280	U	150
Pentachloronitrobenzene	< 270	270	U	140	< 250	250	U	130	< 280	280	U	150
Pentachlorophenol	< 230	230	U	150	< 210	210	U	140	< 240	240	U	150
Phenanthrene	< 270	270	U	110	**1,000**	250	-	100	< 280	280	U	120
Phenol	< 270	270	U	120	< 250	250	U	110	< 280	280	U	130
Pyrene	< 270	270	U	130	**1,900**	250	-	120	< 280	280	U	140
Pyridine	< 270	270	U	95	< 250	250	U	88	< 280	280	U	99

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 5
Soil Analytical Results
Pesticides PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B1				15B2				15B3				15B4				15B5								15B6			
				(12-14') 11/14/2016				(12-14') 11/14/2016				(12-14') 11/14/2016				(12-14') 11/14/2016				(0-2') 11/10/2016				(12-14') 11/10/2016				(12-14') 11/11/2016			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.5	2.5	U	2.5	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	**100**	11	D	11	-	-	-	-	< 2.4	2.4	U	2.4
	4,4' -DDE	3.3	8,900	< 2.5	2.5	U	2.5	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	**72**	2.2	-	2.2	-	-	-	-	< 2.4	2.4	U	2.4
	4,4' -DDT	3.3	7,900	< 2.5	2.5	U	2.5	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	**76**	11	D	11	-	-	-	-	< 2.4	2.4	U	2.4
	a-BHC	20	480	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	a-Chlordane	94	4,200	< 4.2	4.2	U	4.2	< 4.0	4.0	U	4.0	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	-	-	-	-	< 3.9	3.9	U	3.9
	Aldrin	5	97	< 4.2	4.2	U	4.2	< 4.0	4.0	U	4.0	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	-	-	-	-	< 3.9	3.9	U	3.9
	b-BHC	36	360	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Chlordane	94	4,200	< 42	42	U	42	< 40	40	U	40	< 38	38	U	38	< 39	39	U	39	< 36	36	U	36	-	-	-	-	< 39	39	U	39
	d-BHC	40	100,000	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Dieldrin	5	200	< 4.2	4.2	U	4.2	< 4.0	4.0	U	4.0	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	-	-	-	-	< 3.9	3.9	U	3.9
	Endosulfan I	2,400	24,000	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Endosulfan II	2,400	24,000	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Endosulfan sulfate	2,400	24,000	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Endrin	14	11,000	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Endrin aldehyde			< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Endrin ketone			< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	g-BHC			< 1.7	1.7	U	1.7	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	-	-	-	-	< 1.6	1.6	U	1.6
	g-Chlordane			< 4.2	4.2	U	4.2	< 4.0	4.0	U	4.0	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	-	-	-	-	< 3.9	3.9	U	3.9
	Heptachlor	42	2,100	< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Heptachlor epoxide			< 8.5	8.5	U	8.5	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	-	-	-	-	< 7.9	7.9	U	7.9
	Methoxychlor			< 42	42	U	42	< 40	40	U	40	< 38	38	U	38	< 39	39	U	39	< 36	36	U	36	-	-	-	-	< 39	39	U	39
	Toxaphene			< 170	170	U	170	< 160	160	U	160	< 150	150	U	150	< 160	160	U	160	< 140	140	U	140	-	-	-	-	< 160	160	U	160
PCBs	PCB-1016	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1221	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1232	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1242	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1248	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1254	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1260	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1262	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79
	PCB-1268	100	1,000	< 85	85	U	85	< 80	80	U	80	< 76	76	U	76	< 78	78	U	78	< 72	72	U	72	< 74	74	U	74	< 79	79	U	79

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5
Soil Analytical Results
Pesticides PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B7				15B8								15B9				15B10			
				(12-14') 11/11/2016				(0-2') 11/10/2016				(12-14') 11/10/2016				(3-5') 11/14/2016				(10-15') 11/14/2016			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.4	2.4	U	2.4	-	-	-	-	< 2.4	2.4	U	2.4	< 2.2	2.2	U	2.2	< 2.2	2.2	U	2.2
	4,4' -DDE	3.3	8,900	< 2.4	2.4	U	2.4	-	-	-	-	< 2.4	2.4	U	2.4	< 2.2	2.2	U	2.2	< 2.2	2.2	U	2.2
	4,4' -DDT	3.3	7,900	< 2.4	2.4	U	2.4	-	-	-	-	< 2.4	2.4	U	2.4	< 2.2	2.2	U	2.2	< 2.2	2.2	U	2.2
	a-BHC	20	480	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	a-Chlordane	94	4,200	< 3.9	3.9	U	3.9	-	-	-	-	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 3.7	3.7	U	3.7
	Aldrin	5	97	< 3.9	3.9	U	3.9	-	-	-	-	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 3.7	3.7	U	3.7
	b-BHC	36	360	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Chlordane	94	4,200	< 39	39	U	39	-	-	-	-	< 39	39	U	39	< 36	36	U	36	< 37	37	U	37
	d-BHC	40	100,000	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Dieldrin	5	200	< 3.9	3.9	U	3.9	-	-	-	-	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 3.7	3.7	U	3.7
	Endosulfan I	2,400	24,000	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Endosulfan II	2,400	24,000	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Endosulfan sulfate	2,400	24,000	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Endrin	14	11,000	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Endrin aldehyde			< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Endrin ketone			< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	g-BHC			< 1.6	1.6	U	1.6	-	-	-	-	< 1.6	1.6	U	1.6	< 5.0	5.0	U	5.0	< 1.5	1.5	U	1.5
	g-Chlordane			< 3.9	3.9	U	3.9	-	-	-	-	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 3.7	3.7	U	3.7
	Heptachlor	42	2,100	< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Heptachlor epoxide			< 7.8	7.8	U	7.8	-	-	-	-	< 7.9	7.9	U	7.9	< 7.2	7.2	U	7.2	< 7.4	7.4	U	7.4
	Methoxychlor			< 39	39	U	39	-	-	-	-	< 39	39	U	39	< 36	36	U	36	< 37	37	U	37
	Toxaphene			< 160	160	U	160	-	-	-	-	< 160	160	U	160	< 140	140	U	140	< 150	150	U	150
PCBs	PCB-1016	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1221	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1232	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1242	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1248	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1254	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1260	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1262	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74
	PCB-1268	100	1,000	< 78	78	U	78	< 75	75	U	75	< 79	79	U	79	< 72	72	U	72	< 74	74	U	74

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 5
Soil Analytical Results
Pesticides PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B11								15B12				15B13				15B14							
				(0-2') 11/10/2016				(12-14') 11/10/2016				(12-14') 11/10/2016				(12-14') 11/10/2016				(1-3') 11/10/2016				(12-14') 11/10/2016			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 30	30	U	30	-	-	-	-	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 10	10	U	10	-	-	-	-
	4,4' -DDE	3.3	8,900	< 15	15	U	15	-	-	-	-	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 3.0	3.0	U	3.0	-	-	-	-
	4,4' -DDT	3.3	7,900	< 20	20	U	20	-	-	-	-	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 2.1	2.1	U	2.1	-	-	-	-
	a-BHC	20	480	< 10	10	U	10	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	a-Chlordane	94	4,200	< 3.7	3.7	U	3.7	-	-	-	-	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 3.6	3.6	U	3.6	-	-	-	-
	Aldrin	5	97	< 3.7	3.7	U	3.7	-	-	-	-	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 3.6	3.6	U	3.6	-	-	-	-
	b-BHC	36	360	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Chlordane	94	4,200	< 37	37	U	37	-	-	-	-	< 39	39	U	39	< 40	40	U	40	< 36	36	U	36	-	-	-	-
	d-BHC	40	100,000	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Dieldrin	5	200	< 10	10	U	10	-	-	-	-	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 3.6	3.6	U	3.6	-	-	-	-
	Endosulfan I	2,400	24,000	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Endosulfan II	2,400	24,000	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Endosulfan sulfate	2,400	24,000	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Endrin	14	11,000	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Endrin aldehyde			< 20	20	U	20	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Endrin ketone			< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	g-BHC			< 1.5	1.5	U	1.5	-	-	-	-	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	-	-	-	-
	g-Chlordane			< 3.7	3.7	U	3.7	-	-	-	-	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 3.6	3.6	U	3.6	-	-	-	-
	Heptachlor	42	2,100	< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Heptachlor epoxide			< 7.5	7.5	U	7.5	-	-	-	-	< 7.7	7.7	U	7.7	< 8.1	8.1	U	8.1	< 7.2	7.2	U	7.2	-	-	-	-
	Methoxychlor			< 37	37	U	37	-	-	-	-	< 39	39	U	39	< 40	40	U	40	< 36	36	U	36	-	-	-	-
	Toxaphene			< 150	150	U	150	-	-	-	-	< 150	150	U	150	< 160	160	U	160	< 140	140	U	140	-	-	-	-
PCBs	PCB-1016	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1221	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1232	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1242	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1248	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1254	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	**72**	72	-	72	< 80	80	U	80
	PCB-1260	100	1,000	**350**	75	-	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1262	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80
	PCB-1268	100	1,000	< 75	75	U	75	< 78	78	U	78	< 77	77	U	77	< 81	81	U	81	< 72	72	U	72	< 80	80	U	80

Notes:
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J- The value is estimated.
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S- This compound is a solvent that is used in the laboratory.
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Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5
Soil Analytical Results
Pesticides PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B19				15B20								Duplicate 15B20				Duplicate 2 15B7				Duplicate 3 15B19				Duplicate 4 15B2			
				(0-2') 11/14/2016 µg/Kg		µg/Kg		(0-2') 11/10/2016 µg/Kg		µg/Kg		(12-14') 11/10/2016 µg/Kg		µg/Kg		(12-14') 11/10/2016 µg/Kg		µg/Kg		(12-14') 11/11/2016 µg/Kg		µg/Kg		(0-2') 11/14/2016 µg/Kg		µg/Kg		(12-14') 11/14/2016 µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.2	2.2	U	2.2	< 2.2	2.2	U	2.2	-	-	-	-	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2	< 2.4	2.4	U	2.4
	4,4' -DDE	3.3	8,900	< 2.2	2.2	U	2.2	< 2.2	2.2	U	2.2	-	-	-	-	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 4.0	4.0	U	4.0	< 2.4	2.4	U	2.4
	4,4' -DDT	3.3	7,900	**7.7**	2.2	-	2.2	< 2.2	2.2	U	2.2	-	-	-	-	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 15	15	U	15	< 2.4	2.4	U	2.4
	a-BHC	20	480	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	a-Chlordane	94	4,200	< 3.6	3.6	U	3.6	< 3.6	3.6	U	3.6	-	-	-	-	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 4.1	4.1	U	4.1
	Aldrin	5	97	< 3.6	3.6	U	3.6	< 3.6	3.6	U	3.6	-	-	-	-	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 4.1	4.1	U	4.1
	b-BHC	36	360	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Chlordane	94	4,200	< 36	36	U	36	< 36	36	U	36	-	-	-	-	< 37	37	U	37	< 39	39	U	39	< 36	36	U	36	< 41	41	U	41
	d-BHC	40	100,000	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Dieldrin	5	200	< 3.6	3.6	U	3.6	< 3.6	3.6	U	3.6	-	-	-	-	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 4.1	4.1	U	4.1
	Endosulfan I	2,400	24,000	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Endosulfan II	2,400	24,000	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Endosulfan sulfate	2,400	24,000	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Endrin	14	11,000	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Endrin aldehyde			< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Endrin ketone			< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	g-BHC			< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	-	-	-	-	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.6	1.6	U	1.6
	g-Chlordane			< 3.6	3.6	U	3.6	< 3.6	3.6	U	3.6	-	-	-	-	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.6	3.6	U	3.6	< 4.1	4.1	U	4.1
	Heptachlor	42	2,100	< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Heptachlor epoxide			< 7.2	7.2	U	7.2	< 7.2	7.2	U	7.2	-	-	-	-	< 7.4	7.4	U	7.4	< 7.8	7.8	U	7.8	< 7.2	7.2	U	7.2	< 8.2	8.2	U	8.2
	Methoxychlor			< 36	36	U	36	< 36	36	U	36	-	-	-	-	< 37	37	U	37	< 39	39	U	39	< 36	36	U	36	< 41	41	U	41
	Toxaphene			< 140	140	U	140	< 140	140	U	140	-	-	-	-	< 150	150	U	150	< 160	160	U	160	< 140	140	U	140	< 160	160	U	160
PCBs	PCB-1016	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1221	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1232	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1242	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1248	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1254	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1260	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1262	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82
	PCB-1268	100	1,000	< 72	72	U	72	< 72	72	U	72	< 76	76	U	76	< 74	74	U	74	< 78	78	U	78	< 72	72	U	72	< 82	82	U	82

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B1								15B2								15B3				15B4											
			(12-14') 11/14/2016				(18-20') 11/14/2016				(12-14') 11/14/2016				(22.5-25') 11/14/2016				(12-14') 11/14/2016				(12-14') 11/14/2016				(15-17') 11/14/2016				(18-20') 11/14/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			12,600	40	-	8.0	3,690	37	-	7.4	4,150	42	-	8.3	5,080	40	-	8.0	6,860	40	-	8.1	5,130	40	-	7.9	7,580	42	-	8.4	4,020	39	-	7.7
Antimony			< 2.0	2.0	U	2.0	< 1.9	1.9	U	1.9	< 2.1	2.1	U	2.1	< 2.0	2.0	U	2.0	< 2.0	2.0	U	2.0	< 2.0	2.0	U	2.0	< 2.1	2.1	U	2.1	< 1.9	1.9	U	1.9
Arsenic	13	16	1.72	0.80	-	0.80	1.19	0.74	-	0.74	1.41	0.83	-	0.83	1.09	0.80	-	0.80	1.44	0.81	-	0.81	1.17	0.79	-	0.79	1.33	0.84	-	0.84	1.33	0.77	-	0.77
Barium	350	350	62.1	0.8	-	0.40	18.4	0.7	-	0.37	44.3	0.8	-	0.42	25.4	0.8	-	0.40	41.6	0.8	-	0.40	36.2	0.8	-	0.40	42.3	0.8	-	0.42	24.1	0.8	-	0.39
Beryllium	7.2	14	0.51	0.32	-	0.16	< 0.30	0.30	U	0.15	0.35	0.33	-	0.17	0.19	0.32	B	0.16	0.3	0.32	B	0.16	0.22	0.32	B	0.16	0.32	0.34	B	0.17	0.19	0.31	B	0.15
Cadmium	2.5	2.5	< 0.40	0.40	U	0.40	< 0.37	0.37	U	0.37	< 0.42	0.42	U	0.42	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40	< 0.42	0.42	U	0.42	< 0.39	0.39	U	0.39
Calcium			1,440	40	-	37	468	3.7	-	3.4	1,170	4.2	-	3.8	750	40	-	37	2,020	4.0	-	3.7	1,660	4.0	-	3.7	1,300	4.2	-	3.9	819	3.9	-	3.6
Chromium	30	180	33.3	0.40	-	0.40	5.75	0.37	-	0.37	19.6	0.42	-	0.42	10.9	0.40	-	0.40	20.7	0.40	-	0.40	13.9	0.40	-	0.40	18.6	0.42	-	0.42	8.39	0.39	-	0.39
Cobalt			11.8	0.40	-	0.40	3.19	0.37	-	0.37	8.8	0.42	-	0.42	4.95	0.40	-	0.40	8.31	0.40	-	0.40	6.37	0.40	-	0.40	7.98	0.42	-	0.42	4.48	0.39	-	0.39
Copper	50	270	21	0.40	-	0.40	6.2	0.37	-	0.37	13.9	0.42	-	0.42	8.23	0.40	-	0.40	13.8	0.40	-	0.40	9.87	0.40	-	0.40	12	0.42	-	0.42	7.52	0.39	-	0.39
Iron			24,100	40	-	40	7,760	37	-	37	8,490	42	-	42	9,490	40	-	40	16,100	40	-	40	13,100	40	-	40	16,400	42	-	42	9,700	39	-	39
Lead	63	400	7.6	0.8	-	0.40	1	0.7	-	0.37	4.4	0.8	-	0.42	1.4	0.8	-	0.40	2.2	0.8	-	0.40	1.5	0.8	-	0.40	1.9	0.8	-	0.42	1.5	0.8	-	0.39
Magnesium			4,100	4.0	-	4.0	1,320	37	-	37	1,650	42	-	42	1,910	4.0	-	4.0	3,080	4.0	-	4.0	2,250	4.0	-	4.0	3,290	4.2	-	4.2	1,450	3.9	-	3.9
Manganese	1,600	2,000	348	4.0	-	4.0	74.9	0.37	-	0.37	237	4.2	-	4.2	175	4.0	-	4.0	332	4.0	-	4.0	356	4.0	-	4.0	441	4.2	-	4.2	156	3.9	-	3.9
Mercury	0.18	0.81	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	15.8	0.40	-	0.40	6.98	0.37	-	0.37	14.8	0.42	-	0.42	8.76	0.40	-	0.40	14	0.40	-	0.40	11	0.40	-	0.40	13.8	0.42	-	0.42	8.09	0.39	-	0.39
Potassium			2,740	8	-	3.1	436	7	-	2.9	1,840	8	-	3.3	943	8	-	3.1	1,750	8	-	3.1	1,280	8	-	3.1	1,700	8	-	3.3	490	8	-	3.0
Selenium	3.9	36	< 1.6	1.6	U	1.4	< 1.5	1.5	U	1.3	< 1.7	1.7	U	1.4	< 1.6	1.6	U	1.4	< 1.6	1.6	U	1.4	< 1.6	1.6	U	1.3	< 1.7	1.7	U	1.4	< 1.5	1.5	U	1.3
Silver	2	36	< 0.40	0.40	U	0.40	< 0.37	0.37	U	0.37	< 0.42	0.42	U	0.42	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40	< 0.42	0.42	U	0.42	< 0.39	0.39	U	0.39
Sodium			313	8	-	3.4	198	7	-	3.2	341	8	-	3.6	168	8	-	3.4	194	8	-	3.5	202	8	-	3.4	323	8	-	3.6	123	8	-	3.3
Thallium			< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.7	1.7	U	1.7	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.7	1.7	U	1.7	< 1.5	1.5	U	1.5
Vanadium			37.7	0.40	-	0.40		0.37	-	0.37	29.3	0.42	-	0.42	14.7	0.40	-	0.40	27.9	0.40	-	0.40	21.5	0.40	-	0.40	27	0.42	-	0.42	14.7	0.39	-	0.39
Zinc	109	2,200	49.4	0.8	-	0.40	12.9	0.7	-	0.37	36.2	0.8	-	0.42	20.5	0.8	-	0.40	35	0.8	-	0.40	25.6	0.8	-	0.40	35	0.8	-	0.42	15.5	0.8	-	0.39

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
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S- This compound is a solvent that is used in the laboratory.
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Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B5												15B6							
			(0-2') 11/10/2016				(12-14') 11/10/2016				(15-17') 11/10/2016				(5-7') 11/11/2016				(12-14') 11/11/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			6,370	37	-	7.3	4,610	38	-	7.6	2,810	40	-	7.9	4,400	31	-	6.2	6,630	37	-	7.4
Antimony			< 1.9	1.9	U	1.9	< 1.8	1.8	U	1.8	< 1.9	1.9	U	1.9	< 1.6	1.6	U	1.6	< 1.9	1.9	U	1.9
Arsenic	13	16	5.88	0.73	-	0.73	0.89	0.76	-	0.76	< 0.79	0.79	U	0.79	1.25	0.62	-	0.62	1.24	0.74	-	0.74
Barium	350	350	91.2	0.7	-	0.37	24.6	0.8	-	0.38	16.2	0.8	-	0.40	12.5	0.6	-	0.31	37	0.7	-	0.37
Beryllium	7.2	14	0.36	0.29	-	0.15	0.22	0.30	B	0.15	< 0.32	0.32	U	0.16	0.2	0.25	B	0.12	0.33	0.30	-	0.15
Cadmium	2.5	2.5	0.98	0.37	-	0.37	< 0.38	0.38	U	0.38	< 0.40	0.40	U	0.40	< 0.31	0.31	U	0.31	< 0.37	0.37	U	0.37
Calcium			15,400	37	-	34	1,070	3.8	-	3.5	317	4.0	-	3.7	655	3.1	-	2.9	1,030	3.7	-	3.4
Chromium	30	180	15.1	0.37	-	0.37	9.97	0.38	-	0.38	5.31	0.40	-	0.40	8.72	0.31	-	0.31	20	0.37	-	0.37
Cobalt			5.15	0.37	-	0.37	9.15	0.38	-	0.38	2.69	0.40	-	0.40	3.45	0.31	-	0.31	7.14	0.37	-	0.37
Copper	50	270	71	0.37	-	0.37	6.78	0.38	-	0.38	4.65	0.40	-	0.40	9.27	0.31	-	0.31	10.9	0.37	-	0.37
Iron			15,300	37	-	37	12,100	38	-	38	5,430	4.0	-	4.0	7,640	3.1	-	3.1	13,800	37	-	37
Lead	63	400	228	7.3	-	3.7	1.4	0.7	-	0.36	0.7	0.8	B	0.40	1.6	0.6	-	0.31	1.5	0.7	-	0.37
Magnesium			5,190	3.7	-	3.7	2,050	3.8	-	3.8	1,160	4.0	-	4.0	1,710	3.1	-	3.1	2,510	3.7	-	3.7
Manganese	1,600	2,000	309	3.7	-	3.7	694	3.8	-	3.8	106	0.40	-	0.40	73.8	0.31	N	0.31	525	3.7	N	3.7
Mercury	0.18	0.81	0.49	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	13.9	0.37	-	0.37	8.26	0.38	-	0.38	5.23	0.40	-	0.40	7.91	0.31	-	0.31	11.9	0.37	-	0.37
Potassium			710	7	N	2.9	844	8	N	3.0	351	8	N	3.1	598	6	N	2.4	1,240	7	N	2.9
Selenium	3.9	36	< 1.5	1.5	U	1.2	< 1.5	1.5	U	1.3	< 1.6	1.6	U	1.4	< 1.2	1.2	U	1.1	< 1.5	1.5	U	1.3
Silver	2	36	< 0.37	0.37	U	0.37	< 0.38	0.38	U	0.38	< 0.40	0.40	U	0.40	< 0.31	0.31	U	0.31	< 0.37	0.37	U	0.37
Sodium			132	7	-	3.2	108	8	-	3.3	69	8	-	3.4	89	6	N	2.7	146	74	N	32
Thallium			< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.2	1.2	U	1.2	< 1.5	1.5	U	1.5
Vanadium			20.6	0.37	-	0.37	12.6	0.38	-	0.38	6.39	0.40	-	0.40	12.1	0.31	-	0.31	27.1	0.37	-	0.37
Zinc	109	2,200	261	7.3	-	3.7	19.6	0.8	-	0.38	10.9	0.8	-	0.40	37	0.6	-	0.31	27.8	0.7	-	0.37

Notes:
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B7												15B8							
			(12-14') 11/11/2016				(18-20') 11/11/2016				(23-25') 11/11/2016				(0-2') 11/10/2016				(12-14') 11/10/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			7,000	39	-	7.8	4,270	36	-	7.3	4,250	41	-	8.3	7,470	37	-	7.4	4,390	42	-	8.4
Antimony			< 2.0	2.0	U	2.0	< 1.8	1.8	U	1.8	< 2.1	2.1	U	2.1	< 1.9	1.9	U	1.9	< 2.1	2.1	U	2.1
Arsenic	13	16	1.21	0.78	-	0.78	0.9	0.73	-	0.73	0.97	0.83	-	0.83	6	0.74	-	0.74	1.11	0.84	-	0.84
Barium	350	350	29.2	0.8	-	0.39	22.5	0.7	-	0.36	21.3	0.8	-	0.41	76.4	0.7	-	0.37	38.6	0.8	-	0.42
Beryllium	7.2	14	0.31	0.31	-	0.16	0.21	0.29	B	0.15	0.2	0.33	B	0.17	0.44	0.30	-	0.15	0.21	0.33	B	0.17
Cadmium	2.5	2.5	< 0.39	0.39	U	0.39	< 0.36	0.36	U	0.36	< 0.41	0.41	U	0.41	0.67	0.37	-	0.37	< 0.42	0.42	U	0.42
Calcium			911	3.9	-	3.6	969	3.6	-	3.3	1,390	4.1	-	3.8	1,870	3.7	-	3.4	1,100	4.2	-	3.8
Chromium	30	180	21.7	0.39	-	0.39	11.8	0.36	-	0.36	9.84	0.41	-	0.41	14.9	0.37	-	0.37	9.81	0.42	-	0.42
Cobalt			6.08	0.39	-	0.39	5.53	0.36	-	0.36	4.33	0.41	-	0.41	5.99	0.37	-	0.37	4.95	0.42	-	0.42
Copper	50	270	10.5	0.39	-	0.39	8.59	0.36	-	0.36	6.65	0.41	-	0.41	**68.1**	0.37	-	0.37	8.44	0.42	-	0.42
Iron			13,500	39	-	39	11,100	36	-	36	14,400	41	-	41	13,500	37	-	37	10,700	42	-	42
Lead	63	400	1.3	0.8	-	0.39	3.5	0.7	-	0.36	1.2	0.8	-	0.41	**196**	7.4	-	3.7	1.2	0.8	-	0.41
Magnesium			2,300	3.9	-	3.9	2,060	3.6	-	3.6	1,850	4.1	-	4.1	1,470	3.7	-	3.7	2,030	4.2	-	4.2
Manganese	1,600	2,000	301	3.9	N	3.9	149	3.6	N	3.6	678	4.1	N	4.1	271	3.7	-	3.7	199	4.2	-	4.2
Mercury	0.18	0.81	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	**0.45**	0.03	-	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	9.64	0.39	-	0.39	9.72	0.36	-	0.36	8.72	0.41	-	0.41	14.7	0.37	-	0.37	9.57	0.42	-	0.42
Potassium			799	8	N	3.1	870	7	N	2.8	842	8	N	3.2	570	7	N	2.9	909	8	N	3.3
Selenium	3.9	36	< 1.6	1.6	U	1.3	< 1.5	1.5	U	1.2	< 1.7	1.7	U	1.4	< 1.5	1.5	U	1.3	< 1.7	1.7	U	1.4
Silver	2	36	< 0.39	0.39	U	0.39	< 0.36	0.36	U	0.36	< 0.41	0.41	U	0.41	< 0.37	0.37	U	0.37	< 0.42	0.42	U	0.42
Sodium			182	8	N	3.4	162	7	N	3.1	160	8	N	3.5	91	7	-	3.2	109	8	-	3.6
Thallium			< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.7	1.7	U	1.7	< 1.5	1.5	U	1.5	< 1.7	1.7	U	1.7
Vanadium			25.1	0.39	-	0.39	17.6	0.36	-	0.36	13.7	0.41	-	0.41	16	0.37	-	0.37	15.3	0.42	-	0.42
Zinc	109	2,200	24.7	0.8	-	0.39	21.3	0.7	-	0.36	19.3	0.8	-	0.41	**269**	7.4	-	3.7	21	0.8	-	0.42

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
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J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B9								15B10				15B11											
			(3-5') 11/14/2016				(10-15') 11/14/2016				(10-15') 11/14/2016				(0-2') 11/10/2016				(3-5') 11/10/2016				(12-14') 11/10/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**6,550**	39	-	7.9	**4,470**	35	-	7.0	**4,600**	35	-	6.9	**7,940**	34	-	6.9	**6,140**	38	-	7.6	**4,620**	41	-	8.3
Antimony			**3.3**	2.0	-	2.0	< 1.8	1.8	U	1.8	< 1.7	1.7	U	1.7	**7.5**	1.7	-	1.7	< 1.8	1.8	U	1.8	< 1.9	1.9	U	1.9
Arsenic	13	16	**7.72**	0.79	-	0.79	**1.96**	0.70	-	0.70	**1.28**	0.69	-	0.69	**7.69**	0.69	-	0.69	**1.15**	0.76	-	0.76	**1.43**	0.83	-	0.83
Barium	350	350	**261**	0.8	-	0.39	**26**	0.7	-	0.35	**20**	0.7	-	0.35	**446**	0.7	-	0.34	**20**	0.8	-	0.38	**21.5**	0.8	-	0.41
Beryllium	7.2	14	**0.34**	0.31	-	0.16	**0.21**	0.28	B	0.14	**0.19**	0.28	B	0.14	**0.39**	0.27	-	0.14	**0.22**	0.30	B	0.15	**0.22**	0.33	B	0.17
Cadmium	2.5	2.5	**1.6**	0.39	-	0.39	< 0.35	0.35	U	0.35	< 0.35	0.35	U	0.35	**7.67**	0.34	-	0.34	< 0.38	0.38	U	0.38	< 0.41	0.41	U	0.41
Calcium			**12,900**	39	-	36	**1,710**	35	-	32	**1,060**	35	-	32	**6,970**	3.4	-	3.2	**908**	3.8	-	3.5	**663**	4.1	-	3.8
Chromium	30	180	**20**	0.39	-	0.39	**15.8**	0.35	-	0.35	**14.9**	0.35	-	0.35	**31.9**	0.34	-	0.34	**11.3**	0.38	-	0.38	**11.6**	0.41	-	0.41
Cobalt			**6.21**	0.39	-	0.39	**5.26**	0.35	-	0.35	**4.49**	0.35	-	0.35	**8.49**	0.34	-	0.34	**4.35**	0.38	-	0.38	**5.14**	0.41	-	0.41
Copper	50	270	**170**	3.9	-	3.9	**11.1**	0.35	-	0.35	**8.89**	0.35	-	0.35	**266**	3.4	-	3.4	**8.58**	0.38	-	0.38	**8.73**	0.41	-	0.41
Iron			**14,800**	39	-	39	**12,800**	35	-	35	**11,200**	35	-	35	**25,900**	34	-	34	**9,030**	3.8	-	3.8	**10,800**	41	-	41
Lead	63	400	**399**	7.9	-	3.9	**2.2**	0.7	-	0.35	**2.2**	0.7	-	0.35	**754**	6.9	-	3.4	**1.8**	0.7	-	0.36	**1.1**	0.8	-	0.39
Magnesium			**6,810**	39	-	39	**1,480**	3.5	-	3.5	**1,530**	3.5	-	3.5	**2,380**	3.4	-	3.4	**1,920**	3.8	-	3.8	**1,990**	4.1	-	4.1
Manganese	1,600	2,000	**135**	0.39	-	0.39	**212**	3.5	-	3.5	**180**	3.5	-	3.5	**403**	3.4	-	3.4	**145**	0.38	-	0.38	**208**	4.1	-	4.1
Mercury	0.18	0.81	**0.65**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	**0.81**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	**16.6**	0.39	-	0.39	**10.1**	0.35	-	0.35	**9.29**	0.35	-	0.35	**29**	0.34	-	0.34	**9.5**	0.38	-	0.38	**10.6**	0.41	-	0.41
Potassium			**1,130**	8	-	3.1	**671**	7	-	2.7	**546**	7	-	2.7	**861**	7	N	2.7	**356**	8	N	3.0	**798**	8	N	3.2
Selenium	3.9	36	< 1.6	1.6	U	1.3	< 1.4	1.4	U	1.2	< 1.4	1.4	U	1.2	< 1.4	1.4	U	1.2	< 1.5	1.5	U	1.3	< 1.7	1.7	U	1.4
Silver	2	36	**0.46**	0.39	-	0.39	< 0.35	0.35	U	0.35	< 0.35	0.35	U	0.35	**0.72**	0.34	-	0.34	< 0.38	0.38	U	0.38	< 0.41	0.41	U	0.41
Sodium			**348**	8	-	3.4	**147**	7	-	3.0	**131**	7	-	3.0	**189**	7	-	2.9	**129**	8	-	3.3	**84**	8	-	3.5
Thallium			< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.5	1.5	U	1.5	< 1.7	1.7	U	1.7
Vanadium			**39.7**	0.39	-	0.39	**30.5**	0.35	-	0.35	**17.1**	0.35	-	0.35	**25.6**	0.34	-	0.34	**12.3**	0.38	-	0.38	**13.2**	0.41	-	0.41
Zinc	109	2,200	**431**	7.9	-	3.9	**22**	0.7	-	0.35	**18.5**	0.7	-	0.35	**1,100**	6.9	-	3.4	**18.5**	0.8	-	0.38	**19.9**	0.8	-	0.41

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
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Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B12								15B13				15B14											
			(12-14') 11/10/2016				(20-22') 11/10/2016				(12-14') 11/10/2016				(1-3') 11/10/2016				(12-14') 11/10/2016				(14-16') 11/10/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**3,660**	37	-	7.4	**3,230**	37	-	7.4	**4,020**	39	-	7.8	**6,260**	38	-	7.5	**4,300**	36	-	7.2	**3,360**	42	-	8.4
Antimony			< 2.0	2.0	U	2.0	< 1.9	1.9	U	1.9	< 1.9	1.9	U	1.9	**1.8**	1.8	-	1.8	< 1.8	1.8	U	1.8	< 2.0	2.0	U	2.0
Arsenic	13	16	< 0.74	0.74	U	0.74	< 0.74	0.74	U	0.74	< 0.78	0.78	U	0.78	**13.7**	0.75	-	0.75	**1.16**	0.72	-	0.72	< 0.84	0.84	U	0.84
Barium	350	350	**17.6**	0.7	-	0.37	**17.9**	0.7	-	0.37	**13.3**	0.8	-	0.39	**105**	0.8	-	0.38	**22.4**	0.7	-	0.36	**18.6**	0.8	-	0.42
Beryllium	7.2	14	**0.16**	0.29	B	0.15	**0.17**	0.30	B	0.15	< 0.31	0.31	U	0.16	**0.35**	0.30	-	0.15	**0.21**	0.29	B	0.14	< 0.33	0.33	U	0.17
Cadmium	2.5	2.5	< 0.37	0.37	U	0.37	< 0.37	0.37	U	0.37	< 0.39	0.39	U	0.39	**1.27**	0.38	-	0.38	< 0.36	0.36	U	0.36	< 0.42	0.42	U	0.42
Calcium			**705**	3.7	-	3.4	**949**	3.7	-	3.4	**820**	3.9	-	3.6	**6,040**	3.8	-	3.5	**826**	3.6	-	3.3	**621**	4.2	-	3.8
Chromium	30	180	**10.3**	0.37	-	0.37	**8.47**	0.37	-	0.37	**7.79**	0.39	-	0.39	**24.5**	0.38	-	0.38	**11.3**	0.36	-	0.36	**6.65**	0.42	-	0.42
Cobalt			**3**	0.37	-	0.37	**4.47**	0.37	-	0.37	**3.77**	0.39	-	0.39	**7.77**	0.38	-	0.38	**4.08**	0.36	-	0.36	**3.63**	0.42	-	0.42
Copper	50	270	**6.54**	0.37	-	0.37	**7.31**	0.37	-	0.37	**8.09**	0.39	-	0.39	**146**	0.38	-	0.38	**9.43**	0.36	-	0.36	**7.14**	0.42	-	0.42
Iron			**6,240**	3.7	-	3.7	**8,380**	3.7	-	3.7	**7,020**	3.9	-	3.9	**24,400**	38	-	38	**11,400**	36	-	36	**7,050**	4.2	-	4.2
Lead	63	400	**1.9**	0.8	-	0.40	**1.5**	0.8	-	0.39	**1.1**	0.8	-	0.38	**232**	7.5	-	3.8	**1.1**	0.7	-	0.37	**0.8**	0.8	B	0.40
Magnesium			**1,400**	3.7	-	3.7	**1,290**	3.7	-	3.7	**1,910**	3.9	-	3.9	**1,890**	3.8	-	3.8	**1,670**	3.6	-	3.6	**1,370**	4.2	-	4.2
Manganese	1,600	2,000	**84.1**	0.37	-	0.37	**202**	3.7	-	3.7	**225**	3.9	-	3.9	**276**	3.8	-	3.8	**257**	3.6	-	3.6	**120**	0.42	-	0.42
Mercury	0.18	0.81	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	**0.47**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	**6.72**	0.37	-	0.37	**7.67**	0.37	-	0.37	**7.95**	0.39	-	0.39	**21.3**	0.38	-	0.38	**9.18**	0.36	-	0.36	**7.35**	0.42	-	0.42
Potassium			**559**	7	N	2.9	**456**	7	N	2.9	**440**	8	N	3.0	**789**	8	N	2.9	**476**	7	N	2.8	**552**	8	N	3.3
Selenium	3.9	36	< 1.5	1.5	U	1.3	< 1.5	1.5	U	1.3	< 1.6	1.6	U	1.3	< 1.5	1.5	U	1.3	< 1.4	1.4	U	1.2	< 1.7	1.7	U	1.4
Silver	2	36	< 0.37	0.37	U	0.37	< 0.37	0.37	U	0.37	< 0.39	0.39	U	0.39	< 0.38	0.38	U	0.38	< 0.36	0.36	U	0.36	< 0.42	0.42	U	0.42
Sodium			**94**	7	-	3.2	**93**	7	-	3.2	**127**	8	-	3.4	**228**	8	-	3.2	**104**	7	-	3.1	**88**	8	-	3.6
Thallium			< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.4	1.4	U	1.4	< 1.7	1.7	U	1.7
Vanadium			**11.6**	0.37	-	0.37	**12.9**	0.37	-	0.37	**9.78**	0.39	-	0.39	**21.9**	0.38	-	0.38	**15.2**	0.36	-	0.36	**10.6**	0.42	-	0.42
Zinc	109	2,200	**13.6**	0.7	-	0.37	**13.8**	0.7	-	0.37	**14.8**	0.8	-	0.39	**677**	7.5	-	3.8	**45.1**	0.7	-	0.36	**24.3**	0.8	-	0.42

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Former Universal Scrap Metal
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TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B19															
			(0-2') 11/14/2016				(12-14') 11/14/2016				(18-20') 11/14/2016				(20-25') 11/14/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**7,860**	36	-	7.2	**4,690**	41	-	8.3	**6,590**	41	-	8.2	**4,810**	40	-	7.9
Antimony			< 1.8	1.8	U	1.8	< 2.1	2.1	U	2.1	< 2.1	2.1	U	2.1	< 2.0	2.0	U	2.0
Arsenic	13	16	**6.59**	0.72	-	0.72	**1.19**	0.83	-	0.83	**1.38**	0.82	-	0.82	**1.28**	0.79	-	0.79
Barium	350	350	**129**	0.7	-	0.36	**22.6**	0.8	-	0.41	**37**	0.8	-	0.41	**24.3**	0.8	-	0.40
Beryllium	7.2	14	**0.42**	0.29	-	0.14	**0.27**	0.33	B	0.17	**0.26**	0.33	B	0.16	**0.21**	0.32	B	0.16
Cadmium	2.5	2.5	**0.68**	0.36	-	0.36	< 0.41	0.41	U	0.41	< 0.41	0.41	U	0.41	< 0.40	0.40	U	0.40
Calcium			**7,640**	3.6	-	3.3	**909**	4.1	-	3.8	**1,220**	4.1	-	3.8	**1,190**	4.0	-	3.6
Chromium	30	180	**19.3**	0.36	-	0.36	**14.1**	0.41	-	0.41	**16.1**	0.41	-	0.41	**13.6**	0.40	-	0.40
Cobalt			**7.67**	0.36	-	0.36	**4.82**	0.41	-	0.41	**7.43**	0.41	-	0.41	**5.56**	0.40	-	0.40
Copper	50	270	**80.5**	0.36	-	0.36	**7.07**	0.41	-	0.41	**12.4**	0.41	-	0.41	**9.46**	0.40	-	0.40
Iron			**20,300**	36	-	36	**10,600**	41	-	41	**15,000**	41	-	41	**12,500**	40	-	40
Lead	63	400	**237**	7.2	-	3.6	**1.4**	0.8	-	0.41	**8.2**	0.8	-	0.41	**2.3**	0.8	-	0.40
Magnesium			**2,070**	3.6	-	3.6	**1,740**	4.1	-	4.1	**2,830**	4.1	-	4.1	**2,030**	4.0	-	4.0
Manganese	1,600	2,000	**345**	3.6	-	3.6	**170**	4.1	-	4.1	**327**	4.1	-	4.1	**203**	4.0	-	4.0
Mercury	0.18	0.81	**1.57**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	**15.7**	0.36	-	0.36	**8.75**	0.41	-	0.41	**13.5**	0.41	-	0.41	**10.2**	0.40	-	0.40
Potassium			**1,120**	7	-	2.8	**792**	8	-	3.2	**1,530**	8	-	3.2	**992**	8	-	3.1
Selenium	3.9	36	< 1.4	1.4	U	1.2	< 1.7	1.7	U	1.4	< 1.6	1.6	U	1.4	< 1.6	1.6	U	1.3
Silver	2	36	< 0.36	0.36	U	0.36	< 0.41	0.41	U	0.41	< 0.41	0.41	U	0.41	< 0.40	0.40	U	0.40
Sodium			**227**	7	-	3.1	**148**	8	-	3.5	**157**	8	-	3.5	**150**	8	-	3.4
Thallium			< 1.4	1.4	U	1.4	< 1.7	1.7	U	1.7	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6
Vanadium			**24.8**	3.6	-	3.6	**16.2**	0.41	-	0.41	**24.1**	0.41	-	0.41	**19.8**	0.40	-	0.40
Zinc	109	2,200	**165**	7.2	-	3.6	**18.7**	0.8	-	0.41	**30**	0.8	-	0.41	**21.5**	0.8	-	0.40

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	15B20								Duplicate 15B20				Duplicate 2 15B7				Duplicate 3 15B19				Duplicate 4 15B2			
			(0-2') 11/10/2016				(12-14') 11/10/2016				(12-14') 11/10/2016				(12-14') 11/11/2016				(0-2') 11/14/2016				(12-14') 11/14/2016			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**6,120**	36	-	7.2	**3,090**	37	-	7.4	**3,140**	36	-	7.2	**5,940**	35	-	7.1	**8,170**	38	-	7.5	**6,770**	37	-	7.4
Antimony			< 1.7	1.7	U	1.7	< 2.0	2.0	U	2.0	< 2.0	2.0	U	2.0	< 1.8	1.8	U	1.8	< 1.9	1.9	U	1.9	< 1.9	1.9	U	1.9
Arsenic	13	16	**3.15**	0.72	-	0.72	< 0.74	0.74	U	0.74	< 0.72	0.72	U	0.72	**1.17**	0.71	-	0.71	**6.36**	0.75	-	0.75	**1.33**	0.74	-	0.74
Barium	350	350	**53.6**	0.7	-	0.36	**20**	0.7	-	0.37	**18.5**	0.7	-	0.36	**24.3**	0.7	-	0.35	**113**	0.8	-	0.38	**40.3**	0.7	-	0.37
Beryllium	7.2	14	**0.45**	0.29	-	0.14	**0.15**	0.29	B	0.15	**0.15**	0.29	B	0.14	**0.25**	0.28	B	0.14	**0.41**	0.30	-	0.15	**0.28**	0.30	B	0.15
Cadmium	2.5	2.5	**0.83**	0.36	-	0.36	< 0.37	0.37	U	0.37	< 0.36	0.36	U	0.36	< 0.35	0.35	U	0.35	**0.58**	0.38	-	0.38	< 0.37	0.37	U	0.37
Calcium			**14,900**	36	-	33	**423**	3.7	-	3.4	**468**	3.6	-	3.3	**814**	3.5	-	3.3	**6,690**	3.8	-	3.5	**1,090**	37	-	34
Chromium	30	180	**17.5**	0.36	-	0.36	**5.66**	0.37	-	0.37	**5.49**	0.36	-	0.36	**18**	0.35	-	0.35	**20.2**	0.38	-	0.38	**16.7**	0.37	-	0.37
Cobalt			**7.07**	0.36	-	0.36	**3.22**	0.37	-	0.37	**3.4**	0.36	-	0.36	**5.43**	0.35	-	0.35	**7.23**	0.38	-	0.38	**7.22**	0.37	-	0.37
Copper	50	270	**41.9**	0.36	-	0.36	**5.9**	0.37	-	0.37	**6.22**	0.36	-	0.36	**8.44**	0.35	-	0.35	**73.7**	0.38	-	0.38	**11.6**	0.37	-	0.37
Iron			**22,300**	36	-	36	**7,000**	3.7	-	3.7	**7,510**	3.6	-	3.6	**11,400**	35	-	35	**19,800**	38	-	38	**15,000**	37	-	37
Lead	63	400	**68.4**	0.7	-	0.36	**1.2**	0.8	-	0.39	**1**	0.8	-	0.39	**1.3**	0.7	-	0.35	**243**	7.5	-	3.8	**2.8**	0.7	-	0.37
Magnesium			**8,070**	36	-	36	**1,240**	3.7	-	3.7	**1,230**	3.6	-	3.6	**2,000**	3.5	-	3.5	**2,120**	3.8	-	3.8	**2,640**	3.7	-	3.7
Manganese	1,600	2,000	**584**	3.6	-	3.6	**82.1**	0.37	-	0.37	**219**	3.6	-	3.6	**247**	3.5	N	3.5	**386**	3.8	-	3.8	**337**	3.7	-	3.7
Mercury	0.18	0.81	**0.71**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	< 0.03	0.03	U	0.02	**1.04**	0.03	-	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	**13.2**	0.36	-	0.36	**6.18**	0.37	-	0.37	**6.41**	0.36	-	0.36	**8.54**	0.35	-	0.35	**15.1**	0.38	-	0.38	**13.2**	0.37	-	0.37
Potassium			**1,340**	7	N	2.8	**377**	7	N	2.9	**344**	7	N	2.8	**649**	7	N	2.8	**1,120**	8	-	2.9	**1,410**	7	-	2.9
Selenium	3.9	36	< 1.4	1.4	U	1.2	< 1.5	1.5	U	1.3	< 1.4	1.4	U	1.2	< 1.4	1.4	U	1.2	< 1.5	1.5	U	1.3	< 1.5	1.5	U	1.3
Silver	2	36	< 0.36	0.36	U	0.36	< 0.37	0.37	U	0.37	< 0.36	0.36	U	0.36	< 0.35	0.35	U	0.35	< 0.38	0.38	U	0.38	< 0.37	0.37	U	0.37
Sodium			**361**	7	-	3.1	**60**	7	-	3.2	**59**	7	-	3.1	**161**	7	N	3.0	**230**	8	-	3.2	**303**	7	-	3.2
Thallium			< 1.4	1.4	U	1.4	< 1.5	1.5	U	1.5	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5
Vanadium			**29.2**	0.36	-	0.36	**7.69**	0.37	-	0.37	**8.92**	0.36	-	0.36	**18.6**	0.35	-	0.35	**25**	0.38	-	0.38	**25.1**	0.37	-	0.37
Zinc	109	2,200	**78.4**	0.7	-	0.36	**11.9**	0.7	-	0.37	**12.3**	0.7	-	0.36	**20.6**	0.7	-	0.35	**160**	7.5	-	3.8	**30.3**	0.7	-	0.37

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 7
Parameters Detected Above Track 1 Soil Cleanup Objectives

COMPOUND	Range in Exceedances	Frequency of Detection	15B1	15B2	15B4	15B5		15B6	15B7		15B8
			(12-14') 11/14/2016	(22.5-25') 8/22/2016	(15-17') 11/14/2016	(0-2') 11/10/2016	(12-14') 11/10/2016	(5-7') 11/11/2016	(18-20') 11/11/2016	(23-25') 11/11/2016	(0-2') 11/10/2016
Sample Results in ug/kg											
1,2,4-Trimethylbenzene	14000-910000	7	**65,000**	-	-	-	-	**56,000**	-	-	-
1,3,5-Trimethylbenzene	13000-320000	3	-	-	-	-	-	**15,000**	-	-	-
Acetone	53-920	8	-	-	-	-	**560**	**550**	-	**500**	-
Benzene	90-1900	7	**90**	-	**100**	-	-	-	-	-	**110**
Ethylbenzene	3200-190000	7	**14,000**	-	-	-	-	**4,700**	-	-	-
m&p-Xylenes	500-720000	10	**2,100**	**500**	-	-	-	**24,000**	**530**	-	-
Methyl Ethyl Ketone (2-Butanone)	160	1	-	-	-	-	-	-	-	**160**	-
Naphthalene	89,000	1	-	-	-	-	-	-	-	-	-
n-Butylbenzene	70,000	1	-	-	-	-	-	-	-	-	-
n-Propylbenzene	4900-140000	5	**16,000**	-	-	-	-	**4,900**	-	-	-
o-Xylene	380-260000	8	**1,000**	-	-	-	-	**9,100**	**380**	-	-
sec-Butylbenzene	23,000	1	-	-	-	-	-	-	-	-	-
Tetrachloroethene	2400-22000	2	-	-	-	-	-	-	-	-	-
Toluene	1900-20000	3	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	2,300	1	-	-	-	-	-	-	-	-	-
Vinyl Chloride	3,000	1	-	-	-	-	-	-	-	-	-
Sample Results in ug/kg											
Benz(a)anthracene	1500-1500	1	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	1100-1100	1	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	1100-1100	1	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	900-900	1	-	-	-	-	-	-	-	-	-
Chrysene	1100-1600	2	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	530-720	5	-	-	-	**530**	-	-	-	-	-
Naphthalene	17,000	1	-	-	-	-	-	-	-	-	-
Sample Results in ug/kg											
4,4' -DDD	100-100	1	-	-	-	**100**	-	-	-	-	-
4,4' -DDE	72-72	1	-	-	-	**72**	-	-	-	-	-
4,4' -DDT	7.7-76	2	-	-	-	**76**	-	-	-	-	-
Sample Results in mg/kg											
Arsenic	13.7-13.7	1	-	-	-	-	-	-	-	-	-
Barium	446-446	1	-	-	-	-	-	-	-	-	-
Cadmium	7.67-7.67	1	-	-	-	-	-	-	-	-	-
Chromium	31.9-33.3	2	**33.3**	-	-	-	-	-	-	-	-
Copper	68.1-266	7	-	-	-	**71**	-	-	-	-	**68.1**
Lead	68.4-754	8	-	-	-	**228**	-	-	-	-	**196**
Mercury	0.45-1.57	8	-	-	-	**0.49**	-	-	-	-	**0.45**
Zinc	160-1100	7	-	-	-	**261**	-	-	-	-	**269**

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 7
Parameters Detected Above Track 1 Soil Cleanup Objectives

COMPOUND	Range in Exceedances	Frequency of Detection	15B9		15B11	15B12	15B14	15B19			15B20	Duplicate 3	Duplicate 4
			(3-5') 11/14/2016	(10-15') 11/14/2016	(0-2') 11/10/2016	(12-14') 11/10/2016	(1-3') 11/10/2016	(0-2') 11/14/2016	(18-20') 11/14/2016	(20-25') 11/14/2016	(0-2') 11/10/2016	11/14/2016	11/14/2016
Sample Results in ug/kg													
1,2,4-Trimethylbenzene	14000-910000	7	**44,000**	-	**16,000**	**14,000**	-	-	**910,000**	-	-	-	**17,000**
1,3,5-Trimethylbenzene	13000-320000	3	**13,000**	-	-	-	-	-	**320,000**	-	-	-	-
Acetone	53-920	8	**640**	**53**	**920**	-	**64**	-	-	-	-	-	**400**
Benzene	90-1900	7	**800**	-	**1,900**	**650**	**240**	-	-	-	-	-	-
Ethylbenzene	3200-190000	7	**8,300**	-	**4,500**	**3,900**	-	-	**190,000**	-	-	-	**3,200**
m&p-Xylenes	500-720000	10	**32,000**	-	**9,600**	**16,000**	-	-	**720,000**	**2,000**	-	-	**2,500**
Methyl Ethyl Ketone (2-Butanone)	160	1	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	89,000	1	-	-	-	-	-	-	**89,000**	-	-	-	-
n-Butylbenzene	70,000	1	-	-	-	-	-	-	**70,000**	-	-	-	-
n-Propylbenzene	4900-140000	5	**5,600**	-	-	-	-	-	**140,000**	-	-	-	**6,100**
o-Xylene	380-260000	8	**13,000**	-	**5,600**	**6,700**	-	-	**260,000**	**640**	-	-	-
sec-Butylbenzene	23,000	1	-	-	-	-	-	-	**23,000**	-	-	-	-
Tetrachloroethene	2400-22000	2	-	-	**2,400**	-	-	-	**22,000**	-	-	-	-
Toluene	1900-20000	3	**1,900**	-	**15,000**	-	-	-	**20,000**	-	-	-	-
trans-1,2-Dichloroethene	2,300	1	-	-	**2,300**	-	-	-	-	-	-	-	-
Vinyl Chloride	3,000	1	-	-	**3,000**	-	-	-	-	-	-	-	-
Sample Results in ug/kg													
Benz(a)anthracene	1500-1500	1	**1,500**	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	1100-1100	1	**1,100**	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	1100-1100	1	**1,100**	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	900-900	1	**900**	-	-	-	-	-	-	-	-	-	-
Chrysene	1100-1600	2	**1,600**	-	-	-	-	-	-	-	-	**1,100**	-
Indeno(1,2,3-cd)pyrene	530-720	5	**630**	-	**720**	-	-	**600**	-	-	-	**610**	-
Naphthalene	17,000	1	-	-	-	-	-	-	**17,000**	-	-	-	-
Sample Results in ug/kg													
4,4' -DDD	100-100	1	-	-	-	-	-	-	-	-	-	-	-
4,4' -DDE	72-72	1	-	-	-	-	-	-	-	-	-	-	-
4,4' -DDT	7.7-76	2	-	-	-	-	-	**7.7**	-	-	-	-	-
Sample Results in mg/kg													
Arsenic	13.7-13.7	1	-	-	-	-	**13.7**	-	-	-	-	-	-
Barium	446-446	1	-	-	**446**	-	-	-	-	-	-	-	-
Cadmium	7.67-7.67	1	-	-	**7.67**	-	-	-	-	-	-	-	-
Chromium	31.9-33.3	2	-	-	**31.9**	-	-	-	-	-	-	-	-
Copper	68.1-266	7	**170**	-	**266**	-	**146**	**80.5**	-	-	-	**73.7**	-
Lead	68.4-754	8	**399**	-	**754**	-	**232**	**237**	-	-	**68.4**	**243**	-
Mercury	0.45-1.57	8	**0.65**	-	**0.81**	-	**0.47**	**1.57**	-	-	**0.71**	**1.04**	-
Zinc	160-1100	7	**431**	-	**1,100**	-	**677**	**165**	-	-	-	**160**	-

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 8
Ground Water Analytical Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	MW1				MW2				MW3				MW4			
		11/17/2016				11/17/2016				11/17/2016				11/17/2016			
		µg/L				µg/L				µg/L				µg/L			
	µg/L	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,1,1,2-Tetrachlorothane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,1,1-Trichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
1,1,2,2-Tetrachloroethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,1,2-Trichloroethane	1	< 1.0	1.0	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,1-Dichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
1,1-Dichloroethene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,1-Dichloropropene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,2,3-Trichlorobenzene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	< 1.0	1.0	U	0.25
1,2,3-Trichloropropane	0.04	< 0.25	0.25	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25
1,2,4-Trichlorobenzene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	< 1.0	1.0	U	0.25
1,2,4-Trimethylbenzene	5	**140**	5.0	D	2.5	**300**	5.0	D	5.0	**730**	13	D	13	< 1.0	1.0	U	0.25
1,2-Dibromo-3-chloropropane	0.04	< 0.50	0.50	U	0.50	< 2.5	2.5	U	2.5	< 10	10	U	10	< 0.50	0.50	U	0.50
1,2-Dibromoethane		< 0.25	0.25	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25
1,2-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 4.7	4.7	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,2-Dichloroethane	0.6	< 0.60	0.60	U	0.50	< 2.5	2.5	U	2.5	< 10	10	U	10	< 0.60	0.60	U	0.50
1,2-Dichloropropane	0.94	< 1.0	1.0	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,3,5-Trimethylbenzene	5	**18**	1.0	-	0.25	**110**	5.0	-	1.3	**280**	5.0	-	5.0	**0.61**	1.0	J	0.25
1,3-Dichlorobenzene		< 1.0	1.0	U	0.25	< 3.0	3.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,3-Dichloropropane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
1,4-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
2,2-Dichloropropane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
2-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
2-Hexanone (Methyl Butyl Ketone)		< 2.5	2.5	U	2.5	< 13	13	U	13	< 50	50	U	50	< 2.5	2.5	U	2.5
2-Isopropyltoluene	5	**1**	1.0	-	0.25	**1.5**	5.0	J	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
4-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
4-Methyl-2-Pentanone		< 2.5	2.5	U	2.5	< 13	13	U	13	< 50	50	U	50	**5.6**	2.5	-	2.5
Acetone	50	< 5.0	5.0	U	2.5	**53**	25	S	13	< 50	50	U	50	**46**	25	DS	13
Acrolein		< 5.0	5.0	U	2.5	< 13	13	U	13	< 50	50	U	50	< 5.0	5.0	U	2.5
Acrylonitrile	5	< 5.0	5.0	U	2.5	< 13	13	U	13	< 50	50	U	50	< 5.0	5.0	U	2.5
Benzene	1	**64**	2.5	D	2.5	**2.3**	1.3	-	1.3	**170**	5.0	-	5.0	**1.7**	0.70	-	0.25
Bromobenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Bromochloromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Bromodichloromethane		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	< 1.0	1.0	U	0.25
Bromoform		< 5.0	5.0	U	0.25	< 25	25	U	1.3	< 50	50	U	5.0	< 5.0	5.0	U	0.25
Bromomethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
Carbon Disulfide	60	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	< 1.0	1.0	U	0.25
Carbon tetrachloride	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Chlorobenzene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
Chloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
Chloroform	7	< 5.0	5.0	U	0.25	< 7.0	7.0	U	1.3	< 7.0	7.0	U	5.0	< 5.0	5.0	U	0.25
Chloromethane	60	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
cis-1,2-Dichloroethene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	**0.42**	1.0	J	0.25
cis-1,3-Dichloropropene		< 0.40	0.40	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25
Dibromochloromethane		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	< 1.0	1.0	U	0.25
Dibromomethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Dichlorodifluoromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Ethylbenzene	5	**440**	13	D	13	**230**	5.0	D	5.0	**570**	5.0	-	5.0	< 1.0	1.0	U	0.25
Hexachlorobutadiene	0.5	< 0.50	0.50	U	0.20	< 1.0	1.0	U	1.0	< 4.0	4.0	U	4.0	< 0.50	0.50	U	0.20
Isopropylbenzene	5	**26**	1.0	-	0.25	**22**	5.0	-	1.3	**79**	5.0	-	5.0	< 1.0	1.0	U	0.25
m&p-Xylenes	5	**290**	10	D	2.5	**720**	20	D	5.0	**540**	20	-	5.0	**0.34**	1.0	J	0.25
Methyl Ethyl Ketone (2-Butanone)	50	< 2.5	2.5	U	2.5	< 13	13	U	13	< 50	50	U	50	**26**	2.5	-	2.5
Methyl t-butyl ether (MTBE)	10	**0.5**	1.0	J	0.25	< 5.0	5.0	U	1.3	< 20	20	U	5.0	**0.64**	1.0	J	0.25
Methylene chloride	5	< 3.0	3.0	U	1.0	< 5.0	5.0	U	5.0	< 20	20	U	20	< 3.0	3.0	U	1.0
Naphthalene	10	**58**	10	D	10	**73**	5.0	-	5.0	**190**	20	-	20	< 1.0	1.0	U	1.0
n-Butylbenzene	5	**2.2**	1.0	-	0.25	**9.3**	5.0	-	1.3	**20**	5.0	-	5.0	< 1.0	1.0	U	0.25
n-Propylbenzene	5	**44**	5.0	D	2.5	**53**	5.0	-	1.3	**200**	5.0	-	5.0	< 1.0	1.0	U	0.25
o-Xylene	5	**70**	5.0	D	2.5	**210**	5.0	D	5.0	**130**	5.0	-	5.0	< 1.0	1.0	U	0.25
p-Isopropyltoluene		**1.3**	1.0	-	0.25	**2.6**	5.0	J	1.3	**5.2**	5.0	-	5.0	< 1.0	1.0	U	0.25
sec-Butylbenzene	5	**3.1**	1.0	-	0.25	**6.7**	5.0	-	1.3	**13**	5.0	-	5.0	**0.25**	1.0	J	0.25
Styrene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
tert-Butylbenzene	5	**0.38**	1.0	J	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Tetrachloroethene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	**5.4**	5.0	-	5.0	< 1.0	1.0	U	0.25
Tetrahydrofuran (THF)		< 5.0	5.0	U	2.5	**29**	25	-	13	< 50	50	U	50	< 5.0	5.0	U	2.5
Toluene	5	**24**	1.0	-	0.25	**30**	5.0	-	1.3	**91**	5.0	-	5.0	**0.79**	1.0	J	0.25
trans-1,2-Dichloroethene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25
trans-1,3-Dichloropropene	0.4	< 0.40	0.40	U	0.25	< 1.3	1.3	U	1.3	< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25
trans-1,4-dichloro-2-butene	5	< 2.5	2.5	U	2.5	< 13	13	U	13	< 50	50	U	50	< 2.5	2.5	U	2.5
Trichloroethene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	**6.6**	5.0	-	5.0	**0.26**	1.0	J	0.25
Trichlorofluoromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Trichlorotrifluoroethane		< 1.0	1.0	U	0.25	< 5.0	5.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25
Vinyl Chloride	2	< 1.0	1.0	U	0.25	< 2.0	2.0	U	1.3	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

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TABLE 8
Ground Water Analytical Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	MW5 11/17/2016 µg/L				MW6 11/16/2016 µg/L				MW7 11/16/2016 µg/L				MW8 11/17/2016 µg/L				MW9 11/16/2016 µg/L				MW10 11/16/2016 µg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,1,1,2-Tetrachloroethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,1-Trichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1,2,2-Tetrachloroethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,2-Trichloroethane	1	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloroethane	5	**0.53**	5.0	J	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1-Dichloroethene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloropropene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichlorobenzene		< 1.0	1.0	U	0.25	< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichloropropane	0.04	< 0.25	0.25	U	0.25	< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2,4-Trichlorobenzene		< 1.0	1.0	U	0.25	< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,4-Trimethylbenzene	5	**1.3**	1.0	-	0.25	**610**	50	D	50	< 1.0	1.0	U	0.25	**5.4**	1.0	-	0.25	**4**	1.0	-	0.25	**17**	1.0	-	0.25
1,2-Dibromo-3-chloropropane	0.04	< 0.50	0.50	U	0.50	< 10	10	U	10	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
1,2-Dibromoethane		< 0.25	0.25	U	0.25	< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2-Dichloroethane	0.6	< 0.60	0.60	U	0.50	< 10	10	U	10	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50
1,2-Dichloropropane	0.94	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3,5-Trimethylbenzene	5	< 1.0	1.0	U	0.25	**190**	5.0	-	5.0	< 1.0	1.0	U	0.25	**1.7**	1.0	-	0.25	**1**	1.0	J	0.25	**3.7**	1.0	-	0.25
1,3-Dichlorobenzene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3-Dichloropropane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2,2-Dichloropropane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Hexanone (Methyl Butyl Ketone)		< 2.5	2.5	U	2.5	< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
2-Isopropyltoluene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Methyl-2-Pentanone		< 2.5	2.5	U	2.5	**60**	50	-	50	< 2.5	2.5	U	2.5	**30**	2.5	-	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Acetone	50	**4.7**	5.0	JS	2.5	**290**	50	S	50	< 5.0	5.0	U	2.5	**180**	50	DS	25	**2.6**	5.0	JS	2.5	< 5.0	5.0	U	2.5
Acrolein		< 5.0	5.0	U	2.5	< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Acrylonitrile	5	< 5.0	5.0	U	2.5	< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Benzene	1	**0.73**	0.70	-	0.25	**50**	5.0	-	5.0	**1.3**	0.70	-	0.25	**5.5**	0.70	-	0.25	**0.69**	0.70	J	0.25	**30**	1.3	D	1.3
Bromobenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromochloromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromodichloromethane		< 1.0	1.0	U	0.25	< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromoform		< 5.0	5.0	U	0.25	< 50	50	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Bromomethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Carbon Disulfide	60	< 1.0	1.0	U	0.25	**22**	20	-	5.0	< 1.0	1.0	U	0.25	**0.94**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Carbon tetrachloride	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Chlorobenzene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroform	7	< 5.0	5.0	U	0.25	< 7.0	7.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloromethane	60	< 5.0	5.0	U	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
cis-1,2-Dichloroethene	5	**1.4**	1.0	-	0.25	< 5.0	5.0	U	5.0	**1.5**	1.0	-	0.25	**0.55**	1.0	J	0.25	**0.62**	1.0	J	0.25	**0.71**	1.0	J	0.25
cis-1,3-Dichloropropene		< 0.40	0.40	U	0.25	< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
Dibromochloromethane		< 1.0	1.0	U	0.25	< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dibromomethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dichlorodifluoromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Ethylbenzene	5	**1.1**	1.0	-	0.25	**440**	5.0	-	5.0	**0.35**	1.0	J	0.25	**4.1**	1.0	-	0.25	**0.67**	1.0	J	0.25	**19**	1.0	-	0.25
Hexachlorobutadiene	0.5	< 0.50	0.50	U	0.20	< 4.0	4.0	U	4.0	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20
Isopropylbenzene	5	< 1.0	1.0	U	0.25	**29**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.41**	1.0	J	0.25	**0.38**	1.0	J	0.25	**2.2**	1.0	-	0.25
m&p-Xylenes	5	**3.6**	1.0	-	0.25	**1,600**	200	D	50	< 1.0	1.0	U	0.25	**9.7**	1.0	-	0.25	**2.1**	1.0	-	0.25	**30**	1.0	-	0.25
Methyl Ethyl Ketone (2-Butanone)	50	< 2.5	2.5	U	2.5	**780**	500	D	500	< 2.5	2.5	U	2.5	**130**	25	D	25	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Methyl t-butyl ether (MTBE)	10	< 1.0	1.0	U	0.25	**66**	20	-	5.0	**2.9**	1.0	-	0.25	**8.8**	1.0	-	0.25	**51**	5.0	D	1.3	**270**	25	D	6.3
Methylene chloride	5	< 3.0	3.0	U	1.0	< 20	20	U	20	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0
Naphthalene	10	< 1.0	1.0	U	1.0	**110**	20	-	20	< 1.0	1.0	U	1.0	**2.7**	1.0	-	1.0	< 1.0	1.0	U	1.0	**1.5**	1.0	-	1.0
n-Butylbenzene	5	< 1.0	1.0	U	0.25	**9**	5.0	-	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**0.43**	1.0	J	0.25	< 1.0	1.0	U	0.25
n-Propylbenzene	5	< 1.0	1.0	U	0.25	**78**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.55**	1.0	J	0.25	**0.71**	1.0	J	0.25	**2.4**	1.0	-	0.25
o-Xylene	5	**1.1**	1.0	-	0.25	**590**	50	D	50	**0.5**	1.0	J	0.25	**5.5**	1.0	-	0.25	**1.3**	1.0	-	0.25	**21**	1.0	-	0.25
p-Isopropyltoluene		< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	**0.3**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
sec-Butylbenzene	5	< 1.0	1.0	U	0.25	**6.5**	5.0	-	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**0.64**	1.0	J	0.25	< 1.0	1.0	U	0.25
Styrene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
tert-Butylbenzene	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrachloroethene	5	< 1.0	1.0	U	0.25	**8.1**	5.0	-	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrahydrofuran (THF)		< 5.0	5.0	U	2.5	< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Toluene	5	**0.48**	1.0	J	0.25	**470**	5.0	-	5.0	**0.32**	1.0	J	0.25	**15**	1.0	-	0.25	**0.92**	1.0	J	0.25	**1.2**	1.0	-	0.25
trans-1,2-Dichloroethene	5	**0.74**	5.0	J	0.25	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
trans-1,3-Dichloropropene	0.4	< 0.40	0.40	U	0.25	< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
trans-1,4-dichloro-2-butene	5	< 2.5	2.5	U	2.5	< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Trichloroethene	5	**1.3**	1.0	-	0.25	**7.4**	5.0	-	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorofluoromethane	5	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorotrifluoroethane		< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Vinyl Chloride	2	< 1.0	1.0	U	0.25	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 8
Ground Water Analytical Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	MW14 11/17/2016 µg/L				MW15 11/17/2016 µg/L				GW Duplicate 1 MW9 11/16/2016 µg/L				GW Duplicate 2 MW7 11/16/2016 µg/L			
	µg/L	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,1,1,2-Tetrachlorothane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,1-Trichloroethane	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1,2,2-Tetrachloroethane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,2-Trichloroethane	1	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloroethane	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1-Dichloroethene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloropropene		< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichlorobenzene		< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichloropropane	0.04	< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2,4-Trichlorobenzene		< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,4-Trimethylbenzene	5	**1,400**	50	D	50	< 1.0	1.0	U	0.25	**3.3**	1.0	-	0.25	< 1.0	1.0	U	0.25
1,2-Dibromo-3-chloropropane	0.04	< 10	10	U	10	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
1,2-Dibromoethane		< 5.0	5.0	U	5.0	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2-Dichlorobenzene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2-Dichloroethane	0.6	< 10	10	U	10	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50
1,2-Dichloropropane	0.94	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3,5-Trimethylbenzene	5	**400**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.82**	1.0	J	0.25	< 1.0	1.0	U	0.25
1,3-Dichlorobenzene		< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3-Dichloropropane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-Dichlorobenzene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2,2-Dichloropropane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Chlorotoluene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Hexanone (Methyl Butyl Ketone)		< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
2-Isopropyltoluene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Chlorotoluene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Methyl-2-Pentanone		< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Acetone	50	< 50	50	U	50	< 5.0	5.0	U	2.5	**3.4**	5.0	JS	2.5	< 5.0	5.0	U	2.5
Acrolein		< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Acrylonitrile	5	< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Benzene	1	**380**	5.0	-	5.0	< 0.70	0.70	U	0.25	**0.73**	0.70	-	0.25	**1.2**	0.70	-	0.25
Bromobenzene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromochloromethane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromodichloromethane		< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromoform		< 50	50	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Bromomethane	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Carbon Disulfide	60	**12**	20	J	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Carbon tetrachloride	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Chlorobenzene	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroethane	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroform	7	< 7.0	7.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloromethane	60	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
cis-1,2-Dichloroethene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	**0.62**	1.0	J	0.25	**1.4**	1.0	-	0.25
cis-1,3-Dichloropropene		< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
Dibromochloromethane		< 20	20	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dibromomethane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dichlorodifluoromethane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Ethylbenzene	5	**940**	50	D	50	< 1.0	1.0	U	0.25	**0.53**	1.0	J	0.25	**0.34**	1.0	J	0.25
Hexachlorobutadiene	0.5	< 4.0	4.0	U	4.0	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20
Isopropylbenzene	5	**64**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.3**	1.0	J	0.25	< 1.0	1.0	U	0.25
m&p-Xylenes	5	**3,700**	200	D	50	< 1.0	1.0	U	0.25	**1.7**	1.0	-	0.25	< 1.0	1.0	U	0.25
Methyl Ethyl Ketone (2-Butanone)	50	< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Methyl t-butyl ether (MTBE)	10	< 20	20	U	5.0	< 1.0	1.0	U	0.25	**50**	5.0	D	1.3	**2.1**	1.0	-	0.25
Methylene chloride	5	< 20	20	U	20	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0
Naphthalene	10	**250**	20	-	20	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
n-Butylbenzene	5	**16**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.38**	1.0	J	0.25	< 1.0	1.0	U	0.25
n-Propylbenzene	5	**170**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.55**	1.0	J	0.25	< 1.0	1.0	U	0.25
o-Xylene	5	**1,500**	50	D	50	< 1.0	1.0	U	0.25	**1**	1.0	-	0.25	**0.5**	1.0	J	0.25
p-Isopropyltoluene		< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
sec-Butylbenzene	5	**12**	5.0	-	5.0	< 1.0	1.0	U	0.25	**0.62**	1.0	J	0.25	< 1.0	1.0	U	0.25
Styrene	5	**6.9**	5.0	-	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
tert-Butylbenzene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrachloroethene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrahydrofuran (THF)		< 50	50	U	50	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Toluene	5	**1,100**	50	D	50	< 1.0	1.0	U	0.25	**0.87**	1.0	J	0.25	**0.33**	1.0	J	0.25
trans-1,2-Dichloroethene	5	< 5.0	5.0	U	5.0	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
trans-1,3-Dichloropropene	0.4	< 5.0	5.0	U	5.0	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
trans-1,4-dichloro-2-butene	5	< 50	50	U	50	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Trichloroethene	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorofluoromethane	5	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorotrifluoroethane		< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Vinyl Chloride	2	< 5.0	5.0	U	5.0	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 9
Groundwater Analytical Results
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	MW1 11/17/2016 µg/L				MW2 11/17/2016 µg/L				MW3 11/17/2016 µg/L				MW4 11/17/2016 µg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene		< 5.0	5.0	U	1.8	< 5.0	5.0	U	1.8	< 26	26	U	9.3	< 110	110	U	38
1,2,4-Trichlorobenzene		< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 26	26	U	7.9	< 110	110	U	33
1,2-Dichlorobenzene		< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 7.4	7.4	U	7.4	< 30	30	U	30
1,2-Diphenylhydrazine		< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.6	< 110	110	U	35
1,3-Dichlorobenzene	3	< 3.0	3.0	U	1.5	< 3.0	3.0	U	1.5	< 7.8	7.8	U	7.8	< 32	32	U	32
1,4-Dichlorobenzene		< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 7.8	7.8	U	7.8	< 32	32	U	32
2,4,5-Trichlorophenol	1	< 2.7	2.7	U	2.7	< 2.7	2.7	U	2.7	< 14	14	U	14	< 59	59	U	59
2,4,6-Trichlorophenol	1	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 8.4	8.4	U	8.4	< 35	35	U	35
2,4-Dichlorophenol		< 1.8	1.8	U	1.8	< 1.8	1.8	U	1.8	< 9.3	9.3	U	9.3	< 38	38	U	38
2,4-Dimethylphenol		**4.2**	1.2	-	1.2	**1.6**	1.2	-	1.2	< 6.5	6.5	U	6.5	< 27	27	U	27
2,4-Dinitrophenol	5	< 3.5	3.5	U	3.5	< 3.5	3.5	U	3.5	< 18	18	U	18	< 76	76	U	76
2,4-Dinitrotoluene	5	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0	< 10	10	U	10	< 43	43	U	43
2,6-Dinitrotoluene	5	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 8.3	8.3	U	8.3	< 34	34	U	34
2-Chloronaphthalene	10	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 10	10	U	7.5	< 31	31	U	31
2-Chlorophenol	1	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 7.5	7.5	U	7.5	< 31	31	U	31
2-Methylnaphthalene		**3.2**	5.0	J	1.5	**11**	5.0	-	1.5	**15**	26	J	7.8	< 50	50	U	32
2-Methylphenol (o-cresol)	1	< 2.4	2.4	U	2.4	< 2.4	2.4	U	2.4	< 12	12	U	12	< 51	51	U	51
2-Nitroaniline	5	< 5.1	5.1	U	5.1	< 5.1	5.1	U	5.1	< 27	27	U	27	< 110	110	U	110
2-Nitrophenol	1	< 3.2	3.2	U	3.2	< 3.2	3.2	U	3.2	< 17	17	U	17	< 69	69	U	69
3&4-Methylphenol (m&p-cresol)		< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0	< 26	26	U	10	< 110	110	U	43
3,3'-Dichlorobenzidine	5	< 5.0	5.0	U	2.4	< 5.0	5.0	U	2.4	< 12	12	U	12	< 51	51	U	51
3-Nitroaniline	5	< 11	11	U	11	< 11	11	U	11	< 57	57	U	57	< 240	240	U	240
4,6-Dinitro-2-methylphenol	1	< 5.4	5.4	U	5.4	< 5.4	5.4	U	5.4	< 28	28	U	28	< 120	120	U	120
4-Bromophenyl phenyl ether		< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 26	26	U	7.7	< 110	110	U	32
4-Chloro-3-methylphenol	1	< 1.8	1.8	U	1.8	< 1.8	1.8	U	1.8	< 9.3	9.3	U	9.3	< 38	38	U	38
4-Chloroaniline	5	< 5.0	5.0	U	2.3	< 5.0	5.0	U	2.3	< 12	12	U	12	< 50	50	U	50
4-Chlorophenyl phenyl ether		< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 26	26	U	8.8	< 110	110	U	36
4-Nitroaniline	5	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 8.8	8.8	U	8.8	< 36	36	U	36
4-Nitrophenol		< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 12	12	U	12	< 49	49	U	49
Acenaphthene	20	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 20	20	U	8.0	< 33	33	U	33
Acenaphthylene		< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 20	20	U	7.4	< 30	30	U	30
Acetophenone		< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.2	< 110	110	U	34
Aniline	5	< 15	15	U	15	< 15	15	U	15	< 79	79	U	79	< 320	320	U	320
Anthracene	50	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.6	< 50	50	U	35
Benz(a)anthracene	0.002	< 1.7	1.7	U	1.7	< 1.7	1.7	U	1.7	< 8.8	8.8	U	8.8	< 36	36	U	36
Benzidine	5	< 5.0	5.0	U	2.9	< 5.0	5.0	U	2.9	< 15	15	U	15	< 64	64	U	64
Benzo(a)pyrene		< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 8.6	8.6	U	8.6	< 35	35	U	35
Benzo(b)fluoranthene	0.002	< 1.7	1.7	U	1.7	< 1.7	1.7	U	1.7	< 9.0	9.0	U	9.0	< 37	37	U	37
Benzo(ghi)perylene		< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 8.5	8.5	U	8.5	< 35	35	U	35
Benzo(k)fluoranthene	0.002	< 1.7	1.7	U	1.7	< 1.7	1.7	U	1.7	< 8.7	8.7	U	8.7	< 36	36	U	36
Benzoic acid		< 25	25	U	10	< 25	25	U	10	< 53	53	U	53	**360**	220	-	220
Benzyl butyl phthalate	50	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 26	26	U	6.8	< 50	50	U	28
Bis(2-chloroethoxy)methane	5	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 7.3	7.3	U	7.3	< 30	30	U	30
Bis(2-chloroethyl)ether	1	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 7.1	7.1	U	7.1	< 29	29	U	29
Bis(2-chloroisopropyl)ether		< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 26	26	U	7.3	< 110	110	U	30
Bis(2-ethylhexyl)phthalate	5	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 7.6	7.6	U	7.6	< 31	31	U	31
Carbazole		< 25	25	U	3.8	< 25	25	U	3.8	< 130	130	U	20	< 540	540	U	82
Chrysene	0.002	< 1.7	1.7	U	1.7	< 1.7	1.7	U	1.7	< 8.8	8.8	U	8.8	< 36	36	U	36
Dibenz(a,h)anthracene		< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.5	< 50	50	U	35
Dibenzofuran		< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 7.7	7.7	U	7.7	< 32	32	U	32
Diethyl phthalate	50	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.3	< 50	50	U	34
Dimethylphthalate	50	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.2	< 50	50	U	34
Di-n-butylphthalate	50	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 26	26	U	7.0	< 50	50	U	29
Di-n-octylphthalate	50	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 26	26	U	6.8	< 50	50	U	28
Fluoranthene	50	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.5	< 50	50	U	35
Fluorene	50	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 26	26	U	8.7	< 50	50	U	36
Hexachlorobenzene	0.04	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 7.7	7.7	U	7.7	< 32	32	U	32
Hexachlorobutadiene	0.5	< 1.8	1.8	U	1.8	< 1.8	1.8	U	1.8	< 9.5	9.5	U	9.5	< 39	39	U	39
Hexachlorocyclopentadiene	5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 8.1	8.1	U	8.1	< 33	33	U	33
Hexachloroethane	5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 7.9	7.9	U	7.9	< 32	32	U	32
Indeno(1,2,3-cd)pyrene	0.002	< 1.7	1.7	U	1.7	< 1.7	1.7	U	1.7	< 8.7	8.7	U	8.7	< 36	36	U	36
Isophorone	50	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 26	26	U	7.4	< 50	50	U	30
Naphthalene	10	**51**	5.0	-	1.4	**40**	5.0	-	1.4	**130**	7.6	-	7.6	< 31	31	U	31
Nitrobenzene	0.4	< 1.8	1.8	U	1.8	< 1.8	1.8	U	1.8	< 9.2	9.2	U	9.2	< 38	38	U	38
N-Nitrosodimethylamine		< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 26	26	U	7.4	< 110	110	U	30
N-Nitrosodi-n-propylamine		< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 26	26	U	8.5	< 110	110	U	35
N-Nitrosodiphenylamine	50	< 5.0	5.0	U	1.9	< 5.0	5.0	U	1.9	< 26	26	U	10	< 50	50	U	42
Pentachloronitrobenzene		< 5.0	5.0	U	1.9	< 5.0	5.0	U	1.9	< 26	26	U	9.8	< 110	110	U	40
Pentachlorophenol	1	< 1.9	1.9	U	1.9	< 1.9	1.9	U	1.9	< 9.9	9.9	U	9.9	< 41	41	U	41
Phenanthrene	50	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 26	26	U	7.5	< 50	50	U	31
Phenol	50	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 8.4	8.4	U	8.4	< 35	35	U	35
Pyrene	50	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 26	26	U	9.1	< 50	50	U	37
Pyridine	50	< 5.0	5.0	U	1.2	< 5.0	5.0	U	1.2	< 26	26	U	6.5	< 50	50	U	27

Notes:

RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 9
Groundwater Analytical Results
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	MW5 11/17/2016 µg/L Results	RL	Qual	MDL	MW6 11/16/2016 µg/L Results	RL	Qual	MDL	MW7 11/16/2016 µg/L Results	RL	Qual	MDL	MW8 11/17/2016 µg/L Results	RL	Qual	MDL	MW9 11/16/2016 µg/L Results	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene		< 0.50	0.50	U	0.50	< 100	100	U	35	< 0.50	0.50	U	0.50	< 110	110	U	39	< 0.50	0.50	U	0.50
1,2,4-Trichlorobenzene		< 5.0	5.0	U	1.5	< 100	100	U	30	< 5.0	5.0	U	1.5	< 110	110	U	34	< 5.0	5.0	U	1.5
1,2-Dichlorobenzene		< 1.0	1.0	U	1.0	< 28	28	U	28	< 1.0	1.0	U	1.0	< 31	31	U	31	< 1.0	1.0	U	1.0
1,2-Diphenylhydrazine		< 5.0	5.0	U	1.6	< 100	100	U	33	< 5.0	5.0	U	1.6	< 110	110	U	36	< 5.0	5.0	U	1.6
1,3-Dichlorobenzene	3	< 1.0	1.0	U	1.0	< 30	30	U	30	< 1.0	1.0	U	1.0	< 33	33	U	33	< 1.0	1.0	U	1.0
1,4-Dichlorobenzene		< 1.0	1.0	U	1.0	< 30	30	U	30	< 1.0	1.0	U	1.0	< 33	33	U	33	< 1.0	1.0	U	1.0
2,4,5-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 55	55	U	55	< 1.0	1.0	U	1.0	< 61	61	U	61	< 1.0	1.0	U	1.0
2,4,6-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0	< 36	36	U	36	< 1.0	1.0	U	1.0
2,4-Dichlorophenol		< 1.0	1.0	U	1.0	< 35	35	U	35	< 1.0	1.0	U	1.0	< 39	39	U	39	< 1.0	1.0	U	1.0
2,4-Dimethylphenol		< 1.0	1.0	U	1.0	< 25	25	U	25	< 1.0	1.0	U	1.0	< 28	28	U	28	< 1.0	1.0	U	1.0
2,4-Dinitrophenol	5	< 1.0	1.0	U	1.0	< 70	70	U	70	< 1.0	1.0	U	1.0	< 78	78	U	78	< 1.0	1.0	U	1.0
2,4-Dinitrotoluene	5	< 5.0	5.0	U	2.0	< 39	39	U	39	< 5.0	5.0	U	2.0	< 44	44	U	44	< 5.0	5.0	U	2.0
2,6-Dinitrotoluene	5	< 5.0	5.0	U	1.6	< 32	32	U	32	< 5.0	5.0	U	1.6	< 35	35	U	35	< 5.0	5.0	U	1.6
2-Chloronaphthalene	10	< 5.0	5.0	U	1.4	< 28	28	U	28	< 5.0	5.0	U	1.4	< 32	32	U	32	< 5.0	5.0	U	1.4
2-Chlorophenol	1	< 1.0	1.0	U	1.0	< 28	28	U	28	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0
2-Methylnaphthalene		< 5.0	5.0	U	1.5	< 50	50	U	30	< 5.0	5.0	U	1.5	< 50	50	U	33	< 5.0	5.0	U	1.5
2-Methylphenol (o-cresol)	1	< 1.0	1.0	U	1.0	< 47	47	U	47	< 1.0	1.0	U	1.0	< 52	52	U	52	< 1.0	1.0	U	1.0
2-Nitroaniline	5	< 5.0	5.0	U	2.0	< 100	100	U	100	< 5.0	5.0	U	2.0	< 110	110	U	110	< 5.0	5.0	U	2.0
2-Nitrophenol	1	< 1.0	1.0	U	1.0	< 63	63	U	63	< 1.0	1.0	U	1.0	< 70	70	U	70	< 1.0	1.0	U	1.0
3&4-Methylphenol (m&p-cresol)		< 1.0	1.0	U	1.0	**120**	100	-	39	< 1.0	1.0	U	1.0	**60**	110	J	44	< 1.0	1.0	U	1.0
3,3'-Dichlorobenzidine	5	< 5.0	5.0	U	2.4	< 47	47	U	47	< 5.0	5.0	U	2.4	< 52	52	U	52	< 5.0	5.0	U	2.4
3-Nitroaniline	5	< 5.0	5.0	U	2.0	< 220	220	U	220	< 5.0	5.0	U	2.0	< 240	240	U	240	< 5.0	5.0	U	2.0
4,6-Dinitro-2-methylphenol	1	< 1.0	1.0	U	1.0	< 110	110	U	110	< 1.0	1.0	U	1.0	< 120	120	U	120	< 1.0	1.0	U	1.0
4-Bromophenyl phenyl ether		< 5.0	5.0	U	1.5	< 100	100	U	29	< 5.0	5.0	U	1.5	< 110	110	U	33	< 5.0	5.0	U	1.5
4-Chloro-3-methylphenol	1	< 1.0	1.0	U	1.0	< 35	35	U	35	< 1.0	1.0	U	1.0	< 39	39	U	39	< 1.0	1.0	U	1.0
4-Chloroaniline	5	< 3.5	3.5	U	2.3	< 47	47	U	47	< 3.5	3.5	U	2.3	< 52	52	U	52	< 3.5	3.5	U	2.3
4-Chlorophenyl phenyl ether		< 5.0	5.0	U	1.7	< 100	100	U	34	< 5.0	5.0	U	1.7	< 110	110	U	37	< 5.0	5.0	U	1.7
4-Nitroaniline	5	< 5.0	5.0	U	1.7	< 33	33	U	33	< 5.0	5.0	U	1.7	< 37	37	U	37	< 5.0	5.0	U	1.7
4-Nitrophenol		< 1.0	1.0	U	1.0	< 45	45	U	45	< 1.0	1.0	U	1.0	< 50	50	U	50	< 1.0	1.0	U	1.0
Acenaphthene	20	< 5.0	5.0	U	1.5	< 30	30	U	30	< 5.0	5.0	U	1.5	< 34	34	U	34	< 5.0	5.0	U	1.5
Acenaphthylene		< 0.10	0.10	U	0.10	< 28	28	U	28	< 0.10	0.10	U	0.10	< 31	31	U	31	< 0.10	0.10	U	0.10
Acetophenone		< 5.0	5.0	U	1.6	< 100	100	U	31	< 5.0	5.0	U	1.6	< 110	110	U	35	< 5.0	5.0	U	1.6
Aniline	5	< 3.5	3.5	U	5.0	< 300	300	U	300	< 3.5	3.5	U	5.0	< 330	330	U	330	< 3.5	3.5	U	5.0
Anthracene	50	< 5.0	5.0	U	1.6	< 50	50	U	33	< 5.0	5.0	U	1.6	< 50	50	U	36	< 5.0	5.0	U	1.6
Benz(a)anthracene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 37	37	U	37	< 0.02	0.02	U	0.02
Benzidine	5	< 4.5	4.5	U	2.9	< 59	59	U	59	< 4.5	4.5	U	2.9	< 65	65	U	65	< 4.5	4.5	U	2.9
Benzo(a)pyrene		< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 36	36	U	36	< 0.02	0.02	U	0.02
Benzo(b)fluoranthene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 38	38	U	38	< 0.02	0.02	U	0.02
Benzo(ghi)perylene		< 0.02	0.02	U	0.02	< 32	32	U	32	< 0.02	0.02	U	0.02	< 36	36	U	36	< 0.02	0.02	U	0.02
Benzo(k)fluoranthene	0.002	< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 37	37	U	37	< 0.02	0.02	U	0.02
Benzoic acid		< 25	25	U	10	**7,000**	2,000	D	2000	< 25	25	U	10	**3,300**	2,200	D	2200	< 25	25	U	10
Benzyl butyl phthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	26	< 5.0	5.0	U	1.3	< 50	50	U	29	< 5.0	5.0	U	1.3
Bis(2-chloroethoxy)methane	5	< 5.0	5.0	U	1.4	< 28	28	U	28	< 5.0	5.0	U	1.4	< 31	31	U	31	< 5.0	5.0	U	1.4
Bis(2-chloroethyl)ether	1	< 1.0	1.0	U	1.0	< 27	27	U	27	< 1.0	1.0	U	1.0	< 30	30	U	30	< 1.0	1.0	U	1.0
Bis(2-chloroisopropyl)ether		< 5.0	5.0	U	1.4	< 100	100	U	28	< 5.0	5.0	U	1.4	< 110	110	U	31	< 5.0	5.0	U	1.4
Bis(2-ethylhexyl)phthalate	5	< 1.0	1.0	U	1.0	< 29	29	U	29	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0
Carbazole		< 5.0	5.0	U	3.8	< 500	500	U	76	< 5.0	5.0	U	3.8	< 560	560	U	84	< 5.0	5.0	U	3.8
Chrysene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 37	37	U	37	< 0.02	0.02	U	0.02
Dibenz(a,h)anthracene		< 0.02	0.02	U	0.02	< 50	50	U	32	< 0.02	0.02	U	0.02	< 50	50	U	36	< 0.02	0.02	U	0.02
Dibenzofuran		< 5.0	5.0	U	1.5	< 29	29	U	29	< 5.0	5.0	U	1.5	< 32	32	U	32	< 5.0	5.0	U	1.5
Diethyl phthalate	50	< 5.0	5.0	U	1.6	< 50	50	U	32	< 5.0	5.0	U	1.6	< 50	50	U	35	< 5.0	5.0	U	1.6
Dimethylphthalate	50	< 5.0	5.0	U	1.6	< 50	50	U	31	< 5.0	5.0	U	1.6	< 50	50	U	34	< 5.0	5.0	U	1.6
Di-n-butylphthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	27	< 5.0	5.0	U	1.3	< 50	50	U	30	< 5.0	5.0	U	1.3
Di-n-octylphthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	26	< 5.0	5.0	U	1.3	< 50	50	U	29	< 5.0	5.0	U	1.3
Fluoranthene	50	< 5.0	5.0	U	1.6	< 50	50	U	32	< 5.0	5.0	U	1.6	< 50	50	U	36	< 5.0	5.0	U	1.6
Fluorene	50	< 5.0	5.0	U	1.7	< 50	50	U	33	< 5.0	5.0	U	1.7	< 50	50	U	37	< 5.0	5.0	U	1.7
Hexachlorobenzene	0.04	< 0.02	0.02	U	0.02	< 29	29	U	29	< 0.02	0.02	U	0.02	< 32	32	U	32	< 0.02	0.02	U	0.02
Hexachlorobutadiene	0.5	< 0.40	0.40	U	0.40	< 36	36	U	36	< 0.40	0.40	U	0.40	< 40	40	U	40	< 0.40	0.40	U	0.40
Hexachlorocyclopentadiene	5	< 5.0	5.0	U	1.5	< 31	31	U	31	< 5.0	5.0	U	1.5	< 34	34	U	34	< 5.0	5.0	U	1.5
Hexachloroethane	5	< 0.50	0.50	U	0.50	< 30	30	U	30	< 0.50	0.50	U	0.50	< 33	33	U	33	< 0.50	0.50	U	0.50
Indeno(1,2,3-cd)pyrene	0.002	< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 37	37	U	37	< 0.02	0.02	U	0.02
Isophorone	50	< 5.0	5.0	U	1.4	< 50	50	U	28	< 5.0	5.0	U	1.4	< 50	50	U	31	< 5.0	5.0	U	1.4
Naphthalene	10	< 5.0	5.0	U	1.4	**100**	29	-	29	< 5.0	5.0	U	1.4	< 32	32	U	32	< 5.0	5.0	U	1.4
Nitrobenzene	0.4	< 0.10	0.10	U	0.10	< 35	35	U	35	< 0.10	0.10	U	0.10	< 39	39	U	39	< 0.10	0.10	U	0.10
N-Nitrosodimethylamine		< 0.10	0.10	U	0.10	< 100	100	U	28	< 0.10	0.10	U	0.10	< 110	110	U	31	< 0.10	0.10	U	0.10
N-Nitrosodi-n-propylamine		< 5.0	5.0	U	1.6	< 100	100	U	32	< 5.0	5.0	U	1.6	< 110	110	U	36	< 5.0	5.0	U	1.6
N-Nitrosodiphenylamine	50	< 5.0	5.0	U	1.9	< 50	50	U	38	< 5.0	5.0	U	1.9	< 50	50	U	43	< 5.0	5.0	U	1.9
Pentachloronitrobenzene		< 0.10	0.10	U	0.10	< 100	100	U	37	< 0.10	0.10	U	0.10	< 110	110	U	41	< 0.10	0.10	U	0.10
Pentachlorophenol	1	< 0.80	0.80	U	0.80	< 38	38	U	38	< 0.80	0.80	U	0.80	< 42	42	U	42	< 0.80	0.80	U	0.80
Phenanthrene	50	< 0.10	0.10	U	0.10	< 50	50	U	29	< 0.10	0.10	U	0.10	< 50	50	U	32	< 0.10	0.10	U	0.10
Phenol	50	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0	< 36	36	U	36	< 1.0	1.0	U	1.0
Pyrene	50	< 5.0	5.0	U	1.7	< 50	50	U	34	< 5.0	5.0	U	1.7	< 50	50	U	38	< 5.0	5.0	U	1.7
Pyridine	50	< 10	10	U	1.2	< 50	50	U	25	< 10	10	U	1.2	< 50	50	U	27	< 10	10	U	1.2

Notes:

RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

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1181 Flushing Avenue, Brooklyn, NY

TABLE 9
Groundwater Analytical Results
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	MW10 11/16/2016 µg/L				MW14 11/17/2016 µg/L				MW15 11/17/2016 µg/L				GW Duplicate 1 MW9 11/16/2016 µg/L				GW Duplicate 2 MW7 11/16/2016 µg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene		< 0.50	0.50	U	0.50	< 100	100	U	35	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
1,2,4-Trichlorobenzene		< 5.0	5.0	U	1.5	< 100	100	U	30	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
1,2-Dichlorobenzene		< 1.0	1.0	U	1.0	< 28	28	U	28	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
1,2-Diphenylhydrazine		< 5.0	5.0	U	1.6	< 100	100	U	33	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
1,3-Dichlorobenzene	3	< 1.0	1.0	U	1.0	< 30	30	U	30	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
1,4-Dichlorobenzene		< 1.0	1.0	U	1.0	< 30	30	U	30	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4,5-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 55	55	U	55	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4,6-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4-Dichlorophenol		< 1.0	1.0	U	1.0	< 35	35	U	35	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4-Dimethylphenol		< 1.0	1.0	U	1.0	< 25	25	U	25	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4-Dinitrophenol	5	< 1.0	1.0	U	1.0	< 70	70	U	70	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2,4-Dinitrotoluene	5	< 5.0	5.0	U	2.0	< 39	39	U	39	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0
2,6-Dinitrotoluene	5	< 5.0	5.0	U	1.6	< 32	32	U	32	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
2-Chloronaphthalene	10	< 5.0	5.0	U	1.4	< 28	28	U	28	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4
2-Chlorophenol	1	< 1.0	1.0	U	1.0	< 28	28	U	28	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2-Methylnaphthalene		< 5.0	5.0	U	1.5	**67**	50	-	30	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
2-Methylphenol (o-cresol)	1	< 1.0	1.0	U	1.0	< 47	47	U	47	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
2-Nitroaniline	5	< 5.0	5.0	U	2.0	< 100	100	U	100	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0
2-Nitrophenol	1	< 1.0	1.0	U	1.0	< 63	63	U	63	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
3&4-Methylphenol (m&p-cresol)		< 1.0	1.0	U	1.0	< 100	100	U	39	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
3,3'-Dichlorobenzidine	5	< 5.0	5.0	U	2.4	< 47	47	U	47	< 5.0	5.0	U	2.4	< 5.0	5.0	U	2.4	< 5.0	5.0	U	2.4
3-Nitroaniline	5	< 5.0	5.0	U	2.0	< 220	220	U	220	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0	< 5.0	5.0	U	2.0
4,6-Dinitro-2-methylphenol	1	< 1.0	1.0	U	1.0	< 110	110	U	110	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
4-Bromophenyl phenyl ether		< 5.0	5.0	U	1.5	< 100	100	U	29	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
4-Chloro-3-methylphenol	1	< 1.0	1.0	U	1.0	< 35	35	U	35	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
4-Chloroaniline	5	< 3.5	3.5	U	2.3	< 47	47	U	47	< 3.5	3.5	U	2.3	< 3.5	3.5	U	2.3	< 3.5	3.5	U	2.3
4-Chlorophenyl phenyl ether		< 5.0	5.0	U	1.7	< 100	100	U	34	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7
4-Nitroaniline	5	< 5.0	5.0	U	1.7	< 33	33	U	33	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7
4-Nitrophenol		< 1.0	1.0	U	1.0	< 45	45	U	45	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
Acenaphthene	20	< 5.0	5.0	U	1.5	< 30	30	U	30	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
Acenaphthylene		< 0.10	0.10	U	0.10	< 28	28	U	28	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
Acetophenone		< 5.0	5.0	U	1.6	< 100	100	U	31	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
Aniline	5	< 3.5	3.5	U	5.0	< 300	300	U	300	< 3.5	3.5	U	5.0	< 3.5	3.5	U	5.0	< 3.5	3.5	U	5.0
Anthracene	50	< 5.0	5.0	U	1.6	< 50	50	U	33	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
Benz(a)anthracene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Benzidine	5	< 4.5	4.5	U	2.9	< 59	59	U	59	< 4.5	4.5	U	2.9	< 4.5	4.5	U	2.9	< 4.5	4.5	U	2.9
Benzo(a)pyrene		< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Benzo(b)fluoranthene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Benzo(ghi)perylene		< 0.02	0.02	U	0.02	< 32	32	U	32	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Benzo(k)fluoranthene	0.002	< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Benzoic acid		< 25	25	U	10	**3,700**	2,000	D	2000	< 25	25	U	10	< 25	25	U	10	< 25	25	U	10
Benzyl butyl phthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	26	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3
Bis(2-chloroethoxy)methane	5	< 5.0	5.0	U	1.4	< 28	28	U	28	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4
Bis(2-chloroethyl)ether	1	< 1.0	1.0	U	1.0	< 27	27	U	27	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
Bis(2-chloroisopropyl)ether		< 5.0	5.0	U	1.4	< 100	100	U	28	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4
Bis(2-ethylhexyl)phthalate	5	< 1.0	1.0	U	1.0	< 29	29	U	29	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
Carbazole		< 5.0	5.0	U	3.8	< 500	500	U	76	< 5.0	5.0	U	3.8	< 5.0	5.0	U	3.8	< 5.0	5.0	U	3.8
Chrysene	0.002	< 0.02	0.02	U	0.02	< 34	34	U	34	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Dibenz(a,h)anthracene		< 0.02	0.02	U	0.02	< 50	50	U	32	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Dibenzofuran		< 5.0	5.0	U	1.5	< 29	29	U	29	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
Diethyl phthalate	50	< 5.0	5.0	U	1.6	< 50	50	U	32	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
Dimethylphthalate	50	< 5.0	5.0	U	1.6	< 50	50	U	31	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
Di-n-butylphthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	27	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3
Di-n-octylphthalate	50	< 5.0	5.0	U	1.3	< 50	50	U	26	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3	< 5.0	5.0	U	1.3
Fluoranthene	50	< 5.0	5.0	U	1.6	< 50	50	U	32	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
Fluorene	50	< 5.0	5.0	U	1.7	< 50	50	U	33	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7
Hexachlorobenzene	0.04	< 0.02	0.02	U	0.02	< 29	29	U	29	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Hexachlorobutadiene	0.5	< 0.40	0.40	U	0.40	< 36	36	U	36	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40	< 0.40	0.40	U	0.40
Hexachlorocyclopentadiene	5	< 5.0	5.0	U	1.5	< 31	31	U	31	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5	< 5.0	5.0	U	1.5
Hexachloroethane	5	< 0.50	0.50	U	0.50	< 30	30	U	30	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
Indeno(1,2,3-cd)pyrene	0.002	< 0.02	0.02	U	0.02	< 33	33	U	33	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Isophorone	50	< 5.0	5.0	U	1.4	< 50	50	U	28	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4
Naphthalene	10	< 5.0	5.0	U	1.4	**260**	29	-	29	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4	< 5.0	5.0	U	1.4
Nitrobenzene	0.4	< 0.10	0.10	U	0.10	< 35	35	U	35	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
N-Nitrosodimethylamine		< 0.10	0.10	U	0.10	< 100	100	U	28	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
N-Nitrosodi-n-propylamine		< 5.0	5.0	U	1.6	< 100	100	U	32	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6	< 5.0	5.0	U	1.6
N-Nitrosodiphenylamine	50	< 5.0	5.0	U	1.9	< 50	50	U	38	< 5.0	5.0	U	1.9	< 5.0	5.0	U	1.9	< 5.0	5.0	U	1.9
Pentachloronitrobenzene		< 0.10	0.10	U	0.10	< 100	100	U	37	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
Pentachlorophenol	1	< 0.80	0.80	U	0.80	< 38	38	U	38	< 0.80	0.80	U	0.80	< 0.80	0.80	U	0.80	< 0.80	0.80	U	0.80
Phenanthrene	50	< 0.10	0.10	U	0.10	< 50	50	U	29	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
Phenol	50	< 1.0	1.0	U	1.0	< 32	32	U	32	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
Pyrene	50	< 5.0	5.0	U	1.7	< 50	50	U	34	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7	< 5.0	5.0	U	1.7
Pyridine	50	< 10	10	U	1.2	< 50	50	U	25	< 10	10	U	1.2	< 10	10	U	1.2	< 10	10	U	1.2

Notes:

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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 10
Groundwater Analytical Results
Pesticides/PCBs

	Compound	NYSDEC Groundwater Quality Standards µg/L	MW1 11/17/2016 µg/L				MW2 11/17/2016 µg/L				MW3 11/17/2016 µg/L				MW4 11/17/2016 µg/L			
			Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
PCBs	PCB-1016	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1221	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1232	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1242	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1248	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1254	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1260	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1262	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	PCB-1268	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
Pesticides	4,4-DDD	0.3	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.011	< 0.005	0.005	U	0.010
	4,4-DDE	0.2	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.011	< 0.005	0.005	U	0.010
	4,4-DDT	0.11	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.011	< 0.005	0.005	U	0.010
	a-BHC	0.94	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.005	0.005	U	0.005
	a-Chlordane		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Alachlor		< 0.75	0.75	U	0.75	< 0.075	0.075	U	0.075	< 0.082	0.082	U	0.082	< 0.075	0.075	U	0.075
	Aldrin		< 0.015	0.015	U	0.015	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.010	0.010	U	0.010
	b-BHC	0.04	< 0.050	0.050	U	0.050	< 0.040	0.040	U	0.040	< 0.030	0.030	U	0.030	< 0.005	0.005	U	0.005
	Chlordane	0.05	< 0.50	0.50	U	0.50	< 0.050	0.050	U	0.050	< 0.055	0.055	U	0.055	< 0.050	0.050	U	0.050
	d-BHC	0.04	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.006	0.006	U	0.006	< 0.005	0.005	U	0.005
	Dieldrin	0.004	< 0.015	0.015	U	0.015	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
	Endosulfan I		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Endosulfan II		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Endosulfan Sulfate		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Endrin		< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Endrin aldehyde	5	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Endrin ketone		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	gamma-BHC	0.05	< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.006	0.006	U	0.006	< 0.005	0.005	U	0.005
	g-Chlordane		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.011	0.011	U	0.011	< 0.010	0.010	U	0.010
	Heptachlor	0.04	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Heptachlor epoxide	0.03	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Methoxychlor	35	< 1.0	1.0	U	1.0	< 0.10	0.10	U	0.10	< 0.11	0.11	U	0.11	< 0.10	0.10	U	0.10
	Toxaphene		< 2.0	2.0	U	2.0	< 0.20	0.20	U	0.20	< 0.22	0.22	U	0.22	< 0.20	0.20	U	0.20

Notes:
RL- Reporting Limit
U- The compound was anlazyed for but not detected at or above the MDL.
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 10
Groundwater Analytical Results
Pesticides/PCBs

	Compound	NYSDEC Groundwater Quality Standards µg/L	MW5 11/17/2016 µg/L				MW6 11/16/2016 µg/L				MW7 11/16/2016 µg/L				MW8 11/17/2016 µg/L				MW9 11/16/2016 µg/L			
			Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
PCBs	**PCB-1016**	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1221	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1232	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1242	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1248	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1254	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1260	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1262	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	PCB-1268	**0.09**	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
Pesticides	**4,4-DDD**	**0.3**	< 0.005	0.005	U	0.010	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.012	< 0.005	0.005	U	0.010
	4,4-DDE	**0.2**	< 0.005	0.005	U	0.010	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.012	< 0.005	0.005	U	0.010
	4,4-DDT	**0.11**	< 0.005	0.005	U	0.010	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.006	0.006	U	0.012	< 0.005	0.005	U	0.010
	a-BHC	**0.94**	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.006	0.006	U	0.006	< 0.005	0.005	U	0.005
	a-Chlordane		< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Alachlor		< 0.077	0.077	U	0.077	< 0.050	0.050	U	0.050	< 0.075	0.075	U	0.075	< 0.089	0.089	U	0.089	< 0.075	0.075	U	0.075
	Aldrin		< 0.002	0.002	U	0.002	< 0.020	0.020	U	0.020	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
	b-BHC	**0.04**	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.040	0.040	U	0.040	< 0.006	0.006	U	0.006	< 0.040	0.040	U	0.040
	Chlordane	**0.05**	< 0.052	0.052	U	0.052	< 0.50	0.50	U	0.50	< 0.050	0.050	U	0.050	< 0.060	0.060	U	0.060	< 0.050	0.050	U	0.050
	d-BHC	**0.04**	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.006	0.006	U	0.006	< 0.005	0.005	U	0.005
	Dieldrin	**0.004**	< 0.002	0.002	U	0.002	< 0.015	0.015	U	0.015	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
	Endosulfan I		< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Endosulfan II		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Endosulfan Sulfate		< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Endrin		< 0.005	0.005	U	0.005	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Endrin aldehyde	**5**	< 0.010	0.010	U	0.010	< 0.20	0.20	U	0.20	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Endrin ketone		< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	gamma-BHC	**0.05**	< 0.005	0.005	U	0.005	< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.006	0.006	U	0.006	< 0.005	0.005	U	0.005
	g-Chlordane		< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.012	0.012	U	0.012	< 0.010	0.010	U	0.010
	Heptachlor	**0.04**	< 0.005	0.005	U	0.005	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Heptachlor epoxide	**0.03**	< 0.005	0.005	U	0.005	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.006	0.006	U	0.006	< 0.010	0.010	U	0.010
	Methoxychlor	**35**	< 0.10	0.10	U	0.10	< 1.0	1.0	U	1.0	< 0.10	0.10	U	0.10	< 0.12	0.12	U	0.12	< 0.10	0.10	U	0.10
	Toxaphene		< 0.21	0.21	U	0.21	< 2.0	2.0	U	2.0	< 0.20	0.20	U	0.20	< 0.24	0.24	U	0.24	< 0.20	0.20	U	0.20

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TABLE 10
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Pesticides/PCBs

	Compound	NYSDEC Groundwater Quality Standards µg/L	MW10 11/16/2016 µg/L				MW14 11/17/2016 µg/L				MW15 11/17/2016 µg/L				GW Duplicate 1 MW9 11/16/2016 µg/L				GW Duplicate 2 MW7 11/16/2016 µg/L			
			Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
PCBs	PCB-1016	0.09	< 0.050	0.050	U	0.050	**0.16**	0.052		0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1221	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1232	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1242	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1248	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1254	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1260	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1262	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
PCBs	PCB-1268	0.09	< 0.050	0.050	U	0.050	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
Pesticides	4,4-DDD	0.3	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010
Pesticides	4,4-DDE	0.2	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010
Pesticides	4,4-DDT	0.11	< 0.025	0.025	U	0.025	< 0.007	0.007	U	0.007	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010	< 0.005	0.005	U	0.010
Pesticides	a-BHC	0.94	< 0.025	0.025	U	0.025	< 0.020	0.020	U	0.020	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005
Pesticides	a-Chlordane		< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Alachlor		< 0.050	0.050	U	0.050	< 0.078	0.078	U	0.078	< 0.075	0.075	U	0.075	< 0.075	0.075	U	0.075	< 0.075	0.075	U	0.075
Pesticides	Aldrin		< 0.015	0.015	U	0.015	< 0.003	0.003	U	0.003	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.005	0.005	U	0.005
Pesticides	b-BHC	0.04	< 0.025	0.025	U	0.025	< 0.020	0.020	U	0.020	< 0.010	0.010	U	0.010	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005
Pesticides	Chlordane	0.05	< 0.50	0.50	U	0.50	< 0.052	0.052	U	0.052	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050
Pesticides	d-BHC	0.04	< 0.025	0.025	U	0.025	< 0.010	0.010	U	0.010	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005
Pesticides	Dieldrin	0.004	< 0.015	0.015	U	0.015	< 0.005	0.005	U	0.005	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
Pesticides	Endosulfan I		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Endosulfan II		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Endosulfan Sulfate		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Endrin		< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Endrin aldehyde	5	< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Endrin ketone		< 0.10	0.10	U	0.10	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	gamma-BHC	0.05	< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005
Pesticides	g-Chlordane		< 0.050	0.050	U	0.050	< 0.030	0.030	U	0.030	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Heptachlor	0.04	< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Heptachlor epoxide	0.03	< 0.050	0.050	U	0.050	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010
Pesticides	Methoxychlor	35	< 1.0	1.0	U	1.0	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10	< 0.10	0.10	U	0.10
Pesticides	Toxaphene		< 2.0	2.0	U	2.0	< 0.21	0.21	U	0.21	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20

Notes:
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U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
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D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 11
Groundwater Analytical Results
Total Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW1 11/17/2016 mg/L				MW2 11/17/2016 mg/L				MW3 11/17/2016 mg/L				MW4 11/17/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	**20.9**	0.010	-	0.005	**5.02**	0.010	-	0.005	**9.91**	0.010	-	0.005	**32.7**	0.10	-	0.050
Antimony	0.003	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
Arsenic	0.025	**0.008**	0.004	-	0.004	< 0.004	0.004	U	0.004	< 0.004	0.004	U	0.004	**0.012**	0.004	-	0.004
Barium	1	**0.539**	0.010	-	0.001	**0.211**	0.010	-	0.001	**0.292**	0.010	-	0.001	**0.507**	0.010	-	0.001
Beryllium	0.003	**0.001**	0.001	-	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	**0.002**	0.001	-	0.001
Cadmium	0.005	**0.002**	0.004	B	0.0005	**0.001**	0.004	B	0.0005	**0.001**	0.004	B	0.0005	**0.003**	0.004	B	0.0005
Calcium	NS	**133**	0.010	-	0.01	**113**	0.010	-	0.01	**110**	0.010	-	0.01	**118**	0.010	-	0.01
Chromium	0.05	**0.052**	0.001	-	0.001	**0.012**	0.001	-	0.001	**0.027**	0.001	-	0.001	**0.097**	0.001	-	0.001
Cobalt	NS	**0.018**	0.005	-	0.001	**0.005**	0.005	B	0.001	**0.012**	0.005	-	0.001	**0.041**	0.005	-	0.001
Copper	0.2	**0.053**	0.005	-	0.001	**0.012**	0.005	-	0.001	**0.029**	0.005	-	0.001	**0.069**	0.005	-	0.001
Iron	0.5	**70.8**	0.01	-	0.01	**19.3**	0.01	-	0.01	**30.4**	0.01	-	0.01	**133**	0.10	-	0.10
Lead	0.025	**0.051**	0.002	-	0.001	< 0.002	0.002	U	0.001	**0.011**	0.002	-	0.001	**0.021**	0.002	-	0.001
Magnesium	35	**31.4**	0.010	N	0.01	**30.9**	0.010	N	0.01	**20.7**	0.010	N	0.01	**37.8**	0.010	N	0.01
Manganese	0.3	**5.4**	0.050	-	0.010	**6.91**	0.050	-	0.010	**6.36**	0.050	-	0.010	**12.1**	0.050	-	0.010
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	**0.032**	0.004	-	0.001	**0.007**	0.004	-	0.001	**0.017**	0.004	-	0.001	**0.069**	0.004	-	0.001
Potassium	NS	**45.2**	0.1	-	0.01	**10.5**	0.1	-	0.01	**17.1**	0.1	-	0.01	**17.5**	0.1	-	0.01
Selenium	0.01	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.001
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	**342**	1.0	-	0.10	**232**	1.0	-	0.10	**350**	1.0	-	0.10	**148**	1.0	-	0.10
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	**0.057**	0.010	-	0.001	**0.014**	0.010	-	0.001	**0.031**	0.010	-	0.001	**0.088**	0.010	-	0.001
Zinc	2	**0.124**	0.010	-	0.0011	**0.028**	0.010	-	0.0011	**0.049**	0.010	-	0.0011	**0.118**	0.010	-	0.0011

Notes:
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 11
Groundwater Analytical Results
Total Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW5 11/17/2016 mg/L				MW6 11/16/2016 mg/L				MW7 11/16/2016 mg/L				MW8 11/16/2016 mg/L				MW9 11/16/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	1.05	0.010	-	0.005	6.04	0.010	-	0.005	0.031	0.010	-	0.005	6.2	0.010	-	0.005	0.182	0.010	-	0.005
Antimony	0.003	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
Arsenic	0.025	< 0.004	0.004	U	0.004	< 0.004	0.004	U	0.004	0.011	0.004	-	0.004	0.035	0.004	-	0.004	< 0.004	0.004	U	0.004
Barium	1	0.155	0.010	-	0.001	1.33	0.010	-	0.001	0.266	0.010	-	0.001	0.45	0.010	-	0.001	0.198	0.010	-	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cadmium	0.005	0.001	0.004	B	0.0005	0.018	0.004	-	0.0005	0.002	0.004	B	0.0005	0.003	0.004	B	0.0005	< 0.004	0.004	U	0.0005
Calcium	NS	98	0.010	-	0.01	429	0.10	-	0.10	47.5	0.010	-	0.01	162	0.10	-	0.10	120	0.010	-	0.01
Chromium	0.05	0.003	0.001	-	0.001	0.016	0.001	-	0.001	< 0.001	0.001	U	0.001	0.021	0.001	-	0.001	0.002	0.001	-	0.001
Cobalt	NS	0.002	0.005	B	0.001	0.082	0.005	-	0.001	0.018	0.005	-	0.001	0.012	0.005	-	0.001	0.008	0.005	-	0.001
Copper	0.2	0.004	0.005	B	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	0.022	0.005	-	0.001	< 0.005	0.005	U	0.001
Iron	0.5	28.2	0.01	-	0.01	868	0.10	-	0.10	121	0.01	-	0.01	151	0.10	-	0.10	14.6	0.01	-	0.01
Lead	0.025	0.006	0.002	-	0.001	0.059	0.002	-	0.001	0.007	0.002	-	0.001	0.018	0.002	-	0.001	< 0.002	0.002	U	0.001
Magnesium	35	33.5	0.010	N	0.01	99.1	0.10	N	0.10	14.7	0.010	-	0.01	28.7	0.010	N	0.01	39.7	0.010	-	0.01
Manganese	0.3	5.19	0.050	-	0.010	33	0.50	-	0.10	3.48	0.050	-	0.010	3.87	0.050	-	0.010	11.4	0.050	-	0.010
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	0.002	0.004	B	0.001	0.011	0.004	-	0.001	0.004	0.004	B	0.001	0.025	0.004	-	0.001	0.007	0.004	-	0.001
Potassium	NS	4.8	0.1	-	0.01	23.7	0.1	-	0.01	5	0.1	-	0.01	25.2	0.1	-	0.01	9.6	0.1	-	0.01
Selenium	0.01	< 0.002	0.002	U	0.001	< 0.002	0.002	UN	0.001	< 0.002	0.002	UN	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	UN	0.001
Silver	0.05	< 0.005	0.005	U	0.001	0.001	0.005	B	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	130	1.0	-	0.10	233	1.0	-	0.10	107	1.0	-	0.10	151	1.0	-	0.10	122	1.0	-	0.10
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	0.004	0.010	B	0.001	0.022	0.010	-	0.001	< 0.010	0.010	U	0.001	0.028	0.010	-	0.001	0.001	0.010	B	0.001
Zinc	2	0.01	0.010	-	0.0011	0.141	0.010	-	0.0011	0.014	0.010	-	0.0011	0.064	0.010	-	0.0011	0.009	0.010	B	0.0011

Notes:
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 11
Groundwater Analytical Results
Total Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW10 11/16/2016 mg/L				MW14 11/17/2016 mg/L				MW15 11/17/2016 mg/L				GW Duplicate 1 MW9 11/16/2016 mg/L				GW Duplicate 2 MW7 11/16/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	**0.119**	0.010	-	0.005	**1.25**	0.010	-	0.005	**0.048**	0.010	-	0.005	**2.61**	0.010	-	0.005	**0.032**	0.010	-	0.005
Antimony	0.003	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002	< 0.002	0.002	U	0.002
Arsenic	0.025	**0.01**	0.004	-	0.004	**0.009**	0.004	-	0.004	< 0.004	0.004	U	0.004	< 0.004	0.004	U	0.004	**0.011**	0.004	-	0.004
Barium	1	**0.309**	0.010	-	0.001	**0.318**	0.010	-	0.001	**0.151**	0.010	-	0.001	**0.229**	0.010	-	0.001	**0.282**	0.010	-	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cadmium	0.005	**0.001**	0.004	B	0.0005	**0.004**	0.004	B	0.0005	**0.001**	0.004	B	0.0005	**0.001**	0.004	B	0.0005	**0.002**	0.004	B	0.0005
Calcium	NS	**138**	0.010	-	0.01	**211**	0.10	-	0.10	**151**	0.10	-	0.10	**121**	0.010	-	0.01	**49.8**	0.010	-	0.01
Chromium	0.05	< 0.001	0.001	U	0.001	**0.005**	0.001	-	0.001	< 0.001	0.001	U	0.001	**0.01**	0.001	-	0.001	< 0.001	0.001	U	0.001
Cobalt	NS	**0.002**	0.005	B	0.001	**0.002**	0.005	B	0.001	**0.005**	0.005	-	0.001	**0.011**	0.005	-	0.001	**0.019**	0.005	-	0.001
Copper	0.2	< 0.005	0.005	U	0.001	**0.001**	0.005	B	0.001	**0.004**	0.005	B	0.001	**0.007**	0.005	-	0.001	< 0.005	0.005	U	0.001
Iron	0.5	**47.4**	0.01	-	0.01	**158**	0.10	-	0.10	**1.35**	0.01	-	0.01	**18.1**	0.01	-	0.01	**126**	0.10	-	0.10
Lead	0.025	< 0.002	0.002	U	0.001	**0.009**	0.002	-	0.001	< 0.002	0.002	U	0.001	**0.001**	0.002	B	0.001	**0.009**	0.002	-	0.001
Magnesium	35	**32.2**	0.010	-	0.01	**30.4**	0.010	N	0.01	**39.5**	0.010	N	0.01	**41.4**	0.010	-	0.01	**15.5**	0.010	-	0.01
Manganese	0.3	**1.09**	0.005	-	0.001	**14.3**	0.050	-	0.010	**12.1**	0.050	-	0.010	**12.7**	0.050	-	0.010	**3.47**	0.050	-	0.010
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	**0.002**	0.004	B	0.001	**0.004**	0.004	-	0.001	**0.003**	0.004	B	0.001	**0.015**	0.004	-	0.001	**0.004**	0.004	B	0.001
Potassium	NS	**18.5**	0.1	-	0.01	**17.9**	0.1	-	0.01	**20.7**	0.1	-	0.01	**10**	0.1	-	0.01	**5.4**	0.1	-	0.01
Selenium	0.01	< 0.002	0.002	UN	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	UN	0.001	< 0.002	0.002	UN	0.001
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	**122**	1.0	-	0.10	**279**	1.0	-	0.10	**161**	1.0	-	0.10	**121**	1.0	-	0.10	**106**	1.0	-	0.10
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	**0.002**	0.010	B	0.001	**0.005**	0.010	B	0.001	< 0.010	0.010	U	0.001	**0.007**	0.010	B	0.001	**0.001**	0.010	B	0.001
Zinc	2	**0.01**	0.010	-	0.0011	**0.026**	0.010	-	0.0011	**0.002**	0.010	B	0.0011	**0.028**	0.010	-	0.0011	**0.015**	0.010	-	0.0011

Notes:
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 12
Groundwater Analytical Results
Dissolved Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW1 11/17/2016 mg/L				MW2 11/17/2016 mg/L				MW3 11/17/2016 mg/L				MW4 11/17/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	< 0.011	0.011	U	0.005	< 0.011	0.011	U	0.005	< 0.011	0.011	U	0.005	< 0.011	0.011	U	0.005
Antimony	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003
Arsenic	0.025	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003
Barium	1	0.23	0.011	-	0.001	0.137	0.011	-	0.001	0.181	0.011	-	0.001	0.205	0.011	-	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cadmium	0.005	< 0.004	0.004	U	0.0005	< 0.004	0.004	U	0.0005	< 0.004	0.004	U	0.0005	< 0.004	0.004	U	0.0005
Calcium	NS	119	0.01	-	0.01	112	0.01	-	0.01	96.9	0.01	-	0.01	105	0.01	-	0.01
Chromium	0.05	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cobalt	NS	0.002	0.005	B	0.001	< 0.005	0.005	U	0.001	0.002	0.005	B	0.001	0.011	0.005	-	0.001
Copper	0.2	0.001	0.005	B	0.001	< 0.005	0.005	U	0.001	0.001	0.005	B	0.001	< 0.005	0.005	U	0.001
Iron	0.5	0.03	0.01	-	0.01	0.12	0.01	-	0.01	< 0.01	0.01	U	0.01	8.95	0.01	-	0.01
Lead	0.025	< 0.002	0.002	U	0.001	0.002	0.002	-	0.001	0.003	0.002	-	0.001	0.002	0.002	B	0.001
Magnesium	35	25.3	0.01	-	0.01	29.3	0.01	-	0.01	16.2	0.01	-	0.01	27.9	0.01	-	0.01
Manganese	0.3	3.43	0.053	-	0.011	6.75	0.053	-	0.011	5.54	0.053	-	0.011	9.87	0.053	-	0.011
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	0.004	0.004	B	0.001	0.001	0.004	B	0.001	0.002	0.004	B	0.001	0.005	0.004	-	0.001
Potassium	NS	40.4	0.1	-	0.01	9.5	0.1	-	0.01	13.4	0.1	-	0.01	10.8	0.1	-	0.01
Selenium	0.01	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	322	1.1	-	0.11	245	1.1	-	0.11	343	1.1	-	0.11	145	1.1	-	0.11
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001
Zinc	2	0.002	0.011	B	0.0012	< 0.011	0.011	U	0.0012	< 0.011	0.011	U	0.0012	0.002	0.011	B	0.0012

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 12
Groundwater Analytical Results
Dissolved Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW5 11/17/2016 mg/L				MW6 11/16/2016 mg/L				MW7 11/16/2016 mg/L				MW8 11/17/2016 mg/L				MW9 11/16/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	< 0.011	0.011	U	0.005	0.035	0.011	-	0.005	< 0.011	0.011	U	0.005	< 0.011	0.011	U	0.005	< 0.011	0.011	U	0.005
Antimony	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003
Arsenic	0.025	< 0.003	0.003	U	0.003	0.014	0.003	-	0.003	< 0.003	0.003	U	0.003	0.014	0.003	-	0.003	< 0.003	0.003	U	0.003
Barium	1	0.085	0.011	-	0.001	1.16	0.011	-	0.001	0.18	0.011	-	0.001	0.272	0.011	-	0.001	0.163	0.011	-	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cadmium	0.005	< 0.004	0.004	U	0.0005	0.015	0.004	-	0.0005	0.001	0.004	B	0.0005	0.002	0.004	B	0.0005	< 0.004	0.004	U	0.0005
Calcium	NS	87.4	0.01	-	0.01	417	0.11	-	0.11	46.8	0.01	-	0.01	155	0.01	-	0.01	120	0.01	-	0.01
Chromium	0.05	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cobalt	NS	< 0.005	0.005	U	0.001	0.076	0.005	-	0.001	0.017	0.005	-	0.001	0.006	0.005	-	0.001	0.007	0.005	-	0.001
Copper	0.2	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Iron	0.5	0.39	0.01	-	0.01	758	0.11	-	0.11	62.3	0.01	-	0.01	79.1	0.01	-	0.01	0.24	0.01	-	0.01
Lead	0.025	< 0.002	0.002	U	0.001	0.037	0.002	-	0.001	0.004	0.002	-	0.001	< 0.002	0.002	U	0.001	0.002	0.002	B	0.001
Magnesium	35	30.1	0.01	-	0.01	95.1	0.11	-	0.11	14.8	0.01	-	0.01	26.8	0.01	-	0.01	39.4	0.01	-	0.01
Manganese	0.3	4.56	0.053	-	0.011	44.8	0.53	-	0.11	3.37	0.053	-	0.011	3.14	0.053	-	0.011	11.1	0.053	-	0.011
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	< 0.004	0.004	U	0.001	< 0.004	0.004	U	0.001	< 0.004	0.004	U	0.001	0.013	0.004	-	0.001	0.008	0.004	-	0.001
Potassium	NS	4.3	0.1	-	0.01	22.3	0.1	-	0.01	4.8	0.1	-	0.01	20.6	1.1	-	0.11	9.4	0.1	-	0.01
Selenium	0.01	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	128	1.1	-	0.11	237	1.1	-	0.11	111	1.1	-	0.11	151	1.1	-	0.11	126	1.1	-	0.11
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	< 0.011	0.011	U	0.001	0.002	0.011	B	0.001	< 0.011	0.011	U	0.001	0.003	0.011	B	0.001	< 0.011	0.011	U	0.001
Zinc	2	< 0.011	0.011	U	0.0012	0.087	0.011	-	0.0012	0.007	0.011	B	0.0012	0.011	0.011	B	0.0012	0.004	0.011	B	0.0012

Notes:
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Former Universal Scrap Metal
1181 Flushing Avenue, Brooklyn, NY

TABLE 12
Groundwater Analytical Results
Dissolved Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	MW10 11/16/2016 mg/L				MW14 11/17/2016 mg/L				MW15 11/17/2016 mg/L				GW Duplicate 1 MW9 11/16/2016 mg/L				GW Duplicate 2 MW7 11/16/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	NS	**0.006**	0.011	B	0.005	**0.008**	0.011	B	0.005	**0.005**	0.011	B	0.005	**0.005**	0.011	B	0.005	< 0.011	0.011	U	0.005
Antimony	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003
Arsenic	0.025	< 0.003	0.003	U	0.003	**0.005**	0.003	-	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003
Barium	1	**0.186**	0.011	-	0.001	**0.203**	0.011	-	0.001	**0.142**	0.011	-	0.001	**0.175**	0.011	-	0.001	**0.17**	0.011	-	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cadmium	0.005	< 0.004	0.004	U	0.0005	**0.001**	0.004	B	0.0005	< 0.004	0.004	U	0.0005	< 0.004	0.004	U	0.0005	**0.001**	0.004	B	0.0005
Calcium	NS	**130**	0.01	-	0.01	**196**	0.11	-	0.11	**141**	0.01	-	0.01	**122**	0.01	-	0.01	**46.6**	0.01	-	0.01
Chromium	0.05	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cobalt	NS	**0.002**	0.005	B	0.001	< 0.005	0.005	U	0.001	**0.005**	0.005	-	0.001	**0.008**	0.005	-	0.001	**0.017**	0.005	-	0.001
Copper	0.2	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	**0.002**	0.005	B	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Iron	0.5	**7.14**	0.01	-	0.01	**46.9**	0.01	-	0.01	**0.12**	0.01	-	0.01	**0.72**	0.01	-	0.01	**52.3**	0.01	-	0.01
Lead	0.025	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.001	**0.002**	0.002	B	0.001	**0.001**	0.002	B	0.001	**0.003**	0.002	-	0.001
Magnesium	35	**29.6**	0.01	-	0.01	**29.5**	0.01	-	0.01	**36.2**	0.01	-	0.01	**40.6**	0.01	-	0.01	**14.6**	0.01	-	0.01
Manganese	0.3	**0.999**	0.005	-	0.001	**13.5**	0.053	-	0.011	**11.9**	0.053	-	0.011	**11.5**	0.053	-	0.011	**3.09**	0.053	-	0.011
Mercury	0.0007	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015	< 0.0002	0.0002	U	0.00015
Nickel	0.1	**0.002**	0.004	B	0.001	< 0.004	0.004	U	0.001	**0.003**	0.004	B	0.001	**0.009**	0.004	-	0.001	< 0.004	0.004	U	0.001
Potassium	NS	**19.3**	0.1	-	0.01	**13.8**	1.1	-	0.11	**19.6**	0.1	-	0.01	**9.5**	0.1	-	0.01	**4.9**	0.1	-	0.01
Selenium	0.01	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002	< 0.004	0.004	U	0.002
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	**124**	1.1	-	0.11	**282**	1.1	-	0.11	**159**	1.1	-	0.11	**129**	1.1	-	0.11	**102**	1.1	-	0.11
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001	< 0.011	0.011	U	0.001
Zinc	2	**0.003**	0.011	B	0.0012	**0.007**	0.011	B	0.0012	**0.001**	0.011	B	0.0012	**0.005**	0.011	B	0.0012	**0.006**	0.011	B	0.0012

Notes:
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TABLE 13
Parameters Detected Above Ambient Groundwater Standards

Compound	Range of Exceedances	Frequency of Detection	MW1 11/17/2016	MW2 11/17/2016	MW3 11/17/2016	MW4 11/17/2016	MW5 11/17/2016	MW6 11/16/2016	MW7 11/16/2016	MW8 11/17/2016	MW9 11/16/2016	MW10 11/16/2016	MW14 11/17/2016	MW15 11/17/2016	GW Duplicate 1 11/16/2016	GW Duplicate 2 11/16/2016
Sample Results in ug/L																
1,2,4-Trimethylbenzene	5.4-1400	7	**140**	**300**	**730**	-	-	**610**	-	**5.4**	-	**17**	**1,400**	-	-	-
1,3,5-Trimethylbenzene	18-400	5	**18**	**110**	**280**	-	-	**190**	-	-	-	-	**400**	-	-	-
4-Methyl-2-Pentanone	60-60	1	-	-	-	-	-	**60**	-	-	-	-	-	-	-	-
Acetone	53-290	3	-	**53**	-	-	-	**290**	-	**180**	-	-	-	-	-	-
Benzene	0.73-380	11	**64**	**2.3**	**170**	**1.7**	**0.73**	**50**	**1.3**	**5.5**	-	**30**	**380**	-	-	**1.2**
Ethylbenzene	19-940	6	**440**	**230**	**570**	-	-	**440**	-	-	-	**19**	**940**	-	-	-
Isopropylbenzene	22-79	5	**26**	**22**	**79**	-	-	**29**	-	-	-	-	**64**	-	-	-
m&p-Xylenes	9.7-3700	7	**290**	**720**	**540**	-	-	**1,600**	-	**9.7**	-	**30**	**3,700**	-	-	-
Methyl Ethyl Ketone (2-Butanone)	130-780	2	-	-	-	-	-	**780**	-	**130**	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	50-270	4	-	-	-	-	-	**66**	-	-	**51**	**270**	-	-	**50**	-
Naphthalene	58-250	5	**58**	**73**	**190**	-	-	**110**	-	-	-	-	**250**	-	-	-
n-Butylbenzene	9-20	4	-	**9.3**	**20**	-	-	**9**	-	-	-	-	**16**	-	-	-
n-Propylbenzene	44-200	5	**44**	**53**	**200**	-	-	**78**	-	-	-	-	**170**	-	-	-
o-Xylene	5.5-1500	7	**70**	**210**	**130**	-	-	**590**	-	**5.5**	-	**21**	**1,500**	-	-	-
p-Isopropyltoluene	5.2-5.2	1	-	-	**5.2**	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	6.5-13	4	-	**6.7**	**13**	-	-	**6.5**	-	-	-	-	**12**	-	-	-
Styrene	6.9-6.9	1	-	-	-	-	-	-	-	-	-	-	**6.9**	-	-	-
Tetrachloroethene	5.4-8.1	2	-	-	**5.4**	-	-	**8.1**	-	-	-	-	-	-	-	-
Toluene	15-1100	6	**24**	**30**	**91**	-	-	**470**	-	**15**	-	-	**1,100**	-	-	-
Trichloroethene	6.6-7.4	2	-	-	**6.6**	-	-	**7.4**	-	-	-	-	-	-	-	-
Sample Results in ug/L																
Naphthalene			**51**	**40**	**130**	-	-	**100**	-	-	-	-	**260**	-	-	-
Sample Results in ug/L																
PCB-1016	0.16	1	-	-	-	-	-	-	-	-	-	-	**0.16**	-	-	-
Sample Results in mg/L																
Arsenic (total)	0.035	1	-	-	-	-	-	-	-	**0.035**	-	-	-	-	-	-
Barium (total)	1.33	1	-	-	-	-	-	**1.33**	-	-	-	-	-	-	-	-
Cadmium (total)	0.018	1	-	-	-	-	-	**0.018**	-	-	-	-	-	-	-	-
Chromium (total)	0.052-0.097	2	**0.052**	-	-	**0.097**	-	-	-	-	-	-	-	-	-	-
Iron (total)	1.35-868	14	**70.8**	**19.3**	**30.4**	**133**	**28.2**	**868**	**121**	**151**	**14.6**	**47.4**	**158**	**1.35**	**18.1**	**126**
Lead (total)	0.051-0.059	2	**0.051**	-	-	-	-	**0.059**	-	-	-	-	-	-	-	-
Magnesium (total)	37.8-99.1	5	-	-	-	**37.8**	-	**99.1**	-	-	**39.7**	-	-	**39.5**	**41.4**	-
Manganese (total)	1.09-33	14	**5.4**	**6.91**	**6.36**	**12.1**	**5.19**	**33**	**3.48**	**3.87**	**11.4**	**1.09**	**14.3**	**12.1**	**12.7**	**3.47**
Sodium (total)	106-350	14	**342**	**232**	**350**	**148**	**130**	**233**	**107**	**151**	**122**	**122**	**279**	**161**	**121**	**106**
Sample Results in mg/L																
Barium (dissolved)	1.16	1	-	-	-	-	-	**1.16**	-	-	-	-	-	-	-	-
Cadmium (dissolved)	0.015	1	-	-	-	-	-	**0.015**	-	-	-	-	-	-	-	-
Iron (dissolved)	0.72-758	8	-	-	-	**8.95**	-	**758**	**62.3**	**79.1**	-	**7.14**	**46.9**	-	**0.72**	**52.3**
Lead (dissolved)	0.037	1	-	-	-	-	-	**0.037**	-	-	-	-	-	-	-	-
Magnesium (dissolved)	36.2-95.1	4	-	-	-	-	-	**95.1**	-	-	**39.4**	-	-	**36.2**	**40.6**	-
Manganese (dissolved)	0.999-44.8	14	**3.43**	**6.75**	**5.54**	**9.87**	**4.56**	**44.8**	**3.37**	**3.14**	**11.1**	**0.999**	**13.5**	**11.9**	**11.5**	**3.09**
Sodium (dissolved)	102-343	14	**322**	**245**	**343**	**145**	**128**	**237**	**111**	**151**	**126**	**124**	**282**	**159**	**129**	**102**

Notes:

Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 14
Soil Gas - Volatile Organic Compounds

COMPOUNDS	NYSDOH Maximum Sub-Slab Value (µg/m^3) (a)	NYSDOH Soil Outdoor Background Levels (µg/m^3) (b)	SG1 11/16/2016 (µg/m3)				SG2 11/16/2016 (µg/m3)				SG3 11/16/2016 (µg/m3)				SG4 11/16/2016 (µg/m3)			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachloroethane			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,1-Trichloroethane	100	<2.0 - 2.8	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	1.02	1.00	-	1.00	< 1.00	1.00	U	1.00
1,1,2,2-Tetrachloroethane		<1.5	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,2-Trichloroethane		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethane		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethene		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2,4-Trichlorobenzene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2,4-Trimethylbenzene		<1.0	1.24	1.00	-	1.00	< 1.00	1.00	U	1.00	1.57	1.00	-	1.00	1.75	1.00	-	1.00
1,2-Dibromoethane		<1.5	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorobenzene		<2.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloroethane		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloropropane			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorotetrafluoroethane			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3,5-Trimethylbenzene		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Butadiene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Dichlorobenzene		<2.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dichlorobenzene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dioxane			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
2-Hexanone			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	24.2	1.00	-	1.00	< 1.00	1.00	U	1.00
4-Ethyltoluene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Isopropyltoluene			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Methyl-2-pentanone			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	512	99.9	D	99.9
Acetone		NA	170	9.99	D	9.99	36.8	1.00	-	1.00	62.7	1.00	-	1.00	1,550	99.9	D	99.9
Acrylonitrile			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Benzene		<1.6 - 4.7	1.16	1.00	-	1.00	< 1.00	1.00	U	1.00	1.67	1.00	-	1.00	122	1.00	-	1.00
Benzyl Chloride		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromodichloromethane		<5.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromoform		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromomethane		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Carbon Disulfide		NA	1.6	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	32.7	1.00	-	1.00
Carbon Tetrachloride	5	<3.1	< 0.25	0.25	U	0.25	0.51	0.25	-	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
Chlorobenzene		<2.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroethane		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroform		<2.4	2.73	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloromethane		<1.0 - 1.4	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
cis-1,2-Dichloroethene		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	10.2	1.00	-	1.00
cis-1,3-Dichloropropene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Cyclohexane		NA	1.02	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	671	100	D	100
Dibromochloromethane		<5.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Dichlorodifluromethane		NA	7.12	1.00	-	1.00	2.48	1.00	-	1.00	3.73	1.00	-	1.00	1.57	1.00	-	1.00
Ethanol			20.1	1.00	-	1.00	17.1	1.00	-	1.00	50.7	1.00	-	1.00	953	1.00	E	1.00
Ethyl Acetate		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Ethylbenzene		<4.3	1.74	1.00	-	1.00	< 1.00	1.00	U	1.00	2.43	1.00	-	1.00	10.5	1.00	-	1.00
Heptane		NA	2.63	1.00	-	1.00	1.35	1.00	-	1.00	2.47	1.00	-	1.00	317	99.9	D	99.9
Hexachlorobutadiene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Hexane		<1.5	1.14	1.00	S	1.00	3.56	1.00	S	1.00	3.12	1.00	S	1.00	708	100	DS	100
Isopropylalcohol		NA	1.91	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	33.2	1.00	-	1.00
Isopropylbenzene			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	2.01	1.00	-	1.00
Xylene (m&p)		<4.3	5.9	1.00	-	1.00	< 1.00	1.00	U	1.00	7.94	1.00	-	1.00	16.2	1.00	-	1.00
Methyl Ethyl Ketone			3.48	1.00	-	1.00	< 1.00	1.00	U	1.00	601	9.99	D	9.99	1,180	99.9	D	99.9
MTBE		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Methylene Chloride		<3.4	< 1.00	1.00	U	1.00	7.33	1.00	S	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
n-Butylbenzene			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Xylene (o)		<4.3	2	1.00	-	1.00	< 1.00	1.00	U	1.00	2.67	1.00	-	1.00	6.03	1.00	-	1.00
Propylene		NA	2.61	1.00	-	1.00	< 1.00	1.00	U	1.00	41.1	1.00	-	1.00	347	99.9	D	99.9
sec-Butylbenzene			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Styrene		<1.0	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Tetrachloroethene	30		7.93	0.25	-	0.25	1.96	0.25	-	0.25	34.3	0.25	-	0.25	2.6	0.25	-	0.25
Tetrahydrofuran		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Toluene		1.0 - 6.1	4.29	1.00	-	1.00	1.19	1.00	-	1.00	11	1.00	-	1.00	57.2	1.00	-	1.00
trans-1,2-Dichloroethene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	1.42	1.00	-	1.00
trans-1,3-Dichloropropene		NA	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Trichloroethene	2	<1.7	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	0.32	0.25	-	0.25	7.46	0.25	-	0.25
Trichlorofluoromethane		NA	25.7	1.00	-	1.00	1.99	1.00	-	1.00	4.41	1.00	-	1.00	< 1.00	1.00	U	1.00
Trichlorotrifluoroethane			< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Vinyl Chloride		<1.0	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	1.56	0.25	-	0.25
BTEX			15.09				1.19				25.71				211.93			
Total VOCs			264.3				74.27				856.35				6544.4			

Notes:
NA No guidance value or standard available
(a) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. New York State Department of Health.
(b) NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005, Summary of Background Levels for Selected Compounds (NYSDOH Database, Outdoor values)
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.

TABLE 14
Soil Gas - Volatile Organic Compounds

COMPOUNDS	NYSDOH Maximum Sub-Slab Value (µg/m3) (a)	NYSDOH Soil Outdoor Background Levels (µg/m3) (b)	SG5 11/16/2016 (µg/m3)				SG6 11/16/2016 (µg/m3)				SG7 11/16/2016 (µg/m3)				SG8 11/16/2016 (µg/m3)				SG9 11/16/2016 (µg/m3)			
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachloroethane			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,1,1-Trichloroethane	100	<2.0 - 2.8	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,1,2,2-Tetrachloroethane		<1.5	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,1,2-Trichloroethane		<1.0	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,1-Dichloroethane		<1.0	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,1-Dichloroethene		<1.0	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2,4-Trichlorobenzene		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2,4-Trimethylbenzene		<1.0	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	**94.8**	30.0	-	30.0
1,2-Dibromoethane		<1.5	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2-Dichlorobenzene		<2.0	< 9.97	9.97	U	9.97	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2-Dichloroethane		<1.0	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2-Dichloropropane			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,2-Dichlorotetrafluoroethane			< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,3,5-Trimethylbenzene		<1.0	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	**75.2**	30.0	-	30.0
1,3-Butadiene		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1
1,3-Dichlorobenzene		<2.0	< 9.97	9.97	U	9.97	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,4-Dichlorobenzene		NA	< 9.97	9.97	U	9.97	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
1,4-Dioxane			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
2-Hexanone			< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
4-Ethyltoluene		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
4-Isopropyltoluene			< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
4-Methyl-2-pentanone			< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Acetone		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9
Acrylonitrile			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9
Benzene		<1.6 - 4.7	**1,140**	9.99	-	9.99	**766**	18.5	-	18.5	**619**	30.0	-	30.0	< 30.0	30.0	U	30.0	**299**	30.0	-	30.0
Benzyl Chloride		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Bromodichloromethane		<5.0	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Bromoform		<1.0	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Bromomethane		<1.0	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Carbon Disulfide		NA	< 9.99	9.99	U	9.99	**209**	18.5	-	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Carbon Tetrachloride	5	<3.1	< 2.50	2.50	U	2.50	< 4.61	4.61	U	4.61	< 7.48	7.48	U	7.48	< 7.48	7.48	U	7.48	< 7.48	7.48	U	7.48
Chlorobenzene		<2.0	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Chloroethane		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1
Chloroform		<2.4	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Chloromethane		<1.0 - 1.4	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9
cis-1,2-Dichloroethene		<1.0	< 9.99	9.99	U	9.99	**22.7**	18.5	-	18.5	**109**	30.0	-	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
cis-1,3-Dichloropropene		NA	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Cyclohexane		NA	**17,500**	270	D	270	**3,350**	92.5	D	92.5	**15,500**	300	D	300	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Dibromochloromethane		<5.0	< 9.96	9.96	U	9.96	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Dichlorodifluromethane		NA	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Ethanol			< 10.0	10.0	U	10.0	**92.1**	18.5	-	18.5	< 29.9	29.9	U	29.9	**30.7**	29.9	-	29.9	**44.1**	29.9	-	29.9
Ethyl Acetate		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Ethylbenzene		<4.3	**146**	9.98	-	9.98	**45.6**	18.5	-	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Heptane		NA	**8,110**	75.0	D	75.0	**1,470**	18.5	-	18.5	**12,900**	300	D	300	< 30.0	30.0	U	30.0	**16,100**	270	D	270
Hexachlorobutadiene		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Hexane		<1.5	**19,800**	270	D	270	**3,210**	92.6	D	92.6	**28,000**	300	D	300	**128**	30.0	S	30.0	**38,000**	270	D	270
Isopropylalcohol		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Isopropylbenzene			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Xylene (m&p)		<4.3	**378**	9.98	-	9.98	**23.5**	18.5	-	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	**568**	30.0	-	30.0
Methyl Ethyl Ketone			**1,390**	74.9	D	74.9	**1,480**	18.5	-	18.5	**169**	30.1	-	30.1	**233**	30.1	-	30.1	< 30.1	30.1	U	30.1
MTBE		NA	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	**2,560**	30.0	-	30.0	**6,450**	150	D	150	**11,300**	270	D	270
Methylene Chloride		<3.4	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
n-Butylbenzene			< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Xylene (o)		<4.3	**125**	9.98	-	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	**111**	30.0	-	30.0
Propylene		NA	**1,090**	75.0	D	75.0	**1,070**	18.6	-	18.6	< 29.9	29.9	U	29.9	< 29.9	29.9	U	29.9	**580**	29.9	-	29.9
sec-Butylbenzene			< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Styrene		<1.0	< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Tetrachloroethene	100		**3.25**	2.50	-	2.50	< 4.62	4.62	U	4.62	**14.4**	7.52	-	7.52	< 7.52	7.52	U	7.52	< 7.52	7.52	U	7.52
Tetrahydrofuran		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1	< 30.1	30.1	U	30.1
Toluene		1.0 - 6.1	**1,180**	10.0	-	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	**48.6**	30.0	-	30.0	< 30.0	30.0	U	30.0
trans-1,2-Dichloroethene		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
trans-1,3-Dichloropropene		NA	< 9.98	9.98	U	9.98	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Trichloroethene	5	<1.7	**4.08**	2.50	-	2.50	**7.04**	4.62	-	4.62	**11.3**	7.52	-	7.52	< 7.52	7.52	U	7.52	< 7.52	7.52	U	7.52
Trichlorofluoromethane		NA	< 9.99	9.99	U	9.99	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Trichlorotrifluoroethane			< 10.0	10.0	U	10.0	< 18.5	18.5	U	18.5	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0	< 30.0	30.0	U	30.0
Vinyl Chloride		<1.0	< 2.50	2.50	U	2.50	**29.9**	4.62	-	4.62	**2,530**	7.51	-	7.51	**13.9**	7.51	-	7.51	**36**	7.51	-	7.51
BTEX			**2969**				**835.1**				**619**				**48.6**				**978**			
Total VOCs			**50866.33**				**11775.84**				**62412.7**				**6904.2**				**67208.1**			

Notes:
NA No guidance value or standard available
(a) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006. New York State Department of Health.
(b) NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005, Summary of Background Levels for Selected Compounds (NYSDOH
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.

TABLE 15
Project Permit Listing
To Be Updated as Project Progresses

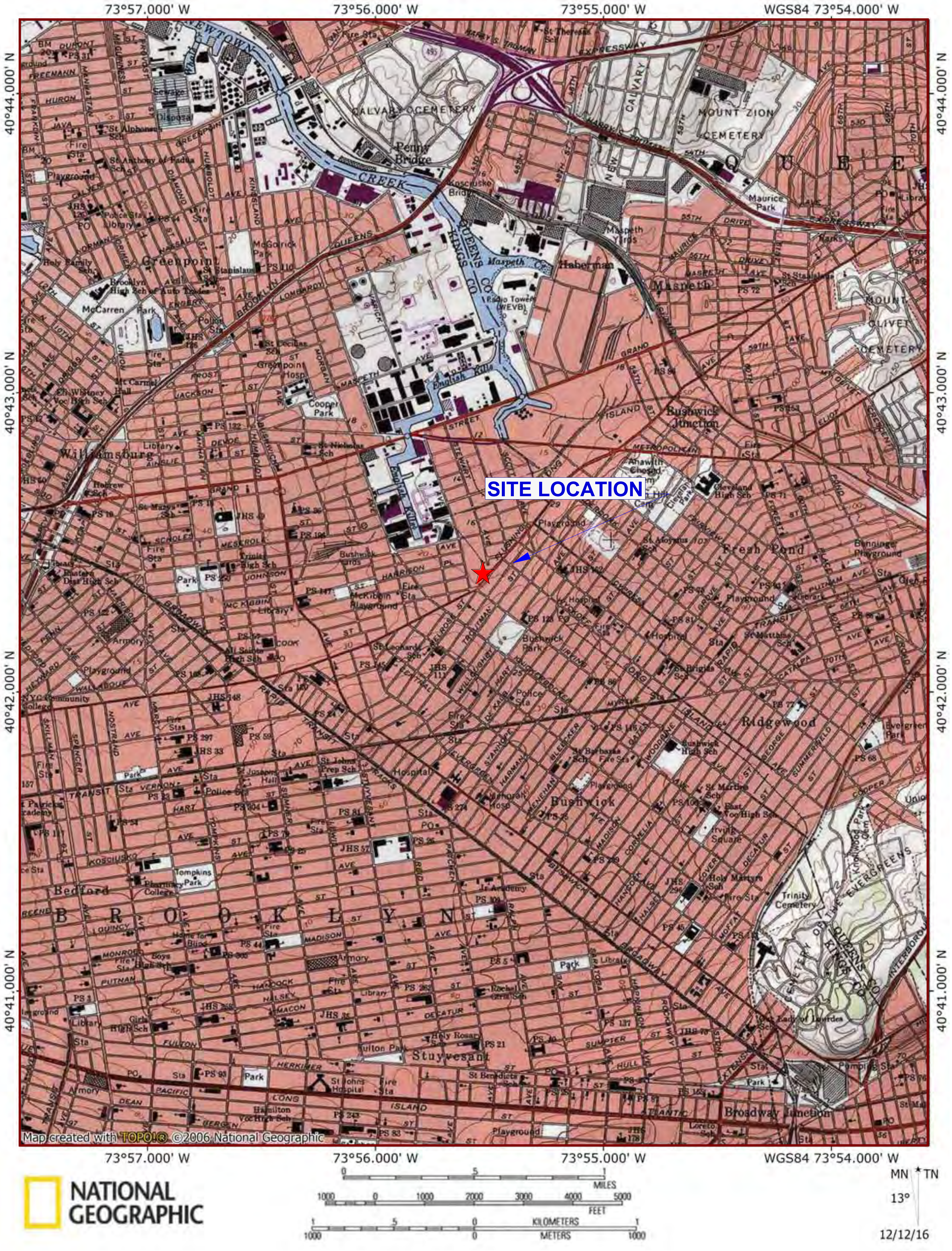
Permit	Permit Number	Originating Agency	Pursuant to	Issued	Expires	Contact Phone
FULL DEMOLITION - DEMOLITION OF A ONE STORY BUILDING	321104782-01-DM	NYC Department of Buildings	YEHOSHUA WERTZBERGER	7/23/2015	7/21/2016	718-348-4846
FULL DEMOLITION - CONSTRUCTION EQUIPMENT - FENCE, DEMOLITION OF A ONE STORY BUILDING	321104782-01-EQ-FN	NYC Department of Buildings	YEHOSHUA WERTZBERGER	7/23/2015	7/22/2016	718-348-4846

Note: This list will be updated as the project progresses

Table 16
Emergency Contact List

General Emergencies		911
NYC Police		911
NYC Fire Department		911
Woodhul Medical Center		(718) 963-8000
NYSDEC Spills Hotline		1-800-457-7362
NYSDEC Project Manager		(518) 402-9621
NYC Department of Health		(212) 676-2400
National Response Center		1-800-424-8802
Poison Control		1-800-222-1222
EBC Project Manager	Keith Butler	(631) 504-6000
EBC BCP Program Manager	Charles Sosik	(631) 504-6000
EBC Site Safety Officer	Kevin Waters	(631) 504-6000
Remedial Engineer	Ariel Czemerinski	(516) 987-1662
Construction Manager	Abe Wurzberger	(718) 887-9840 x304

FIGURES



EBC
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Phone 631.504.6000
Fax 631. 924 .2870

Figure No.
1

Site Name: FORMER UNIVERSAL SCRAP METAL

Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY

Drawing Title: SITE LOCATION MAP

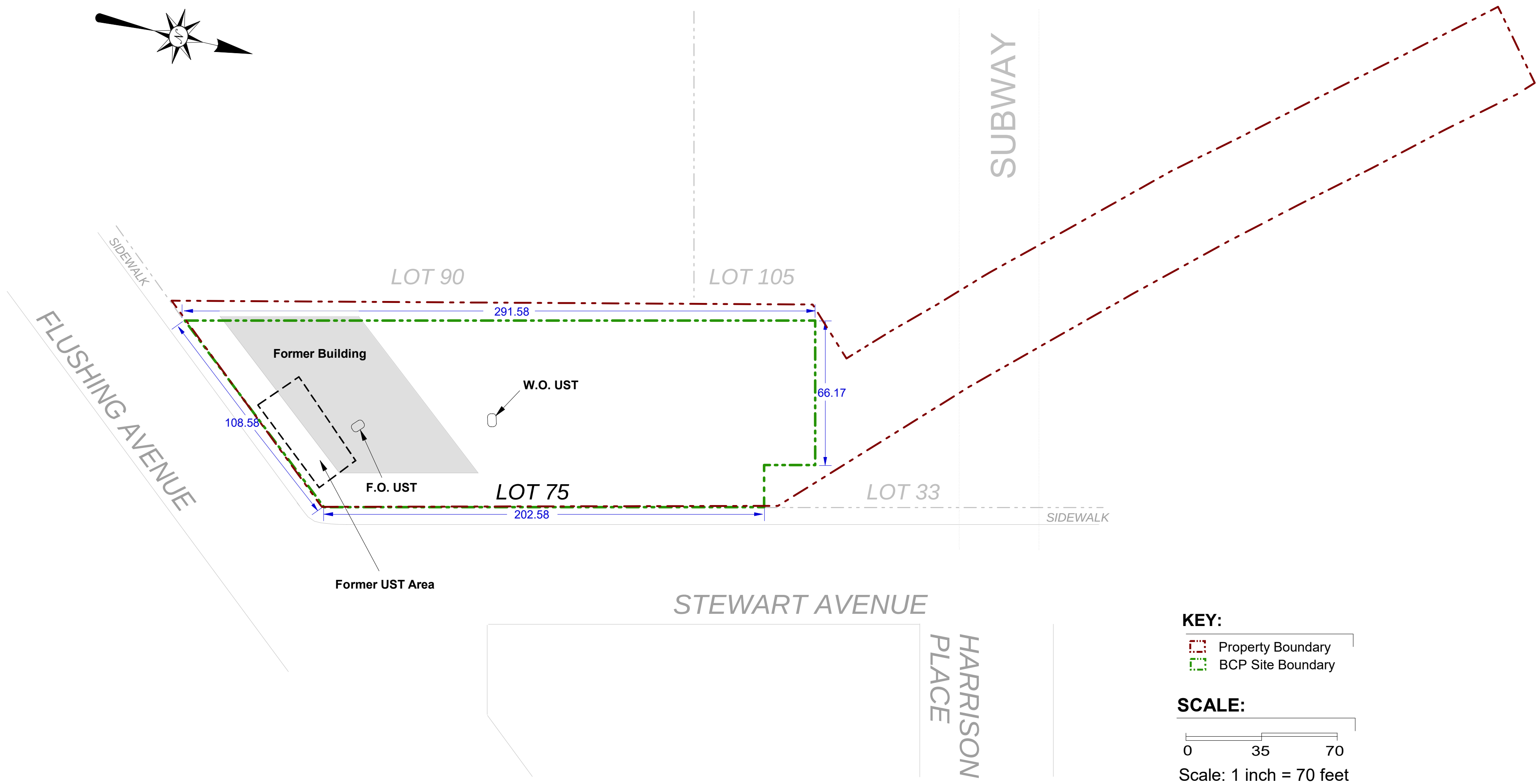

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Figure 2

Site Name: Former Universal Scrap Metal
Site Address: 1181 Flushing Avenue, Brooklyn, NY
Drawing Title: Site Boundary Map

KEY:

Site Boundary   BCP Site Boundary

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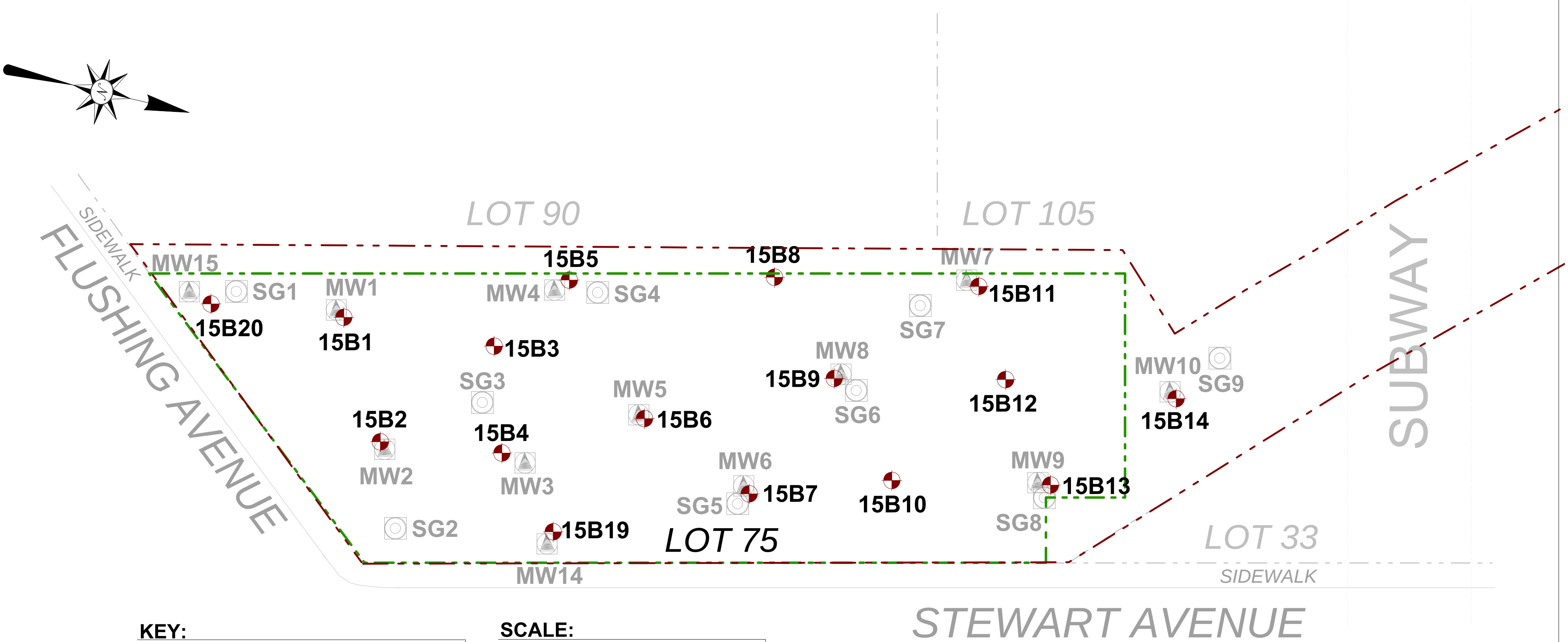
Figure
3

Site Name:	FORMER UNIVERSAL SCRAP METAL
Site Address:	1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title:	ADJACENT PROPERTIES MAP



KEY:

- Property Boundary
- BCP Site Boundary
- 15Bx — Soil Boring Location
- MWx — Monitoring Well Location
- SGx — Soil Gas Location

SCALE:

0 20 45

Scale: 1 inch = 45 feet

EBC ENVIRONMENTAL BUSINESS CONSULTANTS Phone 631.504.6000 Fax 631. 924 .2870	Figure 4	Site Name:	Former Universal Scrap Metal
		Site Address:	1181 Flushing Avenue, Brooklyn, NY
		Drawing Title:	Soil Sampling Locations

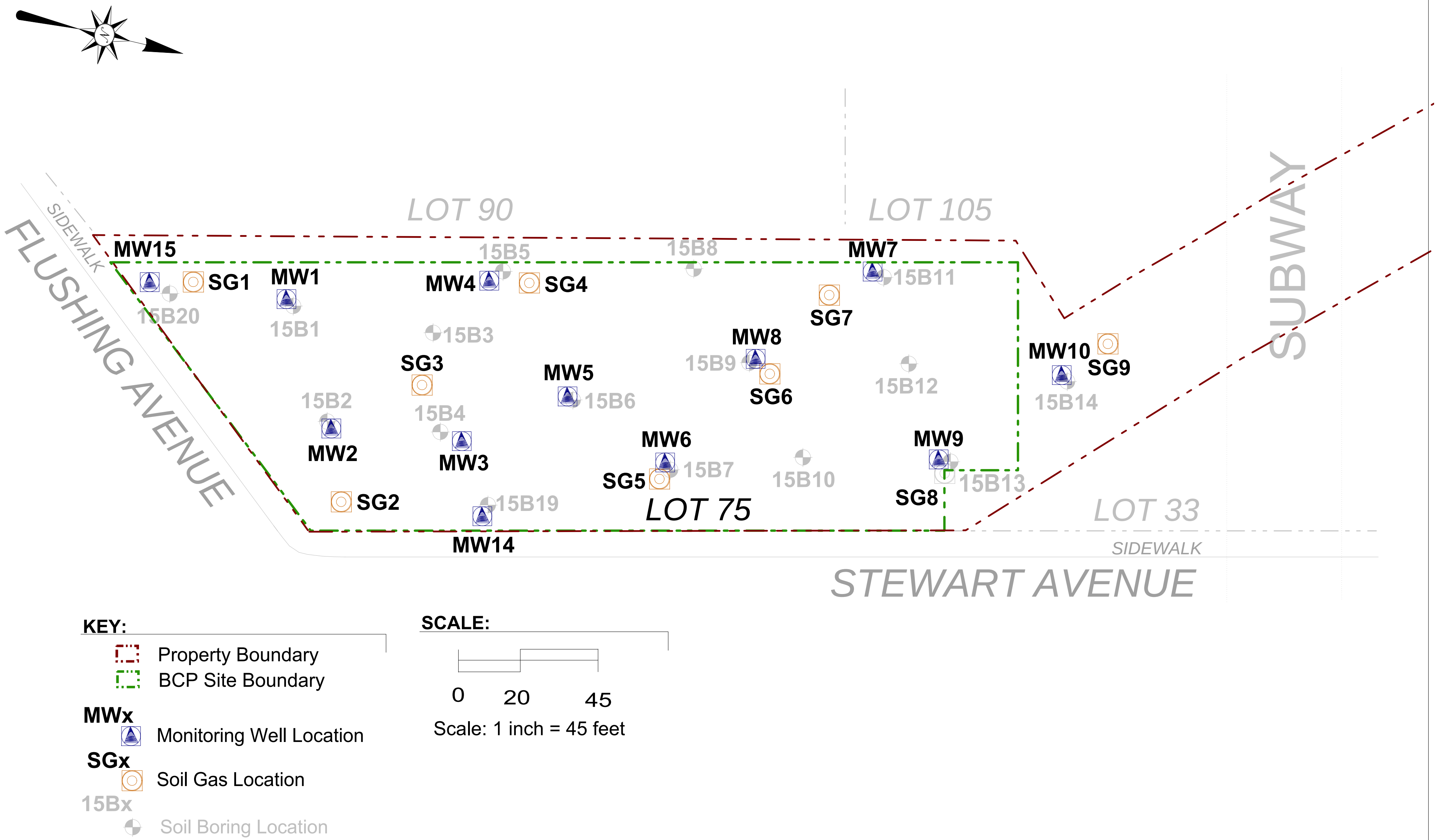


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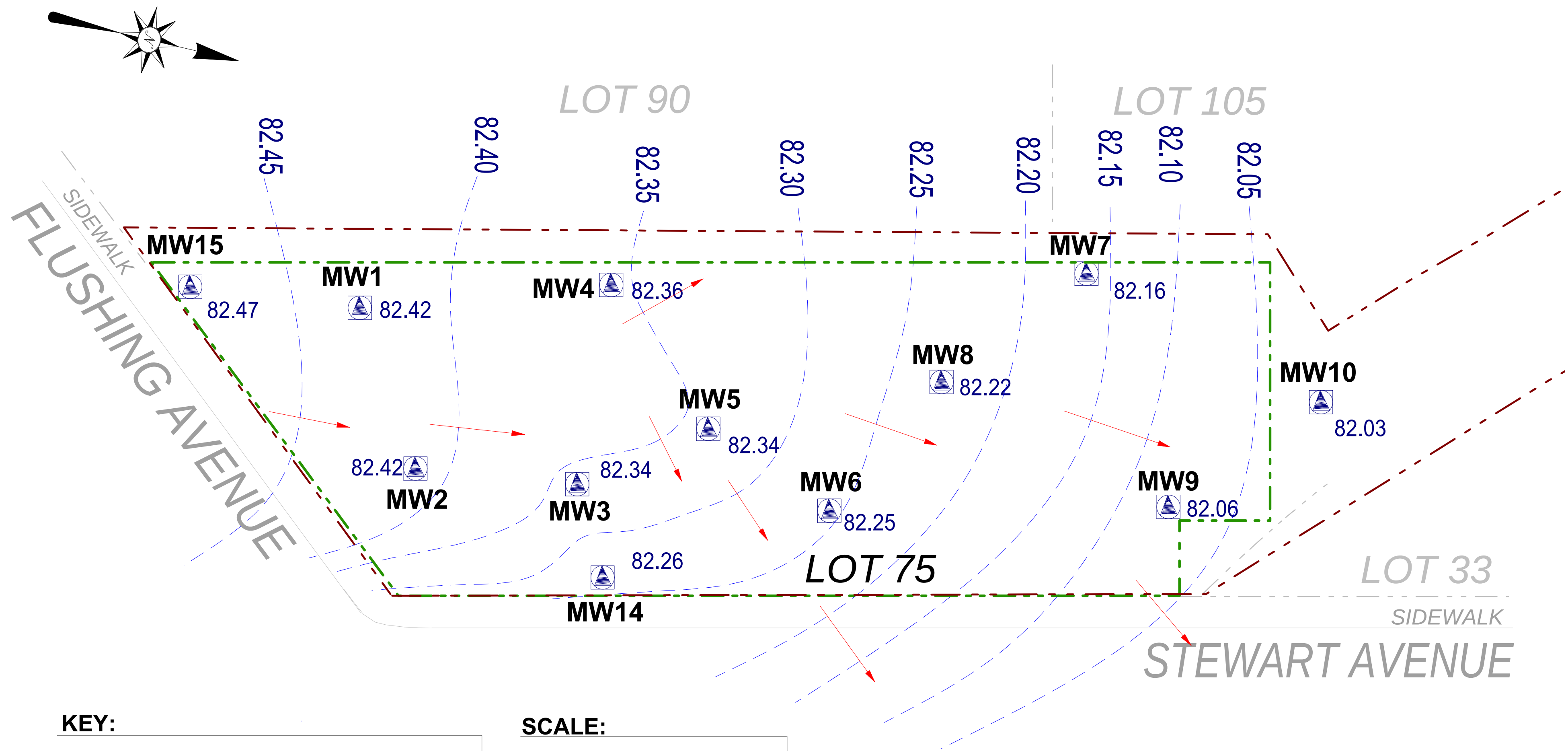
Figure 5

Site Name:	Former Universal Scrap Metal
Site Address:	1181 Flushing Avenue, Brooklyn, NY
Drawing Title:	Soil Gas and Groundwater Sampling Locations



KEY:

Property Boundary

BCP Site Boundary

Direction of Groundwater Flow

MWx

Monitoring Well Location

SCALE:

0 20 40

Scale: 1 inch = 40 feet

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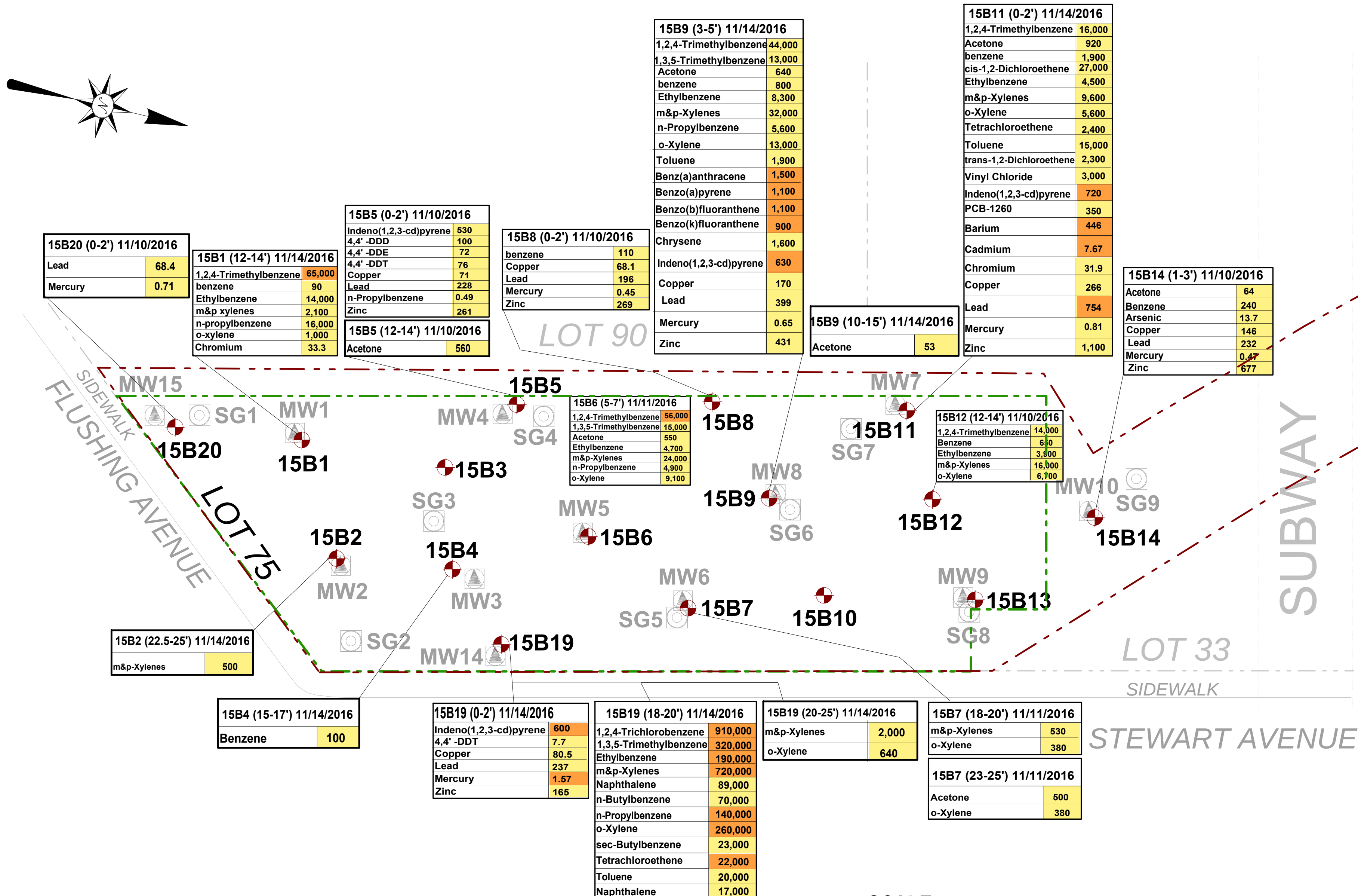
Figure 6

Site Name: Former Universal Scrap Metal

Site Address: 1181 Flushing Avenue, Brooklyn, NY

Drawing Title: Groundwater Contour Map



15B20 (0-2') 11/10/2016	
Lead	68.4
Mercury	0.71

15B1 (12-14') 11/14/2016	
1,2,4-Trimethylbenzene	65,000
benzene	90
Ethylbenzene	14,000
m&p xylenes	2,100
n-propylbenzene	16,000
o-xylene	1,000
Chromium	33.3

15B5 (0-2') 11/10/2016	
Indeno(1,2,3-cd)pyrene	530
4,4' -DDD	100
4,4' -DDE	72
4,4' -DDT	76
Copper	71
Lead	228
n-Propylbenzene	0.49
Zinc	261

15B5 (12-14') 11/10/2016	
Acetone	560

15B8 (0-2') 11/10/2016	
benzene	110
Copper	68.1
Lead	196
Mercury	0.45
Zinc	269

15B9 (3-5') 11/14/2016	
1,2,4-Trimethylbenzene	44,000
1,3,5-Trimethylbenzene	13,000
Acetone	640
benzene	800
Ethylbenzene	8,300
m&p-Xylenes	32,000
n-Propylbenzene	5,600
o-Xylene	13,000
Toluene	1,900
Benz(a)anthracene	1,500
Benzo(a)pyrene	1,100
Benzo(b)fluoranthene	1,100
Benzo(k)fluoranthene	900
Chrysene	1,600
Indeno(1,2,3-cd)pyrene	630
Copper	170
Lead	399
Mercury	0.65
Zinc	431

15B9 (10-15') 11/14/2016	
Acetone	53

15B11 (0-2') 11/14/2016	
1,2,4-Trimethylbenzene	16,000
Acetone	920
benzene	1,900
cis-1,2-Dichloroethene	27,000
Ethylbenzene	4,500
m&p-Xylenes	9,600
o-Xylene	5,600
Tetrachloroethene	2,400
Toluene	15,000
trans-1,2-Dichloroethene	2,300
Vinyl Chloride	3,000
Indeno(1,2,3-cd)pyrene	720
PCB-1260	350
Barium	446
Cadmium	7.67
Chromium	31.9
Copper	266
Lead	754
Mercury	0.81
Zinc	1,100

15B14 (1-3') 11/10/2016	
Acetone	64
Benzene	240
Arsenic	13.7
Copper	146
Lead	232
Mercury	0.47
Zinc	677

15B6 (5-7') 11/11/2016	
1,2,4-Trimethylbenzene	56,000
1,3,5-Trimethylbenzene	15,000
Acetone	550
Ethylbenzene	4,700
m&p-Xylenes	24,000
n-Propylbenzene	4,900
o-Xylene	9,100

15B12 (12-14') 11/10/2016	
1,2,4-Trimethylbenzene	14,000
Benzene	650
Ethylbenzene	3,900
m&p-Xylenes	16,000
o-Xylene	6,700

15B2 (22.5-25') 11/14/2016	
m&p-Xylenes	500

15B4 (15-17') 11/14/2016	
Benzene	100

15B19 (0-2') 11/14/2016	
Indeno(1,2,3-cd)pyrene	600
4,4' -DDT	7.7
Copper	80.5
Lead	237
Mercury	1.57
Zinc	165

15B19 (18-20') 11/14/2016	
1,2,4-Trichlorobenzene	910,000
1,3,5-Trimethylbenzene	320,000
Ethylbenzene	190,000
m&p-Xylenes	720,000
Naphthalene	89,000
n-Butylbenzene	70,000
n-Propylbenzene	140,000
o-Xylene	260,000
sec-Butylbenzene	23,000
Tetrachloroethene	22,000
Toluene	20,000
Naphthalene	17,000

15B19 (20-25') 11/14/2016	
m&p-Xylenes	2,000
o-Xylene	640

15B7 (18-20') 11/11/2016	
m&p-Xylenes	530
o-Xylene	380

15B7 (23-25') 11/11/2016	
Acetone	500
o-Xylene	380

KEY:

Property Boundary
BCP Site Boundary
15Bx Soil Boring Location
MWx Monitoring Well Location
SGx Soil Gas Location

VOCs, SVOCs, PCBs, and Pesticides	ug/Kg
Metals	mg/Kg

Detections Above Unrestricted Use SCOs
Detections Above Restricted Residential Use SCOs

SCALE:

0 20 45

Scale: 1 inch = 45 feet

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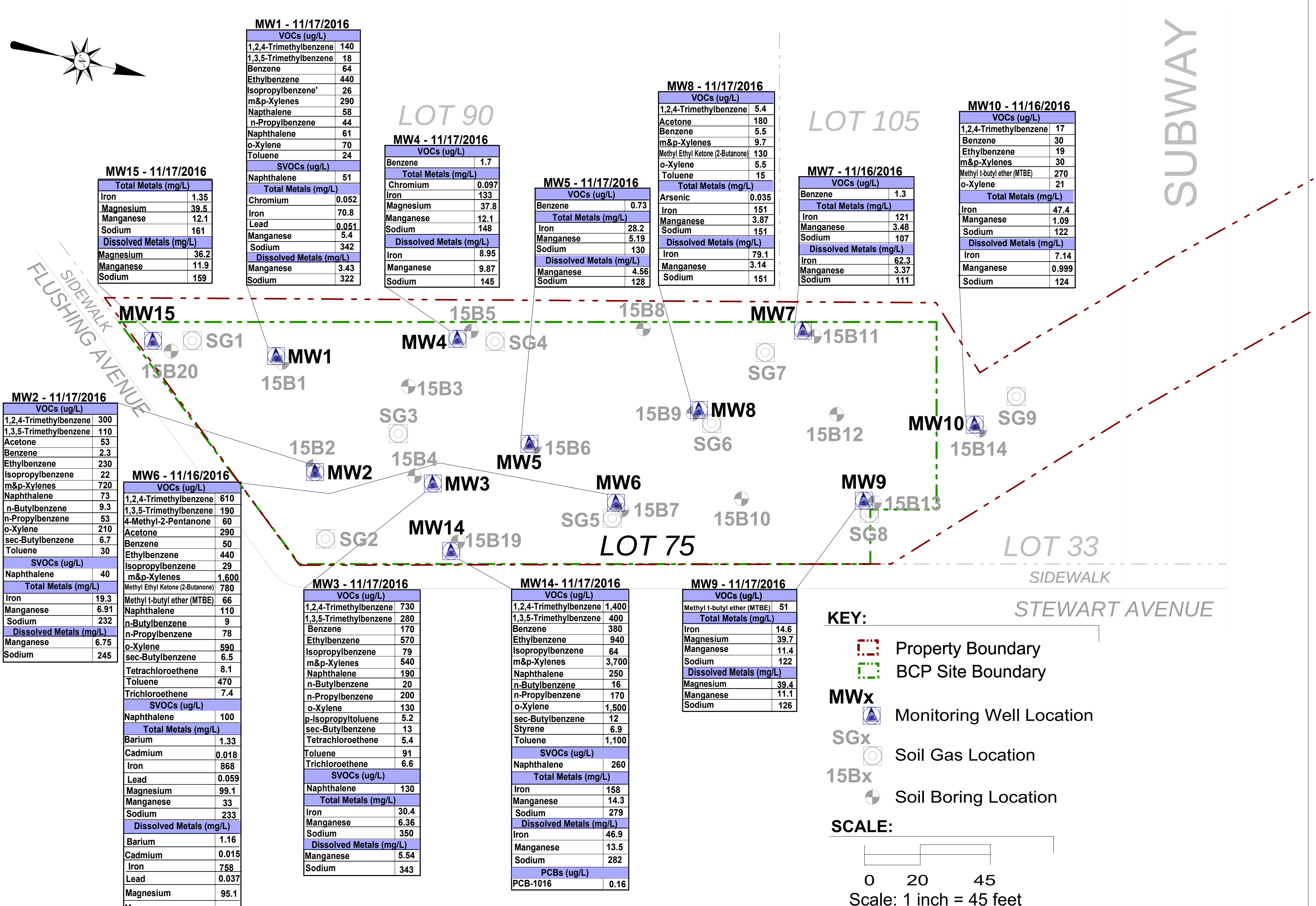
Figure 7

Site Name: FORMER UNIVERSAL SCRAP METAL
Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title: SOIL EXCEEDANCES MAP



MW15 - 11/17/2016

Total Metals (mg/L)	
Iron	1.35
Magnesium	39.5
Manganese	12.1
Sodium	161
Dissolved Metals (mg/L)	
Magnesium	36.2
Manganese	11.9
Sodium	159

MW1 - 11/17/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	140
1,3,5-Trimethylbenzene	18
Benzene	64
Ethylbenzene	440
Isopropylbenzene'	26
m&p-Xylenes	290
Napthalene	58
n-Propylbenzene	44
Naphthalene	61
o-Xylene	70
Toluene	24
SVOCs (ug/L)	
Naphthalene	51
Total Metals (mg/L)	
Chromium	0.052
Iron	70.8
Lead	0.051
Manganese	5.4
Sodium	342
Dissolved Metals (mg/L)	
Manganese	3.43
Sodium	322

MW4 - 11/17/2016

VOCs (ug/L)	
Benzene	1.7
Total Metals (mg/L)	
Chromium	0.097
Iron	133
Magnesium	37.8
Manganese	12.1
Sodium	148
Dissolved Metals (mg/L)	
Iron	8.95
Manganese	9.87
Sodium	145

MW5 - 11/17/2016

VOCs (ug/L)	
Benzene	0.73
Total Metals (mg/L)	
Iron	28.2
Manganese	5.19
Sodium	130
Dissolved Metals (mg/L)	
Manganese	4.56
Sodium	128

MW8 - 11/17/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	5.4
Acetone	180
Benzene	5.5
m&p-Xylenes	9.7
Methyl Ethyl Ketone (2-Butanone)	130
o-Xylene	5.5
Toluene	15
Total Metals (mg/L)	
Arsenic	0.035
Iron	151
Manganese	3.87
Sodium	151
Dissolved Metals (mg/L)	
Iron	79.1
Manganese	3.14
Sodium	151

MW7 - 11/16/2016

VOCs (ug/L)	
Benzene	1.3
Total Metals (mg/L)	
Iron	121
Manganese	3.48
Sodium	107
Dissolved Metals (mg/L)	
Iron	62.3
Manganese	3.37
Sodium	111

MW10 - 11/16/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	17
Benzene	30
Ethylbenzene	19
m&p-Xylenes	30
Methyl t-butyl ether (MTBE)	270
o-Xylene	21
Total Metals (mg/L)	
Iron	47.4
Manganese	1.09
Sodium	122
Dissolved Metals (mg/L)	
Iron	7.14
Manganese	0.999
Sodium	124

MW2 - 11/17/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	300
1,3,5-Trimethylbenzene	110
Acetone	53
Benzene	2.3
Ethylbenzene	230
Isopropylbenzene	22
m&p-Xylenes	720
Naphthalene	73
n-Butylbenzene	9.3
n-Propylbenzene	53
o-Xylene	210
sec-Butylbenzene	6.7
Toluene	30
SVOCs (ug/L)	
Naphthalene	40
Total Metals (mg/L)	
Iron	19.3
Manganese	6.91
Sodium	232
Dissolved Metals (mg/L)	
Manganese	6.75
Sodium	245

MW6 - 11/16/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	610
1,3,5-Trimethylbenzene	190
4-Methyl-2-Pentanone	60
Acetone	290
Benzene	50
Ethylbenzene	440
Isopropylbenzene	29
m&p-Xylenes	1,600
Methyl Ethyl Ketone (2-Butanone)	780
Methyl t-butyl ether (MTBE)	66
Naphthalene	110
n-Butylbenzene	9
n-Propylbenzene	78
o-Xylene	590
sec-Butylbenzene	6.5
Tetrachloroethene	8.1
Toluene	470
Trichloroethene	7.4
SVOCs (ug/L)	
Naphthalene	100
Total Metals (mg/L)	
Barium	1.33
Cadmium	0.018
Iron	868
Lead	0.059
Magnesium	99.1
Manganese	33
Sodium	233
Dissolved Metals (mg/L)	
Barium	1.16
Cadmium	0.015
Iron	758
Lead	0.037
Magnesium	95.1
Manganese	44.8
Sodium	237

MW3 - 11/17/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	730
1,3,5-Trimethylbenzene	280
Benzene	170
Ethylbenzene	570
Isopropylbenzene	79
m&p-Xylenes	540
Naphthalene	190
n-Butylbenzene	20
n-Propylbenzene	200
o-Xylene	130
p-Isopropyltoluene	5.2
sec-Butylbenzene	13
Tetrachloroethene	5.4
Toluene	91
Trichloroethene	6.6
SVOCs (ug/L)	
Naphthalene	130
Total Metals (mg/L)	
Iron	30.4
Manganese	6.36
Sodium	350
Dissolved Metals (mg/L)	
Manganese	5.54
Sodium	343

MW14- 11/17/2016

VOCs (ug/L)	
1,2,4-Trimethylbenzene	1,400
1,3,5-Trimethylbenzene	400
Benzene	380
Ethylbenzene	940
Isopropylbenzene	64
m&p-Xylenes	3,700
Naphthalene	250
n-Butylbenzene	16
n-Propylbenzene	170
o-Xylene	1,500
sec-Butylbenzene	12
Styrene	6.9
Toluene	1,100
SVOCs (ug/L)	
Naphthalene	260
Total Metals (mg/L)	
Iron	158
Manganese	14.3
Sodium	279
Dissolved Metals (mg/L)	
Iron	46.9
Manganese	13.5
Sodium	282
PCBs (ug/L)	
PCB-1016	0.16

MW9 - 11/17/2016

VOCs (ug/L)	
Methyl t-butyl ether (MTBE)	51
Total Metals (mg/L)	
Iron	14.6
Magnesium	39.7
Manganese	11.4
Sodium	122
Dissolved Metals (mg/L)	
Magnesium	39.4
Manganese	11.1
Sodium	126

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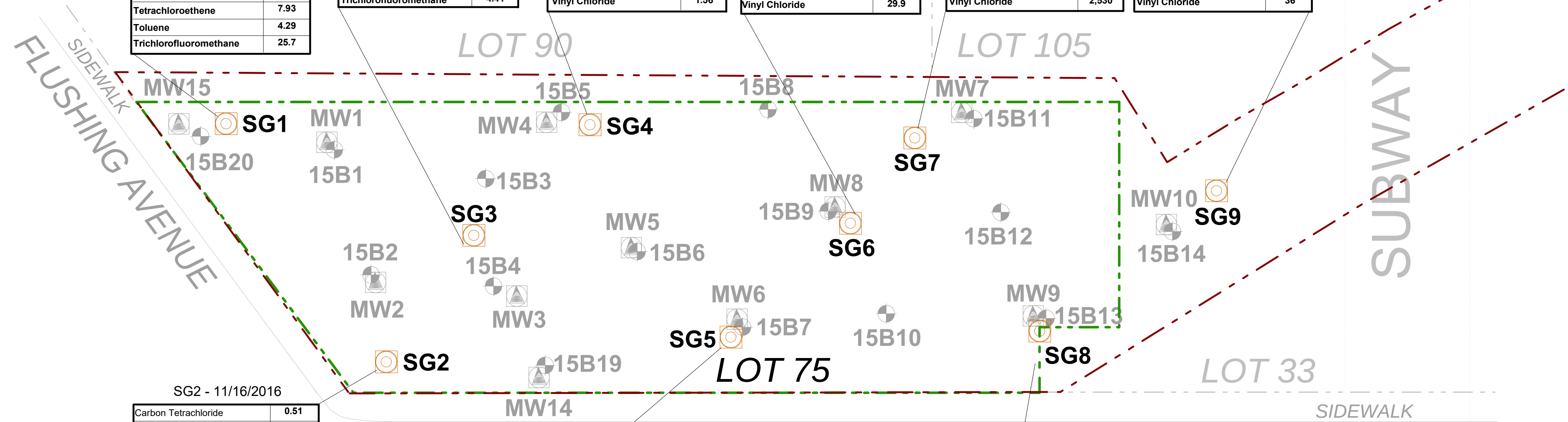
Figure 8

Site Name: FORMER UNIVERSAL SCRAP METAL
Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title: GROUNDWATER EXCEEDANCES MAP



SG1 - 11/16/2016

1,2,4-Trimethylbenzene	1.24
Acetone	170
Benzene	1.16
Carbon Disulfide	1.6
Chloroform	2.73
Cyclohexane	1.02
Dichlorodifluromethane	7.12
Ethanol	20.1
Ethylbenzene	1.74
Heptane	2.63
Hexane	1.14
Isopropylalcohol	1.91
Xylene (m&p)	5.9
Methyl Ethyl Ketone	3.48
Xylene (o)	2
Propylene	2.61
Tetrachloroethene	7.93
Toluene	4.29
Trichlorofluoromethane	25.7

SG3 - 11/16/2016

1,1,1-Trichloroethane	1.02
1,2,4-Trimethylbenzene	1.57
2-Hexanone	24.2
Acetone	62.7
Benzene	1.67
Dichlorodifluromethane	3.73
Ethanol	50.7
Ethylbenzene	2.43
Heptane	2.47
Hexane	3.12
Xylene (m&p)	7.94
Methyl Ethyl Ketone	601
Xylene (o)	2.67
Propylene	41.1
Tetrachloroethene	34.3
Toluene	11
Trichloroethene	0.32
Trichlorofluoromethane	4.41

SG4 - 11/16/2016

1,2,4-Trimethylbenzene	1.75
4-Methyl-2-pentanone	512
Acetone	1,550
Benzene	122
Carbon Disulfide	32.7
cis-1,2-Dichloroethene	10.2
Cyclohexane	671
Dichlorodifluromethane	1.57
Ethanol	953
Ethylbenzene	10.5
Heptane	317
Hexane	708
Isopropylalcohol	33.2
Isopropylbenzene	2.01
Xylene (m&p)	16.2
Methyl Ethyl Ketone	1,180
Xylene (o)	6.03
Propylene	347
Tetrachloroethene	2.6
Toluene	57.2
trans-1,2-Dichloroethene	1.42
Trichloroethene	7.46
Vinyl Chloride	1.56

SG6 - 11/16/2016

Benzene	766
Carbon Disulfide	209
cis-1,2-Dichloroethene	22.7
Cyclohexane	3,350
Ethanol	92.1
Ethylbenzene	45.6
Heptane	1,470
Hexane	3,210
Xylene (m&p)	23.5
Methyl Ethyl Ketone	1,480
Propylene	1,070
Trichloroethene	7.04
Vinyl Chloride	29.9

SG7 - 11/16/2016

Benzene	619
cis-1,2-Dichloroethene	109
Cyclohexane	15,500
Heptane	12,900
Hexane	28,000
Methyl Ethyl Ketone	169
MTBE	2,560
Tetrachloroethene	14.4
Trichloroethene	11.3
Vinyl Chloride	2,530

SG9 - 11/16/2016

1,2,4-Trimethylbenzene	94.8
1,3,5-Trimethylbenzene	75.2
Benzene	299
Ethanol	44.1
Heptane	16,100
Hexane	38,000
Xylene (m&p)	568
MTBE	11,300
Xylene (o)	111
Propylene	580
Vinyl Chloride	36

SG2 - 11/16/2016

Carbon Tetrachloride	0.51
Dichlorodifluromethane	2.48
Ethanol	17.1
Heptane	1.35
Hexane	3.56
Methylene Chloride	7.33
Tetrachloroethene	1.96
Toluene	1.19
Trichlorofluoromethane	1.99

SG5 - 11/16/2016

Benzene	1,140
Cyclohexane	17,500
Ethylbenzene	146
Heptane	8,110
Hexane	19,800
Xylene (m&p)	378
Methyl Ethyl Ketone	1,390
Xylene (o)	125
Propylene	1,090
Tetrachloroethene	3.25
Toluene	1,180
Trichloroethene	4.08

SG8 - 11/16/2016

Ethanol	30.7
Hexane	128
Methyl Ethyl Ketone	233
MTBE	6,450
Toluene	48.6
Vinyl Chloride	13.9

KEY:

- Property Boundary
- BCP Site Boundary
- SGx — Soil Gas Location
- 15Bx — Soil Boring Location
- MWx — Monitoring Well Location

SCALE:

0 20 45

Scale: 1 inch = 45 feet

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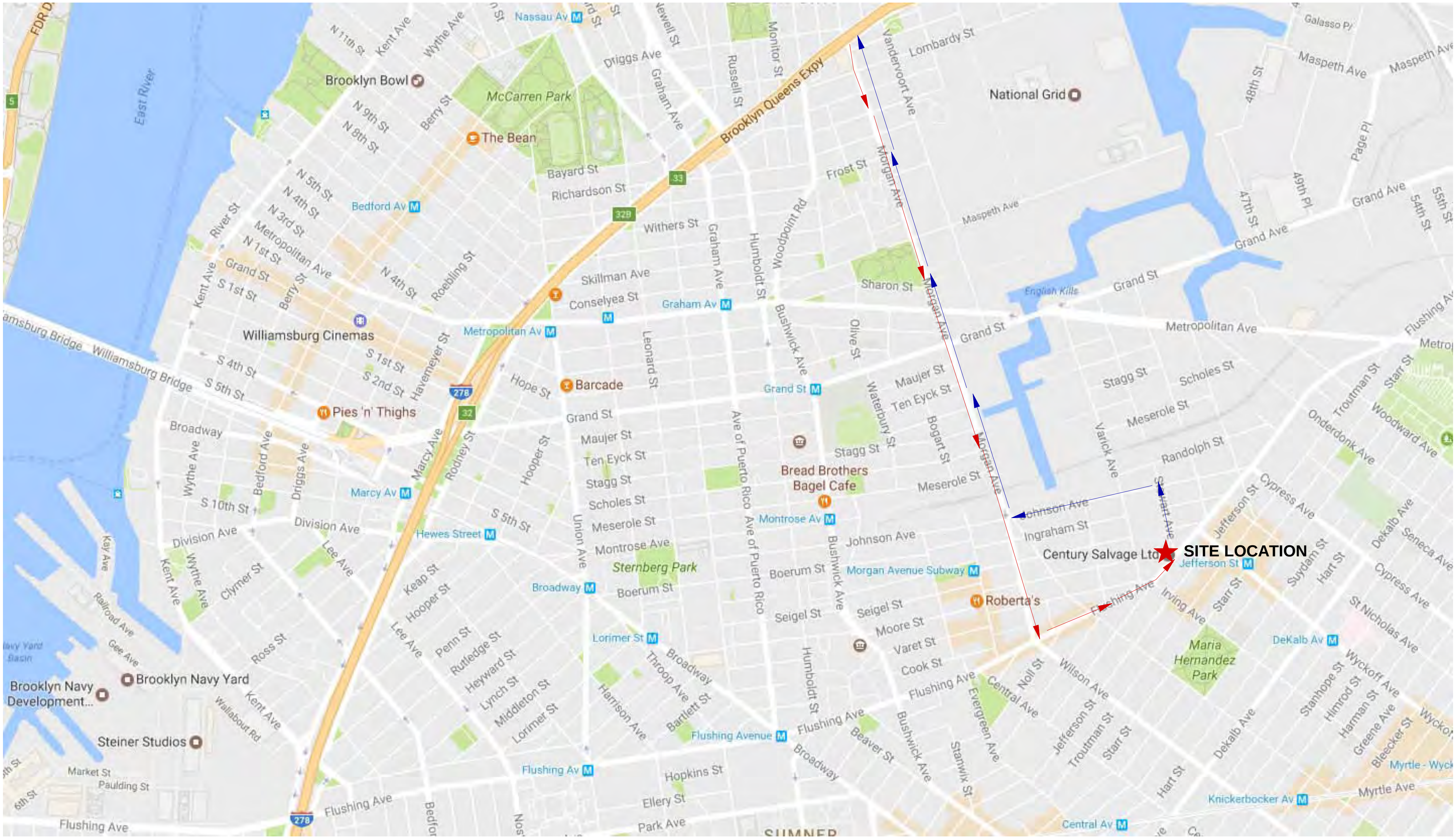
Figure 9

Site Name: FORMER UNIVERSAL SCRAP METAL

Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY

Drawing Title: SOIL GAS DETECTIONS MAP



Key:

Truck Route From Site

Truck Route To Site

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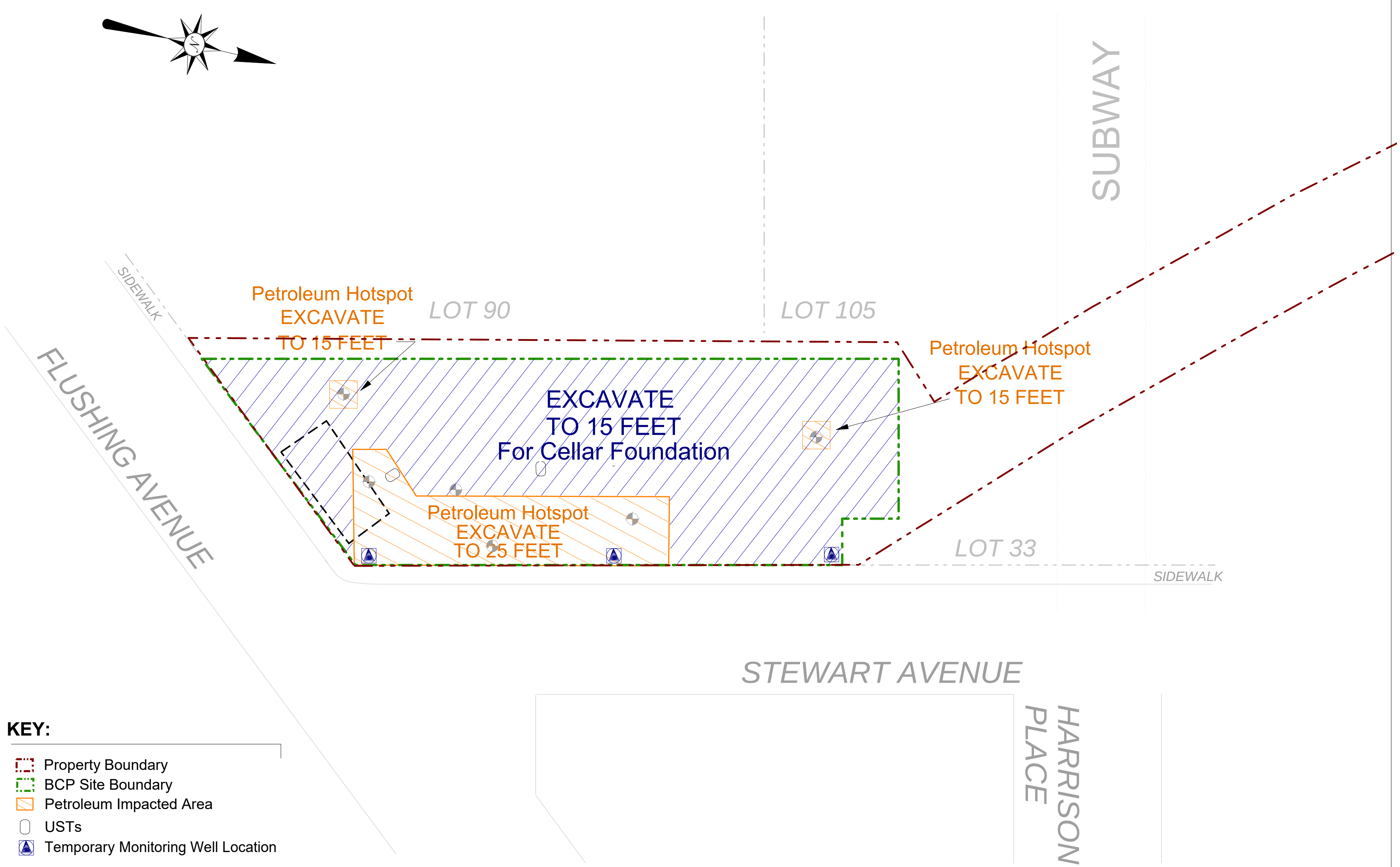
Figure No.
10

Site Name: FORMER UNIVERSAL SCRAP METAL

Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY

Drawing Title: TRUCK ROUTE



KEY:

- Property Boundary
- BCP Site Boundary
- Petroleum Impacted Area
- USTs
- Temporary Monitoring Well Location

SCALE:

0 30 60

Scale: 1 inch = 60 feet

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Figure 11

Site Name:	FORMER UNIVERSAL SCRAP METAL
Site Address:	1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title:	EXCAVATION PLAN

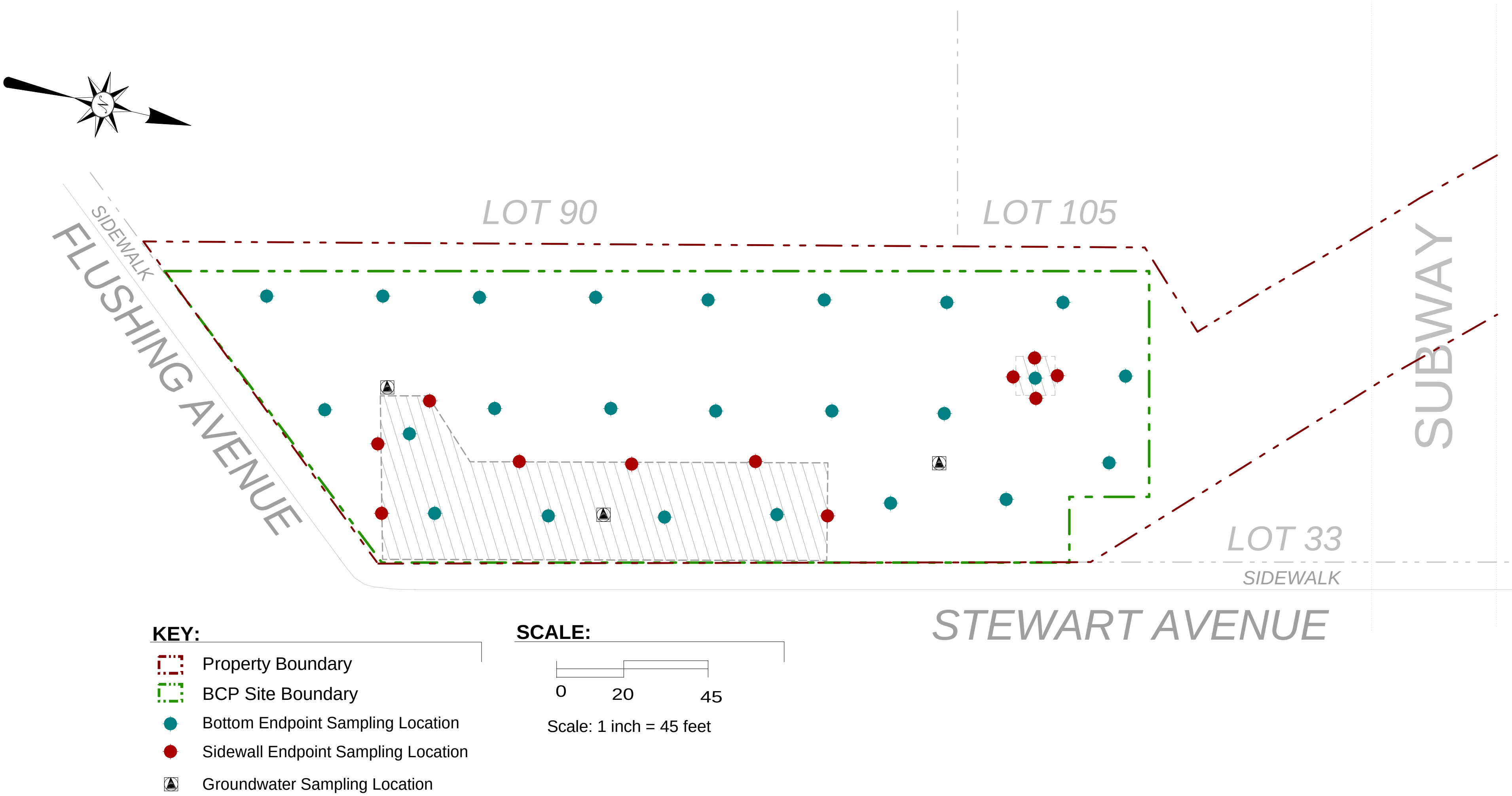

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Figure 12

Site Name:	FORMER UNIVERSAL SCRAP METAL
Site Address:	1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title:	ENDPOINT SAMPLING MAP

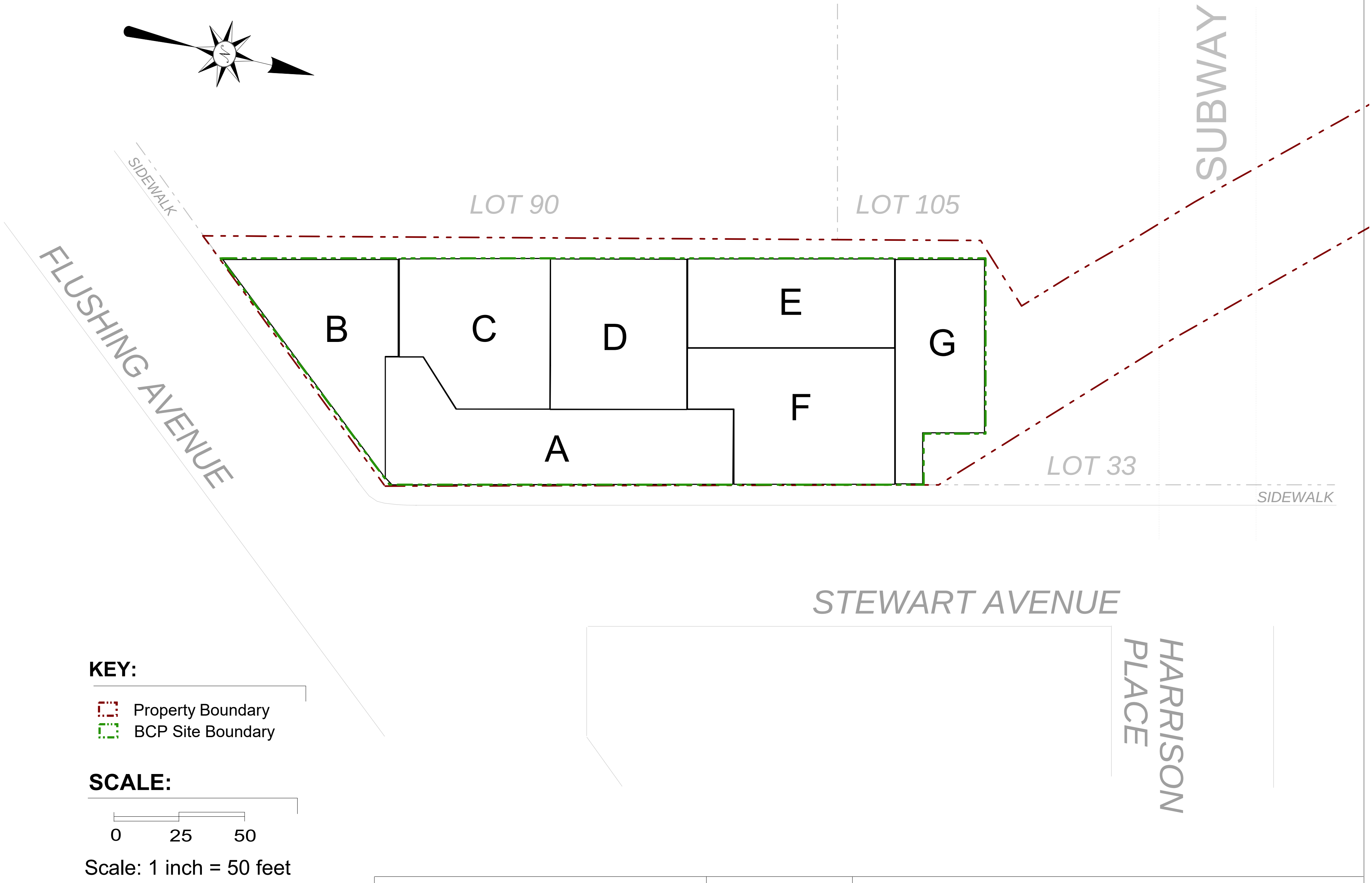

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Figure 13

Site Name: FORMER UNIVERSAL SCRAP METAL
Site Address: 1181 FLUSHING AVENUE, BROOKLYN, NY
Drawing Title: GRID MAP

ATTACHMENT A
Metes and Bounds Description of Property

LEGAL DESCRIPTION
1181 Flushing Avenue
BCP Site Boundaries

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

BEGINNING at the intersection of the northerly side of Flushing Avenue and the westerly side of Stewart Avenue;

RUNNING THENCE westerly along the northerly side of Flushing avenue a distance of 108'-7" to a point;

THENCE northerly parallel with westerly side of Stewart Avenue a distance of 291'-7" to a point;

THENCE easterly at right angles to a previous course a distance of 66'-2 1/2" to a point;

THENCE southerly at right angles to a previous course a distance of 23'-6 1/2" to a point;

THENCE easterly at right angles to a previous course a distance of 20'-5" to a point on the westerly side of Stewart Avenue;

THENCE southerly along the westerly side of Stewart Avenue 202'-7" to the point or place of BEGINNING.

Said parcel contains 21, 942.45 square feet, more or less.

ATTACHMENT B
Health and Safety Plan

FORMER UNIVERSAL SCRAP METAL PROCESSORS CORP.

1181 FLUSHING AVENUE
BROOKLYN, NEW YORK 11237
Block 2994, Lots 9 and 75

CONSTRUCTION HEALTH AND SAFETY PLAN

April 2017

Prepared for:
Flushing Stewart LLC
266 Broadway Suite 301
Brooklyn, NY 11211

Prepared by:
EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961

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CONSTRUCTION HEALTH AND SAFETY PLAN
Former Universal Scrap Metal Processors Corp.
1181 Flushing Avenue, Brooklyn, New York

TABLE OF CONTENTS
CONSTRUCTION HEALTH AND SAFETY PLAN
Former Universal Scrap Metal Processors Corp.
1181 Flushing Avenue, Brooklyn, New York

STATEMENT OF COMMITMENT

This Construction Health and Safety Plan (CHASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the Remedial Actions at 1181 Flushing Avenue, Brooklyn, NY

This CHASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This CHASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed by Environmental Business Consultants (EBC) for the planned Remedial Action at 1181 Flushing Avenue, Brooklyn, New York to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during remedial activities. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this CHASP, including the attachments, addresses safety and health hazards related to excavation, loading and other soil disturbance activities and is based on the best information available. The CHASP may be revised by EBC at the request of the owner and/or a regulatory agency upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by EBC's project manager, site safety officer and/or the EBC health and safety consultant.

Work performed under the remedial action will not involve confined space entry since the excavations will be large and sloped back in accordance with NYCDOB shoring requirements and will not have a limited or restricted means for entry or exit.

1.1 Training Requirements

Personnel entering the exclusion zone or decontamination zone are required to be certified in health and safety practices for hazardous waste site operations as specified in the Federal OSHA Regulations CFR 1910.120e (revised 3/6/90).

Paragraph (e - 3) of the above referenced regulations requires that all on-site management personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive 8 hours of supervisor training related to managing hazardous waste work.

Paragraph (e - 8) of the above referenced regulations requires that workers and supervisors receive 8 hours of refresher training annually on the items specified in Paragraph (e-1) and/or (e-3).

Additionally, all on-site personnel must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.

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- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

Health and Safety meetings will be conducted on a daily basis and will cover protective clothing and other equipment to be used that day, potential and chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

1.2 Medical Monitoring Requirements

Field personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f) if respirators or other breathing related PPE is needed. Medical monitoring enables a physician to monitor each employee’s health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

1.3 Site Safety Plan Acceptance, Acknowledgment and Amendments

The project superintendent and the site safety officer are responsible for informing personnel (EBC employees and/or owner or owners representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Appendix A**.

Site conditions may warrant an amendment to the CHASP. Amendments to the CHASP are acknowledged by completing forms included in **Appendix B**.

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Health and Safety Plan are:

Name	Title	Address	Contact Numbers
Keith Butler	Project Manager	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000
Ms. Chawinie Miller	Health & Safety Manager	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000
Mr. Kevin Waters	Site Safety Officer	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this CHASP. The site safety officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this CHASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.

2. Coordinating site safety decisions with the project manager.

3. Designating exclusion, decontamination and support zones on a daily basis.

4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this CHASP.

5. Maintaining the work zone entry/exit log and site entry/exit log.

6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

2.0 SITE BACKGROUND AND SCOPE OF WORK

The street address for the Site is 1181 Flushing Avenue, Brooklyn, NY (Figure 1). The Site is located in the City of New York in the East Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of a two tax parcels identified as Block 2994, Lots 9 and 75 and totaling 40,006.98 sq. ft (0.92 acres). The Site consists of approximately 120 ft of street frontage on Flushing Avenue and 210 feet of street frontage on Stewart Avenue. Currently the property is is vacant but was most recently occupied by a scrap metal recycler. The property is partially developed with a 1-story 4,500 sf commercial building located on Lot 75 which was constructed in 1931. The building yard area and Lot 9 to the north were used as a metal scrap yard. The area to the south of the building is used for parking.

The Manhattan Transportation Authority's (MTA) L-train subway line runs beneath a portion of lot 9 in an east-west direction near the front quarter of the lot.

2.1 Previous Investigations

Environmental investigations performed at the Site include the following:

- NYSDEC Spill Files No. 1305242 and 0510000
- Phase I Environmental Site Assessment Report - EBC (December 2014)
- Phase II Subsurface Investigation Data Summary - EBC (January 2015)

2.1.1 NYSDEC Spill Files No. 1305242 and 0510000

According to the NYSDEC Spill file, a petroleum spill was reported in November 2005 during the removal of eleven 550 gallon underground storage tanks. Impacted soil was present around the tanks and approximately 239 tons of soil were removed for disposal. Impacted soil remained in the excavation near the western edge in the vicinity of the former fill ports. A groundwater well installed within the former tank area indicated 7,630 ug/L of total BTEX VOCs. Based on these results continued monitoring was required. In 2009 the DEC requested that an additional investigation be performed to delineate the extent of the contamination. An investigation performed in August 2009 by P.W. Grosser Consulting (PWGC) identified total VOCs in groundwater ranging from 3.26 to 9,217 ug/L. In January 2010 PWGC submitted a remedial plan to the DEC consisting of chemical oxidants and oxygen releasing compound injections. DEC approved the plan in March 2010. Two injection rounds were completed, one in July 2010 and one in September 2010. Post injection monitoring indicated a significant reduction in VOC concentrations in groundwater. Subsequent sampling in 2011 and 2013 indicated some rebound with concentrations then stabilizing by 2014 in the 1,000 to 2,500 ug/L range.

2.1.2 December 2014 – Phase I Environmental Site Assessment (EBC)

Based upon reconnaissance of the subject site and surrounding properties, and review of historical records and regulatory agency databases, the Phase I Screening identified the following Recognized Environmental Conditions (RECs) for the Site:

- The entire property was used as a Railroad freight yard from sometime between 1888 and 1907 to sometime between 1951 and 1965. Historic rail lines were known to use PCBs and herbicides for weed control. In addition rail freight yards would be subject to fuel and petroleum releases from equipment and potential chemical releases from rail tanker cars, etc.

- The south end of the Site was utilized as filling station from approximately 1955 until at least 2003.

- The southern portion of the Site and the building were used for auto repair from 1955 until 2007.

- The Site contained a gasoline storage tank at the south end, along Flushing Avenue, in 1951.

- The northern portion of the property was used as an auto scrap yard from 1981 through 2007.

- From 2007 through 2014 the property was used as a scrap metal facility.

2.1.3 January 2015 - Phase II Investigation Data Summary (EBC)

The field work portion of the Phase II was performed on December 29th and 30th, 2014 and included the installation of six soil borings and the collection and analysis of eight soil and five groundwater samples. Shallow soil samples were also analyzed for TAL metals and PCBs. Deeper samples, from the water table interface, were analyzed for VOCs by USEPA 8260 and SVOCs by USEPA 8270. Groundwater samples were analyzed for VOCs only. Laboratory services were provided by Phoenix Environmental Laboratories of Manchester, CT 06040, a New York State ELAP certified environmental laboratory (ELAP Certification No. 11301).

The depth to groundwater at the site is approximately 10 feet below grade. Soil at the site is described as historic fill materials to a depth of approximately 0-4 feet below the surface followed by native brown sand and silt.

Laboratory results identified VOCs including 1,2-dichloroethane (B3), benzene, trimethylbenzene, ethylbenzene, toluene and xylene (B9, B10) above unrestricted and groundwater protection SCOs indicated multiple source areas across the Site. The concentration of total VOCs (when including naphthalene) were reported as high as 37,037 ug/kg. One or more SVOCs including chysene, benzo(a)anthracene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, benzo(k)fluornthene were reported above Unrestricted or Restricted Residential SCOs in two locations (B2 and B10).

Metals reported above included the following:

<u>Unrestricted Use</u>
B2 0-4 ft - Copper (76.6 mg/kg), lead (108 mg/kg), zinc (856 mg/kg)
B3 0-2 ft - Copper (62 mg/kg), lead (161 mg/kg), zinc (170 mg/kg)
B6 0-5 ft - Lead (72.6 mg/kg)
B9 4-6 ft - Zinc (134 mg/kg)
B10 0-4 ft - Copper (68.6 mg/kg), lead (147 mg/kg), mercury (0.55 mg/kg), zinc (1800 mg/kg)

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Restricted Residential Use
B1 0-2 ft - Cadmium (3 mg/kg), mercury (1.94 mg/kg)
B2 0-4 ft - Mercury (5.54 mg/kg)
B3 0-2 ft - Mercury (1.01 mg/kg)

Petroleum VOCs were reported in three of the five groundwater samples (MW3, MW5, MW6) above water quality standards. Total petroleum VOCs were reported to 8,727 ug/L.

2.2 Redevelopment Plans

The redevelopment project consists of the construction of a new 6-8 story commercial building which will cover approximately 60 percent of the south lot (lot 75). The project includes 14,362 sf of commercial / retail space, 14,362 sf of community space and 71,810 sf of hotel space. Plans include a full height basement level requiring excavation to a depth of approximately 11 ft below grade. The basement level will be used for meter rooms and retail storage space. The remainder of the property will be utilized for parking. With groundwater present at 10 feet below grade, dewatering will likely be required during construction of the building's foundation.

2.3 Description of Remedial Action

Site activities included within the Remedial Action that are included within the scope of this CHASP include the following:

1. Excavation of soil/fill exceeding Track 1 unrestricted use SCOs as listed in Table 1 to depths as great as 5 feet below grade site-wide and to 15 and 25 ft within the petroleum impacted areas;
2. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
3. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs;
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
5. Dewatering and treatment of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit.
6. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in Table 1, (2) all Federal, State and local rules and regulations for handling and transport of material.
7. .If Track 1 cleanup is not achieved implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls.
8. If Track 1 cleanup is not achieved, an Environmental Easement will be filed against the Site to ensure implementation of the SMP.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 SCOs, if Track 1 SCOs cannot be achieved then a Track 2 remedy may result. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.
Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. Any anticipated deviations to the RAWP shall be submitted to the NYSDEC for review.

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3.0 HAZARD ASSESSMENT

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

3.1 Physical Hazards

3.1.1 Tripping Hazards

An area of risk associated with on-site activities are presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 Climbing Hazards

During site activities, workers may have to work on excavating equipment by climbing. The excavating contractor will conform with any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations

Field activities that involve excavating activities usually involve contact with various types of machinery. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the excavation program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards

Before conducting any excavation, the excavation contractor will be responsible for locating and verifying all existing utilities at each excavation.

3.1.6 Traffic Hazards

All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The excavation contractor shall carry on his operations without undue interference or delays to traffic. The excavation contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 Work in Extreme Temperatures

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

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ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
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3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
    a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
    b. Work in Pairs. Individuals should avoid undertaking any activity alone.
    c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
    d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
    a Heat Rash (or prickly heat):
    Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
    Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
    Treatment: Remove source or irritation and cool skin with water or wet cloths.

    b. Heat Cramps (or heat prostration)
    Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.
    Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.
    Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.

    c. Heat Stroke
    Cause: Same as heat exhaustion. This is also an extremely serious condition.
    Symptoms: Dry hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.
    Treatment: Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing. Transport to hospital.

3.2.2 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and /or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as:

- Shivering;
- reduced blood pressure;
- reduced coordination;
- drowsiness;
- impaired judgment;
- fatigue;
- pupils dilated but reactive to light; and,
- numbing of the toes and fingers.

3.3 Chemical Hazards

“Urban fill” materials, present throughout the New York City area typically contain elevated levels of semi-volatile organic compounds and metals. These “contaminants” are not related to a chemical release occurring on the site, but are inherent in the reworked fill material in the area which contains ash and bits of tar and asphalt. Considering the previous sampling results and the past and present use of the site, the following compounds are considered for the site as potential contaminants: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyl’s (PCBs), and heavy metals such as arsenic, chromium, lead and mercury.

Based on the findings of the Remedial Investigation and the inherent properties of urban fill, the following compounds are considered for the site as potential contaminants: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and heavy metals.

Volatile organic compounds reported to be present in soil, soil gas and/or groundwater include the following:

1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Acetone	Benzene
Ethylbenzene	Methyl Ethyl Ketone	m&p-Xylenes	Naphthalene
n-Butylbenzene	n-Propylbenzene	o-Xylene	sec-Butylbenzene
Tetrachloroethene	trans-1,2-Dichloroethene	Toluene	Vinyl Chloride

Semi-Volatile organic compounds reported to be present in soil and / or fill materials include the following:

Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(a)pyrene	Chrysene
Benzo(k)fluoranthene	Ideno(1,2,3-cd) pyrene	Napthalene	

Pesticides reported to be present in soil and / or fill materials include the following:

4'-4'-DDD	4'-4'-DDE	4'-4'-DDT

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Metals reported to be present in fill materials include the following:

Arsenic	Barium	Cadmium	Chromium
Copper	Lead	Mercury	Zinc

The primary routes of exposure to these contaminants are inhalation, ingestion and absorption. **Appendix C** includes information sheets for suspected chemicals that may be encountered at the site.

3.3.1 Respirable Dust

Dust may be generated from vehicular traffic and/or excavation activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (Miniram or equivalent). If monitoring detects concentrations greater than 150 µg/m3 over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soils or groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during excavation activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently over 150 $\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

Elevated levels of chlorinated VOCs were detected in soil, soil gas and groundwater samples collected during previous investigations at the site. Therefore, excavation activities may cause the release of organic vapors to the atmosphere. The site safety officer will periodically monitor organic vapors with a Photoionization Detector (PID) during excavation activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and/or the Community Air Monitoring Plan.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.**

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), but are less than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

- chemical resistant coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves;
- disposable outer gloves;
- hard hat; and,
- ankles/wrists taped.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of drilling locations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

5.1 Air Monitoring Requirements

If excavation work is performed, air will be monitored for VOCs with a portable ION Science 3000EX photoionization detector, or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRam Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- excavation work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage are exceeded:

1 The SSO will be consulted immediately
2 All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (eg from the exclusion zone).
3 Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Excavation Activities

Instrument readings will be taken in the breathing zone above the excavation pit unless otherwise noted. Each action level is independent of all other action levels in determining responses.

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Organic Vapors (PID)	LEL %	Responses
0-1 ppm above background	0%	• Continue excavating • Level D protection • Continue monitoring every 10 minutes
1-5 ppm Above Background, Sustained Reading	1-10%	• Continue excavating • Go to Level C protection or employ engineering controls • Continue monitoring every 10 minutes
5-25 ppm Above Background, Sustained Reading	10-20%	• Discontinue excavating, unless PID is only action level exceeded. • Level C protection or employ engineering controls • Continue monitoring for organic vapors 200 ft downwind • Continuous monitoring for LEL at excavation pit
>25 ppm Above Background, Sustained Reading	>20%	• Discontinue excavating • Withdraw from area, shut off all engine ignition sources. • Allow pit to vent • Continuous monitoring for organic vapors 200 ft downwind.

Notes: Air monitoring will occur in the breathing zone 30 inches above the excavation pit. Readings may also be taken in the excavation pit but will not be used for action levels.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less then 5 ppm (see Community Air Monitoring Plan).

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6.0 SITE CONTROL

6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site log book. **It is expected that the entire fenced in area of the Site will be the exclusion zone, with the decontamination zone the Site entrance.** The support zone will be the office trailer.

Tasks requiring OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the site safety officer.

6.2 General Site Work

An excavation contractor with appropriate experience, personnel and training (40 hr OSHA Hazardous Waste Operations and Emergency Response Operations - HAZWOPER) is required to perform the removal of the CVOC and naphthalene impacted soil. After this material is removed the contractor will remove historic fill and uncontaminated soil. The excavation contractor’s on-site personnel engaged in historic fill and native soil removal will have a minimum of 24 hour HAZWOPER training.

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7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

7.1 Emergency Equipment On-site

Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
New York City Police	911
Wyckoff Heights Medical Center	1-718-963-7272
NYSDEC Spills Division	1-800-457-7362
NYSDEC Division of Env. Remediation	1-718-482-4900
NYCDEP	1-718-699-9811
NYC Department of Health	1-212-788-4711
NYC Fire Department	911
National Response Center	1-800-424-8802
Poison Control	1-212-340-4494
Site Safety Officer	1-631-504-6000
Alternate Site Safety Officer	1-631-504-6000

7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;

- Ensure that appropriate federal, state, and local agencies are informed and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;

- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;

- Determine the cause of incidents and make recommendations to prevent recurrence; and,

- Ensure that all required reports have been prepared.

The following key personnel are planned for this project:

- Project Manager — Keith Butler (631) 504-6000
- Construction Superintendent — Abe Wurzberger (718) 887-9840 x304
- Site Safety Officer — Kevin Waters (631) 504-6000

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**).and information on the chemical(s) to which they may have been exposed (**Appendix C**).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use fire fighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

7.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.

- Exit through the decontamination corridor if possible.

- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.

- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.

- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.
- All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book.

APPENDIX A

SITE SAFETY ACKNOWLEDGEMENT FORM

DAILY BREIFING SIGN-IN SHEET

Date:_______________________________ Person Conducting Briefing:_______________________

Project Name and Location:____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc…):

____

____

____

____

2. OTHER ISSUES (HASP changes, attendee comments, etc…):

____

____

____

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

APPENDIX B

SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #:____

Site Name: ____

Reason for Amendment:____

____

____

____

Alternative Procedures:____

____

____

____

Required Changes in PPE:____

____

____

____

______________________________	____________________
Project Superintendent (signature)	**Date**
______________________________	____________________
Health and Safety Consultant (signature)	**Date**
______________________________	____________________
Site Safety Officer (signature)	**Date**

APPENDIX C
CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils and/or groundwater at the site.

International Chemical Safety Cards

1,2,4-TRIMETHYLBENZENE

ICSC: 1433

Pseudocumene
C_9H_{12}
Molecular mass: 120,2

ICSC # 1433
CAS # 95-63-6
RTECS # DC3325000
UN # 1993
EC # 601-043-00-3
March 06, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Alcohol-resistant foam, dry powder, carbon dioxide.
EXPLOSION	Above 44°C explosive vapour/air mixtures may be formed.	Above 44°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Confusion. Cough. Dizziness. Drowsiness. Headache. Sore throat. Vomiting.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness. Dry skin.	Protective gloves.	Rinse skin with plenty of water or shower.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.	Xn symbol N symbol R: 10-20-36/37/38-51/53 S: 2-26-61 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 1433

International Chemical Safety Cards

1,2,4-TRIMETHYLBENZENE

ICSC: 1433

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
The substance decomposes on burning producing toxic and irritating fumes Reacts violently with strong oxidants causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: (as mixed isomers) 25 ppm as TWA (ACGIH 2004).
MAK: (as mixed isomers) 20 ppm 100 mg/m³
Peak limitation category: II(2) Pregnancy risk group: C (DFG 2004).
OSHA PEL†: none
NIOSH REL: TWA 25 ppm (125 mg/m^3)
NIOSH IDLH: N.D. See: IDLH INDEX

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system

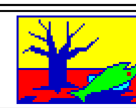
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. Lungs may be affected by repeated or prolonged exposure , resulting in chronic bronchitis The substance may have effects on the central nervous system blood See Notes.

PHYSICAL PROPERTIES

Boiling point: 169°C
Melting point: -44°C
Relative density (water = 1): 0.88
Solubility in water:
very poor
Relative vapour density (air = 1): 4.1
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01
Flash point: 44°C c.c.
Auto-ignition temperature: 500°C
Explosive limits, vol% in air: 0.9-6.4
Octanol/water partition coefficient as log Pow: 3.8

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish.



N O T E S

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. See also ICSC 1155 1,3,5-Trimethylbenzene (Mesitylene), ICSC 1362 1,2,3-Trimethylbenzene (Hemimellitene), ICSC 1389 Trimethyl benzene (mixed isomers). 1,3,5-Trimethylbenzene (Mesitylene) is classified as a marine pollutant.

Transport Emergency Card: TEC (R)-30GF1-III
NFPA Code: H0; F2; R0;

ADDITIONAL INFORMATION

ICSC: 1433 **1,2,4-TRIMETHYLBENZENE**

International Chemical Safety Cards

1,3,5-TRIMETHYLBENZENE

ICSC: 1155

Mesitylene
C_9H_{12}
Molecular mass: 120.2

ICSC # 1155
CAS # 108-67-8
RTECS # OX6825000
UN # 2325
EC # 601-025-00-5
March 06, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Alcohol-resistant foam, dry powder, carbon dioxide.
EXPLOSION	Above 50°C explosive vapour/air mixtures may be formed.	Above 50°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Confusion. Cough. Dizziness. Drowsiness. Headache. Sore throat. Vomiting.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness. Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.	Marine pollutant. Xi symbol N symbol R: 10-37-51/53 S: 2-61 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

1,3,5-TRIMETHYLBENZENE

ICSC: 1155

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
The substance decomposes on burning producing toxic and irritating fumes. Reacts violently with strong oxidants causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV (as mixed isomers): 25 ppm; (ACGIH 2001).
MAK (all isomers): 20 ppm; 100 mg/m^3; class II 1 © (2001)
OSHA PEL†: none
NIOSH REL: TWA 25 ppm (125 mg/m^3)
NIOSH IDLH: N.D. See: IDLH INDEX

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system.

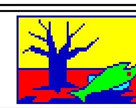
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. Lungs may be affected by repeated or prolonged exposure, resulting in chronic bronchitis. The substance may have effects on the central nervous system blood See Notes.

PHYSICAL PROPERTIES

Boiling point: 165°C
Melting point: -45°C
Relative density (water = 1): 0.86
Solubility in water:
very poor
Vapour pressure, kPa at 20°C: 0.25
Relative vapour density (air = 1): 4.1
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01
Flash point: 50°C (c.c.)
Auto-ignition temperature: 550°C
Octanol/water partition coefficient as log Pow: 3.42

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. Bioaccumulation of this chemical may occur in fish.



NOTES

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. See ICSC 1433 1,2,4-Trimethylbenzene (Pseudocumene), ICSC 1362 1,2,3-Trimethylbenzene (Hemimellitene), ICSC 1389 Trimethyl benzene (mixed isomers).

Transport Emergency Card: TEC (R)-30S2325
NFPA Code: H0; F2; R0

ADDITIONAL INFORMATION

ICSC: 1155 **1,3,5-TRIMETHYLBENZENE**

International Chemical Safety Cards

BENZENE

ICSC: 0015

Cyclohexatriene
Benzol
C_6H_6
Molecular mass: 78.1

ICSC # 0015
CAS # 71-43-2
RTECS # CY1400000
UN # 1114
EC # 601-020-00-8
May 06, 2003 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive. Risk of fire and explosion: see Chemical Dangers.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Shortness of breath. Convulsions. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	MAY BE ABSORBED! Dry skin. Redness. Pain. (Further see Inhalation).	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
•EYES	Redness. Pain.	Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Sore throat. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: complete protective clothing including self-contained breathing apparatus.	Fireproof. Separated from food and feedstuffs oxidants halogens	Do not transport with food and feedstuffs. Note: E F symbol T symbol R: 45-46-11-36/38-48/23/24/25-65 S: 53-45 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

BENZENE

ICSC: 0015

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts violently with oxidants, nitric acid, sulfuric acid and halogens causing fire and explosion hazard. Attacks plastic and rubber.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.5 ppm as TWA 2.5 ppm as STEL (skin) A1 BEI (ACGIH 2004).
MAK: H
Carcinogen category: 1 Germ cell mutagen group: 3A (DFG 2004).
OSHA PEL: 1910.1028 TWA 1 ppm ST 5 ppm See Appendix F
NIOSH REL: Ca TWA 0.1 ppm ST 1 ppm See Appendix A
NIOSH IDLH: Ca 500 ppm See: 71432

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation through the skin and by ingestion

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in lowering of consciousness Exposure far above the occupational exposure limit value may result in unconsciousness death

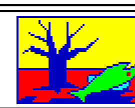
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the bone marrow immune system , resulting in a decrease of blood cells. This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 80°C
Melting point: 6°C
Relative density (water = 1): 0.88
Solubility in water, g/100 ml at 25°C: 0.18
Vapour pressure, kPa at 20°C: 10
Relative vapour density (air = 1): 2.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2
Flash point:
-11°C c.c.
Auto-ignition temperature: 498°C
Explosive limits, vol% in air: 1.2-8.0
Octanol/water partition coefficient as log Pow: 2.13

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms.



N O T E S

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. The odour warning when the exposure limit value is exceeded is insufficient.

Transport Emergency Card: TEC (R)-30S1114 / 30GF1-II
NFPA Code: H2; F3; R0

ADDITIONAL INFORMATION

ICSC: 0015 **BENZENE**

International Chemical Safety Cards

ACETONE

ICSC: 0087

2-Propanone
Dimethyl ketone
Methyl ketone
C_3H_6O / CH_3COCH_3
Molecular mass: 58.1

ICSC # 0087
CAS # 67-64-1
RTECS # AL3150000
UN # 1090
EC # 606-001-00-8
April 22, 1994 Validated
Fi, review at IHE: 10/09/89

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, alcohol-resistant foam, water in large amounts, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE			
•INHALATION	Sore throat. Cough. Confusion. Headache. Dizziness. Drowsiness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness. Pain. Blurred vision. Possible corneal damage.	Safety spectacles or face shield . Contact lenses should not be worn.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Then wash away with plenty of water.	Fireproof. Separated from strong oxidants. Store in an area without drain or sewer access.	F symbol Xi symbol R: 11-36-66-67 S: 2-9-16-26 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0087

International Chemical Safety Cards

ACETONE

ICSC: 0087

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** The vapour is heavier than air and may travel along the ground; distant ignition possible. **CHEMICAL DANGERS:** The substance can form explosive peroxides on contact with strong oxidants such as acetic acid, nitric acid, hydrogen peroxide. Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard. Attacks plastic. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 500 ppm as TWA, 750 ppm as STEL; A4 (not classifiable as a human carcinogen); BEI issued; (ACGIH 2004). MAK: 500 ppm 1200 mg/m³ Peak limitation category: I(2); Pregnancy risk group: D; (DFG 2006). OSHA PEL†: TWA 1000 ppm (2400 mg/m^3) NIOSH REL: TWA 250 ppm (590 mg/m^3) NIOSH IDLH: 2500 ppm 10%LEL See: 67641	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation and through the skin. **INHALATION RISK:** A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster. **EFFECTS OF SHORT-TERM EXPOSURE:** The vapour irritates the eyes and the respiratory tract. The substance may cause effects on the central nervous system , liver , kidneys and gastrointestinal tract . **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the blood and bone marrow .
PHYSICAL PROPERTIES	Boiling point: 56°C Melting point: -95°C Relative density (water = 1): 0.8 Solubility in water: miscible Vapour pressure, kPa at 20°C: 24	Relative vapour density (air = 1): 2.0 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2 Flash point: -18°C c.c. Auto-ignition temperature: 465°C Explosive limits, vol% in air: 2.2-13 Octanol/water partition coefficient as log Pow: -0.24
ENVIRONMENTAL DATA		

N O T E S

Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1090

NFPA Code: H 1; F 3; R 0;
Card has been partially updated in July 2007: see Occupational Exposure Limits.
Card has been partially updated in January 2008: see Storage.

ADDITIONAL INFORMATION

ICSC: 0087 **ACETONE**

International Chemical Safety Cards

ETHYLBENZENE

ICSC: 0268

Ethylbenzol
Phenylethane
EB
C_8H_{10} / $C_6H_5C_2H_5$
Molecular mass: 106.2

ICSC # 0268
CAS # 100-41-4
RTECS # DA0700000
UN # 1175
EC # 601-023-00-4
March 13, 1995 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Cough. Dizziness. Drowsiness. Headache.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain. Blurred vision.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	(Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking liquid in covered containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Personal protection: A filter respirator for organic gases and vapours.	Fireproof. Separated from strong oxidants.	F symbol Xn symbol R: 11-20 S: 2-16-24/25-29 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

ETHYLBENZENE

ICSC: 0268

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH AROMATIC ODOUR.

PHYSICAL DANGERS:
The vapour mixes well with air, explosive mixtures are easily formed.

CHEMICAL DANGERS:
Reacts with strong oxidants. Attacks plastic and rubber.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 100 ppm as TWA 125 ppm as STEL A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2005).
MAK: skin absorption (H);
Carcinogen category: 3A;
(DFG 2004).
OSHA PEL†: TWA 100 ppm (435 mg/m^3)
NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 125 ppm (545 mg/m^3)
NIOSH IDLH: 800 ppm 10%LEL See: 100414

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system Exposure far above the OEL could cause lowering of consciousness.

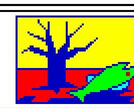
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis.

PHYSICAL PROPERTIES

Boiling point: 136°C
Melting point: -95°C
Relative density (water = 1): 0.9
Solubility in water, g/100 ml at 20°C: 0.015
Vapour pressure, kPa at 20°C: 0.9
Relative vapour density (air = 1): 3.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02
Flash point: 18°C c.c.
Auto-ignition temperature: 432°C
Explosive limits, vol% in air: 1.0-6.7
Octanol/water partition coefficient as log Pow: 3.2

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms.



NOTES

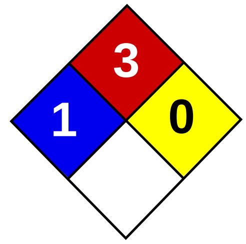
The odour warning when the exposure limit value is exceeded is insufficient.

Transport Emergency Card: TEC (R)-30S1175 or 30GF1-I+II
NFPA Code: H2; F3; R0

ADDITIONAL INFORMATION

ICSC: 0268 **ETHYLBENZENE**

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methyl ethyl ketone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl ethyl ketone

Catalog Codes: SLM2626, SLM3232

CAS#: 78-93-3

RTECS: EL6475000

TSCA: TSCA 8(b) inventory: Methyl ethyl ketone

CI#: Not applicable.

Synonym: 2-Butanone

Chemical Name: Methyl Ethyl Ketone

Chemical Formula: C4H8O

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
Methyl ethyl ketone	78-93-3	100

Toxicological Data on Ingredients: Methyl ethyl ketone: ORAL (LD50): Acute: 2737 mg/kg [Rat]. 4050 mg/kg [Mouse]. DERMAL (LD50): Acute: 6480 mg/kg [Rabbit]. VAPOR (LC50): Acute: 23500 mg/m 8 hours [Rat].

Section 3: Hazards Identification

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

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to gastrointestinal tract, upper respiratory tract, skin, eyes, 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. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

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. Cold water may be used.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.

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: Flammable.

Auto-Ignition Temperature: 404°C (759.2°F)

Flash Points: CLOSED CUP: -9°C (15.8°F). OPEN CUP: -5.5556°C (22°F) (Tag).

Flammable Limits: LOWER: 1.8% UPPER: 10%

Products of Combustion: These products are carbon oxides (CO, CO_2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, 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. Explosive in presence of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Ignition on contact with potassium t-butoxide. Vapor may cause a flash fire

Special Remarks on Explosion Hazards:
Reaction with Hydrogen Peroxide + nitric acid forms heat and shock-sensitive explosive product. Mixture with 2-propanol will produce explosive peroxides during storage.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined

areas; dike if needed. 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. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. 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. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

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:
Splash goggles. 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: 200 STEL: 300 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 150 STEL: 300 (ppm) [Australia] TWA: 590 STEL: 885 (mg/m3) from NIOSH TWA: 200 STEL: 300 (ppm) from NIOSH TWA: 590 STEL: 885 (mg/m3) [Canada] TWA: 200 STEL: 300 (ppm) from OSHA (PEL) [United States] TWA: 590 STEL: 885 (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:
Acetone-like Pleasant. Pungent. Sweetish. (Strong.)

Taste: Not available.

Molecular Weight: 72.12g/mole

Color: Clear Colorless.

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

Boiling Point: 79.6 (175.3°F)

Melting Point: -86°C (-122.8°F)

Critical Temperature: 262.5°C (504.5°F)

Specific Gravity: 0.805(Water = 1)

Vapor Pressure: 10.3 kPa (@ 20°C)

Vapor Density: 2.41 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 0.3

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility: Soluble in cold water, diethyl ether, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, mechanical shock, incompatible materials.

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

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with chloroform, copper, hydrogen peroxide, nitric acid, potassium t-butoxide, 2-propanol, chlorosulfonic acid, strong oxidizers, amines, ammonia, inorganic acids, isocyanates, caustics, pyrindines. Vigorous reaction with chloroform +alkali.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

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

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2737 mg/kg [Rat]. Acute dermal toxicity (LD50): 6480 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 32000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause birth defects based on animal dats. Embryotoxic and/or foetotoxic in animal.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation. May be absorbed through the skin. Eyes: Causes eye irritation. Inhalation: Inhalation of high concentrations may cause central nervous effects characterized by headache, dizziness, unconsciousness, and coma. Causes respiratory tract irritation and affects the sense organs. May affect the liver and urinary system. Ingestion: Causes gastrointestinal tract irritation with nausea, vomiting and diarrhea. May affect the liver. Chronic Potential Health Effects: Chronic inhalation may cause effects similar to those of acute inhalation. Prolonged or repeated skin contact may cause defatting and dermatitis.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 3220 mg/l 96 hours [Fathead Minnow]. 1690 mg/l 96 hours [Bluegill].

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 3: Flammable liquid.

Identification: : Ethyl methyl ketone UNNA: 1193 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Methyl ethyl ketone Rhode Island RTK hazardous substances: Methyl ethyl ketone Pennsylvania RTK: Methyl ethyl ketone Minnesota: Methyl ethyl ketone Massachusetts RTK: Methyl ethyl ketone New Jersey: Methyl ethyl ketone California Director's list of Hazardous Substances: Methyl ethyl ketone TSCA 8(b) inventory: Methyl ethyl ketone TSCA 8(d) H and S data reporting: Methyl ethyl ketone: Effective: 10/4/82; Sunset: 10/4/92 SARA 313 toxic chemical notification and release reporting: Methyl ethyl ketone CERCLA: Hazardous substances.: Methyl ethyl ketone: 5000 lbs. (2268 kg)

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

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable. R36/37- Irritating to eyes and respiratory system. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S25- Avoid contact with eyes. S33- Take precautionary measures against static discharges.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

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

Health: 1

Flammability: 3

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. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:39 PM

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

International Chemical Safety Cards

NAPHTHALENE

ICSC: 0667

Naphthene
$C_{10}H_8$
Molecular mass: 128.18

ICSC # 0667
CAS # 91-20-3
RTECS # QJ0525000
UN # 1334 (solid); 2304 (molten)
EC # 601-052-00-2
April 21, 2005 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 80°C explosive vapour/air mixtures may be formed. Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Headache. Weakness. Nausea. Vomiting. Sweating. Confusion. Jaundice. Dark urine.	Ventilation (not if powder), local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	MAY BE ABSORBED! (Further see Inhalation).	Protective gloves.	Rinse skin with plenty of water or shower.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Convulsions. Unconsciousness. (Further see Inhalation).	Do not eat, drink, or smoke during work. Wash hands before eating.	Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: filter respirator for organic gases and vapours. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants, food and feedstuffs . Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 22-40-50/53 S: 2-36/37-46-60-61 UN Hazard Class: 4.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0667

International Chemical Safety Cards

NAPHTHALENE

ICSC: 0667

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
WHITE SOLID IN VARIOUS FORMS , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
On combustion, forms irritating and toxic gases. Reacts with strong oxidants .

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 ppm as TWA; 15 ppm as STEL; (skin); A4 (not classifiable as a human carcinogen); (ACGIH 2005).
MAK: skin absorption (H);
Carcinogen category: 2; Germ cell mutagen group: 3B; (DFG 2004).
OSHA PEL†: TWA 10 ppm (50 mg/m^3)
NIOSH REL: TWA 10 ppm (50 mg/m^3) ST 15 ppm (75 mg/m^3)
NIOSH IDLH: 250 ppm See: 91203

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. See Notes.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance may cause effects on the blood , resulting in lesions of blood cells (haemolysis) . See Notes. The effects may be delayed. Exposure by ingestion may result in death. Medical observation is indicated.

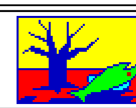
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the blood , resulting in chronic haemolytic anaemia. The substance may have effects on the eyes , resulting in the development of cataract. This substance is possibly carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 218°C
Sublimation slowly at room temperature
Melting point: 80°C
Density: 1.16 g/cm³
Solubility in water, g/100 ml at 25°C: none
Vapour pressure, Pa at 25°C: 11
Relative vapour density (air = 1): 4.42
Flash point: 80°C c.c.
Auto-ignition temperature: 540°C
Explosive limits, vol% in air: 0.9-5.9
Octanol/water partition coefficient as log Pow: 3.3

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.



NOTES

Some individuals may be more sensitive to the effect of naphthalene on blood cells.
Transport Emergency Card: TEC (R)-41S1334 (solid); 41GF1-II+III (solid); 41S2304 (molten)

NFPA Code: H2; F2; R0;

ADDITIONAL INFORMATION

ICSC: 0667 **NAPHTHALENE**

Material Safety Data Sheet

Normal-Butylbenzene, 99+%

ACC# 55434

Section 1 - Chemical Product and Company Identification

MSDS Name: Normal-Butylbenzene, 99+%
Catalog Numbers: AC107850000, AC107850050, AC107850250, AC107850500, AC107851000, AC107852500 AC107852500
Synonyms: 1-Phenylbutane
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
104-51-8	n-Butylbenzene	>99	203-209-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 59 deg C.
Warning! **Flammable liquid and vapor.** May cause eye and skin irritation. May cause respiratory and digestive tract irritation. The toxicological properties of this material have not been fully investigated.
Target Organs: Liver, nervous system.

Potential Health Effects
Eye: May cause eye irritation. The toxicological properties of this material have not been fully investigated.
Skin: May cause skin irritation. The toxicological properties of this material have not been fully investigated.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.
Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. Vapors may cause dizziness or suffocation.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Use agent most appropriate to extinguish fire. Do NOT use straight streams of water.
Flash Point: 59 deg C (138.20 deg F)
Autoignition Temperature: 412 deg C (773.60 deg F)
Explosion Limits, Lower:.80 vol %
Upper: 5.80 vol %
NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate ventilation to keep airborne concentrations low. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
n-Butylbenzene	none listed	none listed	none listed

OSHA Vacated PELs: n-Butylbenzene: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: None reported.
pH: Not available.
Vapor Pressure: 1.33 hPa @ 23 C
Vapor Density: 4.6
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 183 deg C @ 760.00mm Hg
Freezing/Melting Point:-88 deg C
Decomposition Temperature:> 183 deg C
Solubility: insoluble
Specific Gravity/Density:.8600g/cm3
Molecular Formula:$C_{10}H_{14}$
Molecular Weight:134.22

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat, strong oxidants.
Incompatibilities with Other Materials: Oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 104-51-8: CY9070000
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 104-51-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: Rapidly volatilizes into the atmosphere where it is photochemically degraded by hydroxyl radicals.

Physical: No information available.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	BUTYL BENZENES	No information available.
Hazard Class:	3	
UN Number:	UN2709	
Packing Group:	III	

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 104-51-8 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 104-51-8: Effective 6/1/87, Sunset 12/19/95
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 104-51-8: immediate, fire.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 104-51-8 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

R 10 Flammable.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 24/25 Avoid contact with skin and eyes.
S 33 Take precautionary measures against static discharges.
S 37 Wear suitable gloves.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 9 Keep container in a well-ventilated place.
S 28A After contact with skin, wash immediately with plenty of water
.

WGK (Water Danger/Protection)

CAS# 104-51-8: 1

Canada - DSL/NDSL

CAS# 104-51-8 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 4/15/1998
Revision #4 Date: 3/16/2007

Material Safety Data Sheet

Version 4.0
Revision Date 07/28/2010
Print Date 12/07/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Propylbenzene
Product Number	:	P52407
Brand	:	Aldrich
Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone #	:	(314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid

Target Organs

Lungs, Eyes, Kidney

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H401	Toxic to aquatic life.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331	Do NOT induce vomiting.

HMIS Classification

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	1
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Ingestion Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 1-Phenylpropane

Formula : C_9H_{12}
Molecular Weight : 120.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Propylbenzene			
103-65-1	203-132-9	601-024-00-X	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
For prolonged or repeated contact use protective gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	no data available
Melting point	-99 °C (-146 °F) - lit.
Boiling point	159 °C (318 °F) - lit.
Flash point	42.0 °C (107.6 °F) - closed cup
Ignition temperature	450 °C (842 °F)
Lower explosion limit	0.8 %(V)
Upper explosion limit	6 %(V)
Density	0.862 g/cm3 at 25 °C (77 °F)
Water solubility	slightly soluble

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 6,040 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).

LC50 Inhalation - rat - 2 h - 65000 ppm

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
Damage to the lungs., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: DA8750000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 1.55 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates.	Immobilization EC50 - Daphnia magna (Water flea) - 2 mg/l - 24 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2364 Class: 3 Packing group: III
Proper shipping name: n-Propyl benzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2364 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: PROPYLBENZENE
Marine pollutant: No

IATA
UN-Number: 2364 Class: 3 Packing group: III
Proper shipping name: n-Propylbenzene

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

International Chemical Safety Cards

o-XYLENE

ICSC: 0084

ortho-Xylene
1,2-Dimethylbenzene
o-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0084
CAS # 95-47-6
RTECS # ZE2450000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 32°C explosive vapour/air mixtures may be formed.	Above 32°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

o-XYLENE

ICSC: 0084

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts with strong acids strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001).
MAK: 100 ppm 440 mg/m³
Peak limitation category: II(2)
skin absorption (H);
Pregnancy risk group: D
(DFG 2005).
EU OEL: 50 ppm as TWA 100 ppm as STEL
(skin)
(EU 2000).
OSHA PEL†: TWA 100 ppm (435 mg/m^3)
NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)
NIOSH IDLH: 900 ppm See: 95476

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 144°C
Melting point: -25°C
Relative density (water = 1): 0.88
Solubility in water:
none
Vapour pressure, kPa at 20°C: 0.7
Relative vapour density (air = 1): 3.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02
Flash point: 32°C c.c.
Auto-ignition temperature: 463°C
Explosive limits, vol% in air: 0.9-6.7
Octanol/water partition coefficient as log Pow: 3.12

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0086 p-Xylene and 0085 m-Xylene.

Transport Emergency Card: TEC (R)-30S1307-III
NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0084 **o-XYLENE**

International Chemical Safety Cards

p-XYLENE

ICSC: 0086

para-Xylene
1,4-Dimethylbenzene
p-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0086
CAS # 106-42-3
RTECS # ZE2625000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 27°C explosive vapour/air mixtures may be formed.	Above 27°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants, strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

p-XYLENE

ICSC: 0086

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts with strong acids strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001).
MAK: 100 ppm 440 mg/m^3
Peak limitation category: II(2)
skin absorption (H);
Pregnancy risk group: D
(DFG 2005).
EU OEL: 50 ppm as TWA 100 ppm as STEL (skin) (EU 2000).
OSHA PEL†: TWA 100 ppm (435 mg/m^3)
NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)
NIOSH IDLH: 900 ppm See: 95476

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the central nervous system. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 138°C
Melting point: 13°C
Relative density (water = 1): 0.86
Solubility in water:
none
Vapour pressure, kPa at 20°C: 0.9
Relative vapour density (air = 1): 3.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02
Flash point: 27°C c.c.
Auto-ignition temperature: 528°C
Explosive limits, vol% in air: 1.1-7.0
Octanol/water partition coefficient as log Pow: 3.15

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.

NOTES

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0084 o-Xylene and 0085 m-Xylene.

Transport Emergency Card: TEC (R)-30S1307-III
NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0086 **p-XYLENE**

International Chemical Safety Cards

m-XYLENE

ICSC: 0085

meta-Xylene
1,3-Dimethylbenzene
m-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0085
CAS # 108-38-3
RTECS # ZE2275000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 27°C explosive vapour/air mixtures may be formed.	Above 27°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

m-XYLENE

ICSC: 0085

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts with strong acids strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001).
MAK: 100 ppm 440 mg/m³
Peak limitation category: II(2)
skin absorption (H);
Pregnancy risk group: D
(DFG 2005).
EU OEL: 50 ppm as TWA 100 ppm as STEL (skin) (EU 2000).
OSHA PEL†: TWA 100 ppm (435 mg/m^3)
NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)
NIOSH IDLH: 900 ppm See: 95476

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

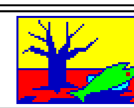
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the central nervous system Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 139°C
Melting point: -48°C
Relative density (water = 1): 0.86
Solubility in water:
none
Vapour pressure, kPa at 20°C: 0.8
Relative vapour density (air = 1): 3.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02
Flash point: 27°C c.c.
Auto-ignition temperature: 527°C
Explosive limits, vol% in air: 1.1-7.0
Octanol/water partition coefficient as log Pow: 3.20

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.



NOTES

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0084 o-Xylene and 0086 p-Xylene.

NFPA Code: H 2; F 3; R 0;
Transport Emergency Card: TEC (R)-30S1307-III

ADDITIONAL INFORMATION

ICSC: 0085 **m-XYLENE**

SIGMA-ALDRICH

sigma-aldrich.com

Material Safety Data Sheet

Version 4.0
Revision Date 07/24/2010
Print Date 12/07/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	*sec*-Butylbenzene
Product Number	:	B90408
Brand	:	Aldrich
Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone #	:	(314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Irritant

GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H315 + H320	Causes skin and eye irritation.
H401	Toxic to aquatic life.

Precautionary statement(s)

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 2-Phenylbutane

Formula : $C_{10}H_{14}$
Molecular Weight : 134.22 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
sec-Butylbenzene			
135-98-8	205-227-0	-	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	no data available
Melting point	75.5 °C (167.9 °F) - lit.
Boiling point	173 - 174 °C (343 - 345 °F) - lit.
Flash point	52.0 °C (125.6 °F) - closed cup
Ignition temperature	418 °C (784 °F)
Lower explosion limit	0.8 %(V)
Density	0.863 g/mL at 25 °C (77 °F)
Water solubility	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Dermal - rabbit - > 13,792 mg/kg

Skin corrosion/irritation
Skin - rabbit - irritating - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: CY9100000

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2709 Class: 3 Packing group: III
Proper shipping name: Butyl benzenes
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2709 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: BUTYLBENZENES
Marine pollutant: No

IATA
UN-Number: 2709 Class: 3 Packing group: III
Proper shipping name: Butylbenzenes

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Irritant

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
sec-Butylbenzene	135-98-8

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

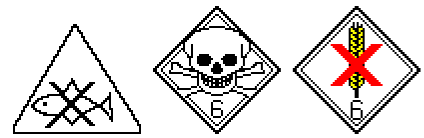
International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

1,1,2,2-Tetrachloroethylene
Perchloroethylene
Tetrachloroethene
C_2Cl_4 / $Cl_2C{=}CCl_2$
Molecular mass: 165.8

ICSC # 0076
CAS # 127-18-4
RTECS # KX3850000
UN # 1897
EC # 602-028-00-4
April 13, 2000 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0076

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004).
MAK: skin absorption (H);
Carcinogen category: 3B;
(DFG 2004).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)
NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A
NIOSH IDLH: Ca 150 ppm See: 127184

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness.

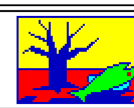
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 121°C
Melting point: -22°C
Relative density (water = 1): 1.6
Solubility in water, g/100 ml at 20°C: 0.015
Vapour pressure, kPa at 20°C: 1.9
Relative vapour density (air = 1): 5.8
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09
Octanol/water partition coefficient as log Pow: 2.9

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.



NOTES

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1897

NFPA Code: H2; F0; R0;

ADDITIONAL INFORMATION

ICSC: 0076 TETRACHLOROETHYLENE

IMPORTANT LEGAL NOTICE:

Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only

	modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TOLUENE

ICSC: 0078

Methylbenzene
Toluol
Phenylmethane
$C_6H_5CH_3$ / C_7H_8
Molecular mass: 92.1

ICSC # 0078
CAS # 108-88-3
RTECS # XS5250000
UN # 1294
EC # 601-021-00-3
October 10, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Cough. Sore throat. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
•EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area in large spill! Consult an expert in large spill! Remove all ignition sources. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: self-contained breathing apparatus	Fireproof. Separated from strong oxidants.	F symbol Xn symbol R: 11-38-48/20-63-65-67 S: 2-36/37-46-62 UN Hazard Class: 3 UN Packing Group: II

International Chemical Safety Cards

TOLUENE

ICSC: 0078

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour mixes well with air, explosive mixtures are formed easily. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts violently with strong oxidants causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA (skin) A4 BEI issued (ACGIH 2004).
MAK: 50 ppm 190 mg/m^3 H
Peak limitation category: II(4) Pregnancy risk group: C (DFG 2004).
OSHA PEL†: TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)
NIOSH REL: TWA 100 ppm (375 mg/m^3) ST 150 ppm (560 mg/m^3)
NIOSH IDLH: 500 ppm See: 108883

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the respiratory tract The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure at high levels may result in cardiac dysrhythmiaandunconsciousness.

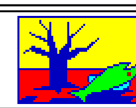
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the central nervous system Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 111°C
Melting point: -95°C
Relative density (water = 1): 0.87
Solubility in water: none
Vapour pressure, kPa at 25°C: 3.8
Relative vapour density (air = 1): 3.1
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01
Flash point: 4°C c.c.
Auto-ignition temperature: 480°C
Explosive limits, vol% in air: 1.1-7.1
Octanol/water partition coefficient as log Pow: 2.69

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.



N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1294
NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0078 TOLUENE

Material Safety Data Sheet

Version 4.2
Revision Date 01/19/2011
Print Date 12/07/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	*trans*-1,2-Dichloroethene
Product Number	:	48527
Brand	:	Supelco
Product Use	:	For laboratory research purposes.
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Manufacturer	:	Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Harmful by ingestion., Irritant

Target Organs

Central nervous system, Liver, Kidney

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H302 + H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H402	Harmful to aquatic life.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	3
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : *trans*-1,2-Dichloroethene
trans-1,2-Dichloroethylene
trans-Acetylene dichloride

Formula : $C_2H_2Cl_2$ $C_2H_2Cl_2$

Molecular Weight : 96.94 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
trans-Dichloroethylene			
156-60-5	205-860-2	602-026-00-3	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Carbon oxides, Phosgene gas
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
trans-Dichloroethylene	156-60-5	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Central Nervous System impairment Eye irritation			

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	light yellow

Safety data

pH	no data available
Melting/freezing point	Melting point/range: -50 °C (-58 °F)
Boiling point	48 °C (118 °F)
Flash point	6.0 °C (42.8 °F) - closed cup
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	9.7 %(V)
Upper explosion limit	12.8 %(V)
Vapour pressure	no data available
Density	1.257 g/mL at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Oxidizing agents, Bases

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Carbon oxides, Phosgene gas
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 1,235 mg/kg

Inhalation LC50
LC50 Inhalation - rat - 24100 ppm

Remarks: Behavioral:Somnolence (general depressed activity).

Dermal LD50
LD50 Dermal - rabbit - > 5,000 mg/kg
Remarks: Prolonged skin contact may cause skin irritation and/or dermatitis. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
prolonged or repeated exposure can cause:, narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information

RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 220.00 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene
Reportable Quantity (RQ): 1000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE
Marine pollutant: No

IATA
UN-Number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

OSHA Hazards
Flammable liquid, Harmful by ingestion., Irritant

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082

Chloroethene
Chloroethylene
VCM
C_2H_3Cl / $H_2C=CHCl$
Molecular mass: 62.5
(cylinder)

ICSC # 0082
CAS # 75-01-4
RTECS # KU9625000
UN # 1086 (stabilized)
EC # 602-023-00-7
April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Extremely flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with powder, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools.	In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Dizziness. Drowsiness. Headache. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Protective gloves. Cold-insulating gloves. Protective clothing.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.
•EYES	Redness. Pain.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. Personal protection: complete protective clothing including self-contained breathing apparatus.	Fireproof. Separated from incompatible materials .(See Chemical Dangers.) Cool. Store only if stabilized.	Note: D F+ symbol T symbol R: 45-12 S: 53-45 UN Hazard Class: 2.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0082

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS COMPRESSED LIQUEFIED GAS , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The gas is heavier than air, and may travel along the ground; distant ignition possible. Vinyl chloride monomer vapours are uninhibited and may form polymers in vents or flame arresters of storage tanks, resulting in blockage of vents.

CHEMICAL DANGERS:
The substance can under specific circumstances form peroxides, initiating explosive polymerization. The substance will polymerize readily due to heating and under the influence of air, light and on contact with a catalyst, strong oxidizing agents and metals such as copper and aluminium, with fire or explosion hazard. The substance decomposes on burning producing toxic and corrosive fumes (hydrogen chloride , phosgene). Attacks iron and steel in the presence of moisture.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 1 ppm as TWA; A1 (confirmed human carcinogen); (ACGIH 2004).
MAK:
Carcinogen category: 1;
(DFG 2004).
OSHA PEL: 1910.1017 TWA 1 ppm C 5 ppm 15-minute
NIOSH REL: Ca See Appendix A
NIOSH IDLH: Ca N.D. See: IDLH INDEX

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes . The liquid may cause frostbite. The substance may cause effects on the central nervous system . Exposure could cause lowering of consciousness. Medical observation is indicated.

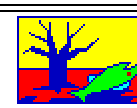
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the liver, spleen, blood andperipheral blood vessels, and tissue and bones of the fingers. This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: -13°C
Melting point: -154°C
Relative density (water = 1): 0.9 (liquid)
Density: 8 (vapour) at 15°C
g/l
Solubility in water:
none
Relative vapour density (air = 1): 2.2
Flash point:
-78°C c.c.
Auto-ignition temperature: 472°C
Explosive limits, vol% in air: 3.6-33
Octanol/water partition coefficient as log Pow: 0.6

ENVIRONMENTAL DATA

This substance may be hazardous to the environment; special attention should be given to ground water contamination.



N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-20S1086

NFPA Code: H 2; F 4; R 2;

ADDITIONAL INFORMATION

ICSC: 0082 **VINYL CHLORIDE**

BENZ(a)ANTHRACENE

ICSC: 0385

1,2-Benzoanthracene
Benzo(a)anthracene
2,3-Benzphenanthrene
Naphthanthracene
$C_{18}H_{12}$
Molecular mass: 228.3

ICSC # 0385
CAS # 56-55-3
RTECS # CV9275000
EC # 601-033-00-9
October 23, 1995 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.		Water spray, powder. In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: complete protective clothing including self-contained breathing apparatus.	Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0385

BENZ(a)ANTHRACENE

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS TO YELLOW BROWN FLUORESCENT FLAKES OR POWDER.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:

OCCUPATIONAL EXPOSURE LIMITS:
TLV: A2 (suspected human carcinogen); (ACGIH 2004).
MAK:
Carcinogen category: 2 (as pyrolysis product of organic materials)
(DFG 2005).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Sublimation point: 435°C
Melting point: 162°C
Relative density (water = 1): 1.274
Solubility in water:
none
Vapour pressure, Pa at 20°C: 292
Octanol/water partition coefficient as log Pow: 5.61

ENVIRONMENTAL DATA

Bioaccumulation of this chemical may occur in seafood.

N O T E S

This substance is one of many polycyclic aromatic hydrocarbons - standards are usually established for them as mixtures, e.g., coal tar pitch volatiles. However, it may be encountered as a laboratory chemical in its pure form. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken. Do NOT take working clothes home. Tetraphene is a common name. Card has been partly updated in October 2005 and August 2006: see sections Occupational Exposure Limits, EU classification.

ADDITIONAL INFORMATION

ICSC: 0385 **BENZ(a)ANTHRACENE**

BENZO(a)PYRENE

ICSC: 0104

National Institute for Occupational Safety and Health

NIOSH

Benz(a)pyrene
3,4-Benzopyrene
Benzo(d,e,f)chrysene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0104
CAS # 50-32-8
RTECS # DJ3675000
EC # 601-032-00-3
October 17, 2005 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray, foam, powder, carbon dioxide.
EXPLOSION			
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN	MAY BE ABSORBED!	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants.	T symbol N symbol R: 45-46-60-61-43-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0104

BENZO(a)PYRENE

ICSC: 0104

IMPORTANT DATA	**PHYSICAL STATE; APPEARANCE:** PALE-YELLOW CRYSTALS **PHYSICAL DANGERS:** **CHEMICAL DANGERS:** Reacts with strong oxidants causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: Exposure by all routes should be carefully controlled to levels as low as possible A2 (suspected human carcinogen); (ACGIH 2005). MAK: Carcinogen category: 2; Germ cell mutagen group: 2; (DFG 2005).	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion. **INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is carcinogenic to humans. May cause heritable genetic damage to human germ cells. Animal tests show that this substance possibly causes toxicity to human reproduction or development.
PHYSICAL PROPERTIES	Boiling point: 496°C Melting point: 178.1°C Density: 1.4 g/cm³	Solubility in water: none (<0.1 g/100 ml) Vapour pressure : negligible Octanol/water partition coefficient as log Pow: 6.04
ENVIRONMENTAL DATA	The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish, in plants and in molluscs. The substance may cause long-term effects in the aquatic environment.	

N O T E S

Do NOT take working clothes home. Benzo(a)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAHs) in the environment, usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.

ADDITIONAL INFORMATION

ICSC: 0104 **BENZO(a)PYRENE**

International Chemical Safety Cards

BENZO(b)FLUORANTHENE

ICSC: 0720

Benz(e)acephenanthrylene
2,3-Benzofluoroanthene
Benzo(e)fluoranthene
3,4-Benzofluoranthene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0720
CAS # 205-99-2
RTECS # CU1400000
EC # 601-034-00-4
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0720

International Chemical Safety Cards

BENZO(b)FLUORANTHENE

ICSC: 0720

I	**PHYSICAL STATE; APPEARANCE:** COLOURLESS CRYSTALS	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation

M P O R T A N T D A T A	PHYSICAL DANGERS: **CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: A2 (suspected human carcinogen); (ACGIH 2004). MAK: Carcinogen category: 2; (DFG 2004).	of its aerosol and through the skin. **INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is possibly carcinogenic to humans. May cause genetic damage in humans.
PHYSICAL PROPERTIES	Boiling point: 481°C Melting point: 168°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.12
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality.	

N O T E S

Benzo(b)fluoranthene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing benzo(b)fluoranthene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0720 **BENZO(b)FLUORANTHENE**

International Chemical Safety Cards

BENZO(k)FLUORANTHENE

ICSC: 0721

Dibenzo(b,jk)fluorene
8,9-Benzofluoranthene
11,12-Benzofluoranthene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0721
CAS # 207-08-9
RTECS # DF6350000
EC # 601-036-00-5
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0721

International Chemical Safety Cards

BENZO(k)FLUORANTHENE

ICSC: 0721

I M	**PHYSICAL STATE; APPEARANCE:** YELLOW CRYSTALS	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and through the skin.

IMPORTANT DATA (continued)	**PHYSICAL DANGERS:** **CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established. MAK: Carcinogen category: 2; (DFG 2004).	**INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is possibly carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 480°C Melting point: 217°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.84
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality. Bioaccumulation of this chemical may occur in crustacea and in fish.	

N O T E S

Benzo(k)fluoranthene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing benzo(k)fluoranthene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0721 **BENZO(k)FLUORANTHENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

CHRYSENE

ICSC: 1672

National Institute for Occupational Safety and Health

NIOSH

UNEP

Benzoaphenanthrene
1,2-Benzophenanthrene
1,2,5,6-Dibenzonaphthalene
$C_{18}H_{12}$
Molecular mass: 228.3

ICSC # 1672
CAS # 218-01-9
RTECS # GC0700000
UN # 3077
EC # 601-048-00-0
October 12, 2006 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray. Dry powder. Foam. Carbon dioxide.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: P3 filter respirator for toxic particles. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants, Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.	T symbol N symbol R: 45-68-50/53 S: 53-45-60-61 UN Hazard Class: 9 UN Packing Group: III Signal: Warning Aqua-Cancer Suspected of causing cancer Very toxic to aquatic life with long lasting effects Very toxic to aquatic life

SEE IMPORTANT INFORMATION ON BACK

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European

International Chemical Safety Cards

CHRYSENE

ICSC: 1672

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS TO BEIGE CRYSTALS OR POWDER

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
The substance decomposes on burning producing toxic fumes Reacts violently with strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH 2006).
MAK not established.

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is possibly carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 448°C
Melting point: 254 - 256°C
Density: 1.3
g/cm³

Solubility in water:
very poor
Octanol/water partition coefficient as log Pow: 5.9

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in seafood. It is strongly advised that this substance does not enter the environment.

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. This substance does not usually occur as a pure substance but as a component of polyaromatic hydrocarbon (PAH) mixtures. Human population studies have associated PAH's exposure with cancer and cardiovascular diseases.

Transport Emergency Card: TEC (R)-90GM7-III

ADDITIONAL INFORMATION

International Chemical Safety Cards

INDENO(1,2,3-cd)PYRENE

ICSC: 0730

o-Phenylenepyrene
2,3-Phenylenepyrene
$C_{22}H_{12}$
Molecular mass: 276.3

ICSC # 0730
CAS # 193-39-5
RTECS # NK9300000
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	R: S:

SEE IMPORTANT INFORMATION ON BACK

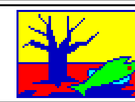
ICSC: 0730

International Chemical Safety Cards

INDENO(1,2,3-cd)PYRENE

ICSC: 0730

I M P		
	PHYSICAL STATE; APPEARANCE: YELLOW CRYSTALS **PHYSICAL DANGERS:**	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and through the skin. **INHALATION RISK:**

O R T A N T D A T A	**CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established. MAK: Carcinogen category: 2; (DFG 2004).	Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is possibly carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 536°C Melting point: 164°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.58
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality. Bioaccumulation of this chemical may occur in fish.	

N O T E S

Indeno(1,2,3-cd)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing Indeno(1,2,3-c,d)pyrene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0730	**INDENO(1,2,3-cd)PYRENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

NAPHTHALENE

ICSC: 0667

Naphthene
$C_{10}H_8$
Molecular mass: 128.18

ICSC # 0667
CAS # 91-20-3
RTECS # QJ0525000
UN # 1334 (solid); 2304 (molten)
EC # 601-052-00-2
April 21, 2005 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 80°C explosive vapour/air mixtures may be formed. Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Headache. Weakness. Nausea. Vomiting. Sweating. Confusion. Jaundice. Dark urine.	Ventilation (not if powder), local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	MAY BE ABSORBED! (Further see Inhalation).	Protective gloves.	Rinse skin with plenty of water or shower.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Convulsions. Unconsciousness. (Further see Inhalation).	Do not eat, drink, or smoke during work. Wash hands before eating.	Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: filter respirator for organic gases and vapours. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants, food and feedstuffs Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 22-40-50/53 S: 2-36/37-46-60-61 UN Hazard Class: 4.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0667

International Chemical Safety Cards

NAPHTHALENE

ICSC: 0667

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
WHITE SOLID IN VARIOUS FORMS , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
On combustion, forms irritating and toxic gases. Reacts with strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 ppm as TWA 15 ppm as STEL (skin) A4 (not classifiable as a human carcinogen); (ACGIH 2005).
MAK: skin absorption (H);
Carcinogen category: 2; Germ cell mutagen group: 3B; (DFG 2004).
OSHA PEL†: TWA 10 ppm (50 mg/m^3)
NIOSH REL: TWA 10 ppm (50 mg/m^3) ST 15 ppm (75 mg/m^3)
NIOSH IDLH: 250 ppm See: 91203

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. See Notes.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance may cause effects on the blood , resulting in lesions of blood cells (haemolysis) See Notes. The effects may be delayed. Exposure by ingestion may result in death. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the blood , resulting in chronic haemolytic anaemia. The substance may have effects on the eyes , resulting in the development of cataract. This substance is possibly carcinogenic to humans.

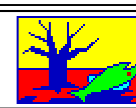
PHYSICAL PROPERTIES

Boiling point: 218°C
Sublimation slowly at room temperature
Melting point: 80°C
Density: 1.16
g/cm3
Solubility in water, g/100 ml at 25°C:
none

Vapour pressure, Pa at 25°C: 11
Relative vapour density (air = 1): 4.42
Flash point:
80°C c.c.
Auto-ignition temperature: 540°C
Explosive limits, vol% in air: 0.9-5.9
Octanol/water partition coefficient as log Pow: 3.3

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.



NOTES

Some individuals may be more sensitive to the effect of naphthalene on blood cells.

Transport Emergency Card: TEC (R)-41S1334 (solid); 41GF1-II+III (solid); 41S2304 (molten)
NFPA Code: H2; F2; R0;

ADDITIONAL INFORMATION

ICSC: 0667 **NAPHTHALENE**

SIGMA-ALDRICH

sigma-aldrich.com

Material Safety Data Sheet

Version 4.0
Revision Date 03/12/2010
Print Date 12/09/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	4,4'-DDD PESTANAL,250 MG (2,2-BIS(4-CHL&
Product Number	:	35486
Brand	:	Fluka
Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone #	:	(314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Toxic by ingestion, Harmful by skin absorption., Possible carcinogen.

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	0
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	Harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane 4,4′-DDD TDE
Formula	:	$C_{14}H_{10}Cl_4$
Molecular Weight	:	320.04 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane			
72-54-8	200-783-0	-	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid

Safety data

pH	no data available
Melting point	94.0 - 96.0 °C (201.2 - 204.8 °F)
Boiling point	193.0 °C (379.4 °F) at 1.3 hPa (1.0 mmHg)
Flash point	no data available
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	< 0.00001 hPa (< 0.00001 mmHg) at 25.0 °C (77.0 °F)
Density	1.38 g/cm3
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 6.02

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg

TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.

TDLo Oral - rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.

TDLo Oral - rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.

TDLo Oral - rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).

LD50 Dermal - rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Skin irritation

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)
no data available

Specific target organ toxicity - repeated exposure (GHS)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Harmful if absorbed through skin. May cause skin irritation.

Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: KI0700000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
Indication of bioaccumulation.

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant: No

IATA
UN-Number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

15. REGULATORY INFORMATION

OSHA Hazards
Toxic by ingestion, Harmful by skin absorption., Possible carcinogen.

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. 2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

MSDS	:	2,2-Bis-(4-chlorophenyl)-1,1-dichloroethylene, 99%
CAS	:	72-55-9
SYNONYMS	:	p,p'-DDE ; ethylene,1,1-dichloro-2,2-bis-(p-chlorophenyl)- ; DDT dehydrochloride ; DDE; 1-1'-(Dichloroethenylidene)bis(4-chlorobenzene)

Catalog of Chemical Suppliers, Buyers, Custom Synthesis Companies And Equipment Manufacturers
[2,2-Bis-(4-chlorophenyl)-1,1-dichloroethylene, 99% 72-55-9]

Suppliers:

Not Available

Buyers:

Not Available

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
72-55-9	2,2-Bis-(4-chlorophenyl)-1,1-dichloroethylene	99	200-784-6

Hazard Symbols: XN
Risk Phrases: 22 33

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Harmful if swallowed. Danger of cumulative effects.Cancer suspect agent.Possible risks of irreversible effects.

Potential Health Effects
Eye:
May cause eye irritation.
Skin:
May cause skin irritation.
Ingestion:
May cause irritation of the digestive tract. May be harmful if swallowed. Ingestion of large amounts may cause liver and/or kidney damage.
Inhalation:
May cause respiratory tract irritation.
Chronic:
May cause cancer according to animal studies. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:
Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion:
If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:
Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire.
Extinguishing Media:
For large fires, use water spray, fog or regular foam. For small fires, use dry chemical, carbon dioxide, water spray or regular foam. Cool containers with flooding quantities of water until well after fire is out.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Use with adequate ventilation.
Storage:
Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits
CAS# 72-55-9:

Personal Protective Equipment

Eyes:
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:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Crystals
Color: white
Odor: None reported.
pH: Not available.
Vapor Pressure: 6.5106 mm Hg @ 20 C
Viscosity: Not available.
Boiling Point: 336 deg C
Freezing/Melting Point: 88.00 - 90.00 deg C
Autoignition Temperature: Not available.
Flash Point: Not available.
Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature:
Solubility in water: 0.010 ppm
Specific Gravity/Density:
Molecular Formula: $C_{14}H_8Cl_4$
Molecular Weight: 318.02

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, dust generation, strong oxidants.
Incompatibilities with Other Materials:
Strong oxidizing agents - strong bases.
Hazardous Decomposition Products:
Hydrogen chloride, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 72-55-9: KV9450000
LD50/LC50:
CAS# 72-55-9: Oral, mouse: LD50 = 700 mg/kg; Oral, rat: LD50 = 880 mg/kg.
Carcinogenicity:
2,2-Bis-(4-chlorophenyl)-1,1-dichloroethylene -
California: carcinogen, initial date 1/1/89

Other:
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Estimated BCF value = 8,300 based on water solubility. Estimated Koc value = 8,300. There was no movement of DDE reported in soil column mobility experiments.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.

**** SECTION 14 - TRANSPORT INFORMATION ****

IATA
Not regulated as a hazardous material.
IMO
Not regulated as a hazardous material.
RID/ADR
Not regulated as a hazardous material.
USA RQ: CAS# 72-55-9: 1 lb final RQ; 0.454 kg final RQ

**** SECTION 15 - REGULATORY INFORMATION ****

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.
R 33 Danger of cumulative effects.
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.
WGK (Water Danger/Protection)
CAS# 72-55-9: 3
Canada
None of the chemicals in this product are listed on the DSL/NDSL list.
CAS# 72-55-9 is listed on Canada's Ingredient Disclosure List.
US FEDERAL
TSCA
CAS# 72-55-9 is not listed on the TSCA inventory.
It is for research and development use only.

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/28/1998 Revision #3 Date: 3/18/2003

ALL MSDS PAGES IN THIS GROUP

4-Cyano-4-Phenylpiperidine Hydrochloride, 99% (TLC)	51304-58-6
Methanesulfonamide	3144-09-0
gamma-Octanoic lactone, 98%	104-50-7
Cis,cis,cis,cis-1,2,3,4-cyclopentane- tetracarboxylic dianhydride,	4802-47-5
Tetrachloroethylene Carbonate, 98+%	22432-68-4
Oxamic Acid, 98%	471-47-6
1O,11-Dihydro-5H-Dibenzo(A,D)-Cycloheptene, 98%	833-48-7
Thallium (I) Sulfate, 99.9+%	7446-18-6
N-(2,6-Dimethylphenylcarbamoyl-Methyl)-Iminodiacetic Acid, 99%	59160-29-1
P-(Dimethylamino)cinnamic Acid, 99%	1552-96-1
Biebrich Scarlet, 99% (UV-VIS)	4196-99-0
4-Chlorobenzenediazonium hexafluoro- phosphate	1582-27-0
Ammonium hexachloroiridate(IV), 99.99%	16940-92-4
Methylamine-d2 deuteriochloride, 98+ atom % D	593-51-1
2,2-Bis-(4-chlorophenyl)-1,1-dichloroethylene, 99%	72-55-9
Nitro red	56431-61-9
Methyl 2,3-dichlorobenzoate, 98+%	2905-54-6
Isopropyl Bromoacetate, 98% (GC)	29921-57-1
1-Iodo-4-Nitrobenzene, 99%	636-98-6
4-Ethylcyclohexanol, 99% cis/trans mixture	4534-74-1
Fluorescamine	38183-12-9
Tris(2,2,6,6-Tetramethyl-3,5-Heptanedionato)Dysprosium(III), 99+%	15522-69-7
3-Amino-2,2,5,5-Tetramethyl-1-Pyrrolidinyloxy, 99% (Titr.)	34272-83-8
3,4-Dihydroxyphenylacetic Acid,98%	102-32-9

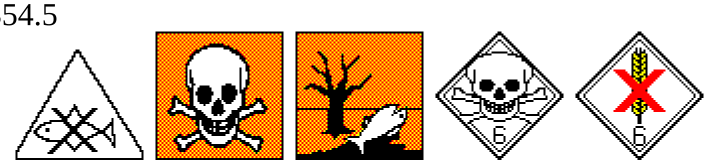
International Chemical Safety Cards

DDT

ICSC: 0034

Dichlorodiphenyltrichloroethane
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane
2,2-bis(p-Chlorophenyl)-1,1,1-trichloroethane
1,1'-(2,2,2-Trichloroethylidene)bis(4-chlorobenzene)
p,p'-DDT
$C_{14}H_9Cl_5$
Molecular mass: 354.5

ICSC # 0034
CAS # 50-29-3
RTECS # KJ3325000
UN # 2761
EC # 602-045-00-7
April 20, 2004 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Cough.	Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness.	Safety goggles, or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Tremors. Diarrhoea. Dizziness. Headache. Vomiting. Numbness. Paresthesias. Hyperexcitability. Convulsions.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Do NOT let this chemical enter the environment. Sweep spilled substance into sealable non-metallic containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: P3 filter respirator for toxic particles.	Provision to contain effluent from fire extinguishing. Separated from iron, aluminum and its salts, food and feedstuffs See Chemical Dangers.	Do not transport with food and feedstuffs. Severe marine pollutant. T symbol N symbol R: 25-40-48/25-50/53 S: 1/2-22-36/37-45-60-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0034

International Chemical Safety Cards

DDT

ICSC: 0034

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS CRYSTALS WHITE POWDER.
TECHNICAL PRODUCT IS WAXY SOLID.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
On combustion, forms toxic and corrosive fumesincludinghydrogen chloride. Reacts with aluminium and iron.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 1 mg/m³ as TWA A3 (ACGIH 2004).
MAK: 1 mg/m³ H
Peak limitation category: II(8)
(DFG 2003).
OSHA PEL: TWA 1 mg/m^3 skin
NIOSH REL: Ca TWA 0.5 mg/m^3 See Appendix A
NIOSH IDLH: Ca 500 mg/m^3 See: 50293

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly especially if powdered.

EFFECTS OF SHORT-TERM EXPOSURE:
May cause mechanical irritation. The substance may cause effects on the central nervous system , resulting in convulsions and respiratory depression Exposure at high levels may result in death. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the central nervous system and liver. This substance is possibly carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 260°C
Melting point: 109°C
Density: 1.6
g/cm3
Solubility in water: poor
Octanol/water partition coefficient as log Pow: 6.36

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment; special attention should be given to birds. Bioaccumulation of this chemical may occur along the food chain, for example in milk and aquatic organisms. This substance does enter the environment under normal use. Great care, however, should be given to avoid any additional release, e.g. through inappropriate disposal.

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home. Consult national legislation. Agritan, Azotox, Anofex, Ixodex, Gesapon, Gesarex, Gesarol, Guesapon, Clofenotane, Zeidane, Dicophane, Neocid are trade names.

Transport Emergency Card: TEC (R)-61GT7-III

ADDITIONAL INFORMATION

ICSC: 0034 **DDT**

IMPORTANT LEGAL NOTICE:

International Chemical Safety Cards

ARSENIC

ICSC: 0013

Grey arsenic
As
Atomic mass: 74.9

ICSC # 0013
CAS # 7440-38-2
RTECS # CG0525000
UN # 1558
EC # 033-001-00-X
October 18, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with strong oxidizers. NO contact with hot surfaces.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Risk of fire and explosion is slight when exposed to hot surfaces or flames in the form of fine powder or dust.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat. Shortness of breath. Weakness. See Ingestion.	Closed system and ventilation.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Nausea. Vomiting. Burning sensation in the throat and chest. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment.	Separated from strong oxidants, acids, halogens, food and feedstuffs. Well closed.	Do not transport with food and feedstuffs. Marine pollutant. T symbol N symbol R: 23/25-50/53 S: 1/2-20/21-28-45-60-61 UN Hazard Class: 6.1 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0013

International Chemical Safety Cards

ARSENIC

ICSC: 0013

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS, BRITTLE, GREY, METALLIC-LOOKING CRYSTALS.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens, causing fire and explosion hazard. Reacts with acids to produce

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.01 mg/m³ as TWA A1 (confirmed human carcinogen); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004).

OSHA PEL: 1910.1018 TWA 0.010 mg/m^3

NIOSH REL: Ca C 0.002 mg/m^3 15-minute See Appendix A

NIOSH IDLH: Ca 5 mg/m^3 (as As) See: 7440382

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly, when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract. The substance may cause effects on the gastrointestinal tract cardiovascular system central nervous system kidneys , resulting in severe gastroenteritis, loss of fluid, and electrolytes, cardiac disorders shock convulsions and kidney impairment Exposure above the OEL may result in death. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the mucous membranes, skin, peripheral nervous system liver bone marrow , resulting in pigmentation disorders, hyperkeratosis, perforation of nasal septum, neuropathy, liver impairment anaemia This substance is carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

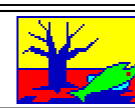
PHYSICAL PROPERTIES

Sublimation point: 613°C
Density: 5.7 g/cm³

Solubility in water: none

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. It is strongly advised that this substance does not enter the environment.



NOTES

The substance is combustible but no flash point is available in literature. Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. Refer also to cards for specific arsenic compounds, e.g., Arsenic pentoxide (ICSC 0377), Arsenic trichloride (ICSC 0221), Arsenic trioxide (ICSC 0378), Arsine (ICSC 0222).

Transport Emergency Card: TEC (R)-61GT5-II

ADDITIONAL INFORMATION

ICSC: 0013 **ARSENIC**

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

Barium sulphate
Blanc fixe
Artificial barite
$BaSO_4$
Molecular mass: 233.43

ICSC # 0827
CAS # 7727-43-7
RTECS # CR0600000
October 20, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P1 filter respirator for inert particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0827

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

<table>
<tr><td>IMPORTANT DATA</td><td>PHYSICAL STATE; APPEARANCE:
ODOURLESS TASTELESS, WHITE OR YELLOWISH CRYSTALS OR POWDER.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Reacts violently with aluminium powder.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 mg/m³ as TWA; (ACGIH 2004).
MAK: (Inhalable fraction) 4 mg/m³; (Respirable fraction) 1.5 mg/m³; (DFG 2004).
OSHA PEL†: TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)
NIOSH REL: TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)
NIOSH IDLH: N.D. See: IDLH INDEX</td><td>ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol.

INHALATION RISK:
Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Lungs may be affected by repeated or prolonged exposure to dust particles , resulting in baritosis (a form of benign pneumoconiosis).</td></tr>
<tr><td>PHYSICAL PROPERTIES</td><td>Melting point (decomposes): 1600°C
Density: 4.5
g/cm³</td><td>Solubility in water: none</td></tr>
<tr><td>ENVIRONMENTAL DATA</td><td></td><td></td></tr>
</table>

N O T E S

Occurs in nature as the mineral barite; also as barytes, heavy spar. Card has been partly updated in October 2005. See section Occupational Exposure Limits.

ADDITIONAL INFORMATION

ICSC: 0827 **BARIUM SULFATE**

International Chemical Safety Cards

CADMIUM

ICSC: 0020

Cd
Atomic mass: 112.4

ICSC # 0020
CAS # 7440-43-9
RTECS # EU9800000
UN # 2570
EC # 048-002-00-0
April 22, 2005 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable in powder form and spontaneously combustible in pyrophoric form. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with heat or acid(s).	Dry sand. Special powder. NO other agents.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Headache. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Remove all ignition sources. Sweep spilled substance into containers. Carefully collect remainder, then remove to safe place.	Fireproof. Dry. Keep under inert gas. Separated from ignition sources, oxidants acids, food and feedstuffs	Airtight. Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. Note: E T+ symbol N symbol R: 45-26-48/23/25-62-63-68-50/53 S: 53-45-60-61 UN Hazard Class: 6.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0020

International Chemical Safety Cards

CADMIUM

ICSC: 0020

IMPORTANT DATA	
PHYSICAL STATE; APPEARANCE: SOFT BLUE-WHITE METAL LUMPS OR GREY POWDER. MALLEABLE. TURNS BRITTLE ON EXPOSURE TO 80°C AND TARNISHES ON EXPOSURE TO MOIST AIR. **PHYSICAL DANGERS:** Dust explosion possible if in powder or granular form, mixed with air. **CHEMICAL DANGERS:** Reacts with acids forming flammable/explosive gas (hydrogen - see ICSC0001.) Dust reacts with oxidants, hydrogen azide, zinc, selenium or tellurium , causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: (Total dust) 0.01 mg/m³ (Respirable fraction) 0.002 mg/m³ as TWA A2 (suspected human carcinogen); BEI issued (ACGIH 2005). MAK: skin absorption (H); Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004). OSHA PEL*: 1910.1027 TWA 0.005 mg/m^3 *Note: The PEL applies to all Cadmium compounds (as Cd). NIOSH REL*: Ca See Appendix A *Note: The REL applies to all Cadmium compounds (as Cd). NIOSH IDLH: Ca 9 mg/m^3 (as Cd) See: IDLH INDEX	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and by ingestion. **INHALATION RISK:** A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered. **EFFECTS OF SHORT-TERM EXPOSURE:** The fume is irritating to the respiratory tract Inhalation of fume may cause lung oedema (see Notes). Inhalation of fumes may cause metal fume fever. The effects may be delayed. Medical observation is indicated. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Lungs may be affected by repeated or prolonged exposure to dust particles. The substance may have effects on the kidneys , resulting in kidney impairment This substance is carcinogenic to humans.

PHYSICAL PROPERTIES	Boiling point: 765°C Melting point: 321°C Density: 8.6 g/cm3	Solubility in water: none Auto-ignition temperature: (cadmium metal dust) 250°C
ENVIRONMENTAL DATA		

NOTES

Reacts violently with fire extinguishing agents such as water,foam,carbon dioxideand halons. Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Do NOT take working clothes home. Cadmium also exists in a pyrophoric form (EC No. 048-011-00-X), which bears the additional EU labelling symbol F, R phrase 17, and S phrases 7/8 and 43. UN numbers and packing group will vary according to the physical form of the substance.

ADDITIONAL INFORMATION

ICSC: 0020 **CADMIUM**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

Chrome
Cr
Atomic mass: 52.0
(powder)

ICSC # 0029
CAS # 7440-47-3
RTECS # GB4200000
October 27, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions.	No open flames if in powder form.	In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION		Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough.	Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P2 filter respirator for harmful particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0029

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

I

M

P

PHYSICAL STATE; APPEARANCE:
GREY POWDER

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

ROUTES OF EXPOSURE:

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed.

<table>
<tr><td>O
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A</td><td>CHEMICAL DANGERS:
Chromium is a catalytic substance and may cause reaction in contact with many organic and inorganic substances , causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: (as Cr metal, Cr(III) compounds) 0.5 mg/m³ as TWA A4 (ACGIH 2004).
MAK not established.
OSHA PEL*: TWA 1 mg/m³ See Appendix C *Note: The PEL also applies to insoluble chromium salts.
NIOSH REL: TWA 0.5 mg/m³ See Appendix C
NIOSH IDLH: 250 mg/m³ (as Cr) See: 7440473</td><td>EFFECTS OF SHORT-TERM EXPOSURE:
May cause mechanical irritation tothe eyesandthe respiratory tract.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</td></tr>
<tr><td>PHYSICAL PROPERTIES</td><td>Boiling point: 2642°C
Melting point: 1900°C
Density: 7.15
g/cm³</td><td>Solubility in water:
none</td></tr>
<tr><td>ENVIRONMENTAL DATA</td><td colspan="2"></td></tr>
<tr><td colspan="3">N O T E S</td></tr>
<tr><td colspan="3">The surface of the chromium particles is oxidized to chromium(III)oxide in air. See ICSC 1531 Chromium(III) oxide.</td></tr>
</table>

<table>
<tr><td colspan="2">ADDITIONAL INFORMATION</td></tr>
<tr><td></td><td></td></tr>
<tr><td>ICSC: 0029</td><td>CHROMIUM</td></tr>
</table>

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International Chemical Safety Cards

COPPER

ICSC: 0240

Cu
(powder)

ICSC # 0240
CAS # 7440-50-8
RTECS # GL5325000
September 24, 1993 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Special powder, dry sand, NO other agents.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough. Headache. Shortness of breath. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers. Carefully collect remainder. Then remove to safe place. (Extra personal protection: P2 filter respirator for harmful particles).	Separated from - See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0240

International Chemical Safety Cards

COPPER

ICSC: 0240

I

M

P

PHYSICAL STATE; APPEARANCE:
RED POWDER, TURNS GREEN ON EXPOSURE TO MOIST AIR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

O R T A N T D A T A	Shock-sensitive compounds are formed with acetylenic compounds, ethylene oxides and azides. Reacts with strong oxidants like chlorates, bromates and iodates, causing explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 0.2 mg/m³ fume (ACGIH 1992-1993). TLV (as Cu, dusts & mists): 1 mg/m³ (ACGIH 1992-1993). Intended change 0.1 mg/m³ Inhal., A4 (not classifiable as a human carcinogen); MAK: 0.1 mg/m³ (Inhalable fraction) Peak limitation category: II(2) Pregnancy risk group: D (DFG 2005). OSHA PEL*: TWA 1 mg/m^3 *Note: The PEL also applies to other copper compounds (as Cu) except copper fume. NIOSH REL*: TWA 1 mg/m^3 *Note: The REL also applies to other copper compounds (as Cu) except Copper fume. NIOSH IDLH: 100 mg/m^3 (as Cu) See: 7440508	**EFFECTS OF SHORT-TERM EXPOSURE:** Inhalation of fumes may cause metal fume fever. See Notes. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact may cause skin sensitization.
PHYSICAL PROPERTIES	Boiling point: 2595°C Melting point: 1083°C Relative density (water = 1): 8.9	Solubility in water: none
ENVIRONMENTAL DATA		

N O T E S

The symptoms of metal fume fever do not become manifest until several hours.

ADDITIONAL INFORMATION

ICSC: 0240 **COPPER**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

LEAD

ICSC: 0052

Lead metal
Plumbum
Pb
Atomic mass: 207.2
(powder)

ICSC # 0052
CAS # 7439-92-1
RTECS # OF7525000
October 08, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	PREVENT DISPERSION OF DUST! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.	Separated from food and feedstuffs incompatible materials See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0052

International Chemical Safety Cards

LEAD

ICSC: 0052

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
BLUISH-WHITE OR SILVERY-GREY SOLID IN VARIOUS FORMS. TURNS TARNISHED ON EXPOSURE TO AIR.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
On heating, toxic fumes are formed. Reacts with oxidants. Reacts with hot concentrated nitric acid, boiling concentrated hydrochloric acid and sulfuric acid. Attacked by pure water and by weak organic acids in the presence of oxygen.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.05 mg/m^3 A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 3B; Germ cell mutagen group: 3A; (DFG 2004).
EU OEL: as TWA 0.15 mg/m^3 (EU 2002).
OSHA PEL*: 1910.1025 TWA 0.050 mg/m^3 See Appendix C *Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH REL*: TWA 0.050 mg/m^3 See Appendix C *Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH IDLH: 100 mg/m^3 (as Pb) See: 7439921

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the blood bone marrow central nervous system peripheral nervous system kidneys , resulting in anaemia, encephalopathy (e.g., convulsions), peripheral nerve disease, abdominal cramps and kidney impairment. Causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 1740°C
Melting point: 327.5°C
Density: 11.34 g/cm3
Solubility in water: none

ENVIRONMENTAL DATA

Bioaccumulation of this chemical may occur in plants and in mammals. It is strongly advised that this substance does not enter the environment.

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-51S1872

ADDITIONAL INFORMATION

ICSC: 0052 **LEAD**

IMPORTANT LEGAL NOTICE:

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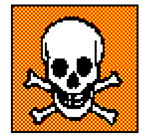
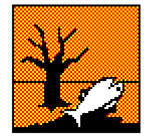
International Chemical Safety Cards

MERCURY

ICSC: 0056

Quicksilver
Liquid silver
Hg
Atomic mass: 200.6


ICSC # 0056
CAS # 7439-97-6
RTECS # OV4550000
UN # 2809
EC # 080-001-00-0
April 22, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Risk of fire and explosion.		In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Abdominal pain. Cough. Diarrhoea. Shortness of breath. Vomiting. Fever or elevated body temperature.	Local exhaust or breathing protection.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
•SKIN	MAY BE ABSORBED! Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
•EYES		Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area in case of a large spill! Consult an expert! Ventilation. Collect leaking and spilled liquid in sealable non-metallic containers as far as possible. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Chemical protection suit including self-contained breathing apparatus.	Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs Well closed.	Special material. Do not transport with food and feedstuffs. T symbol N symbol R: 23-33-50/53 S: 1/2-7-45-60-61 UN Hazard Class: 8 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0056

International Chemical Safety Cards

MERCURY

ICSC: 0056

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS, HEAVY AND MOBILE SILVERY LIQUID METAL.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with ammonia and halogens causing fire and explosion hazard. Attacks aluminium and many other metals forming amalgams.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.025 mg/m³ as TWA (skin) A4 BEI issued (ACGIH 2004).
MAK: 0.1 mg/m³ Sh
Peak limitation category: II(8) Carcinogen category: 3B (DFG 2003).
OSHA PEL†: C 0.1 mg/m^3
NIOSH REL: Hg Vapor: TWA 0.05 mg/m^3 skin
Other: C 0.1 mg/m^3 skin
NIOSH IDLH: 10 mg/m^3 (as Hg) See: 7439976

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour and through the skin , also as a vapour!

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the skin. Inhalation of the vapours may cause pneumonitis. The substance may cause effects on the central nervous systemandkidneys. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the central nervous system kidneys , resulting in irritability, emotional instability, tremor, mental and memory disturbances, speech disorders. Danger of cumulative effects. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

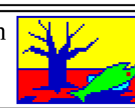
PHYSICAL PROPERTIES

Boiling point: 357°C
Melting point: -39°C
Relative density (water = 1): 13.5
Solubility in water:
none

Vapour pressure, Pa at 20°C: 0.26
Relative vapour density (air = 1): 6.93
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.009

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. In the food chain important to humans, bioaccumulation takes place, specifically in fish.



NOTES

Depending on the degree of exposure, periodic medical examination is indicated. No odour warning if toxic concentrations are present. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-80GC9-II+III

ADDITIONAL INFORMATION

ICSC: 0056 MERCURY

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

National Institute for Occupational Safety and Health
NIOSH

Blue powder
Merrillite
Zn
Atomic mass: 65.4
(powder)

ICSC # 1205
CAS # 7440-66-6
RTECS # ZG8600000
UN # 1436 (zinc powder or dust)
EC # 030-001-00-1
October 24, 1994 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with acid(s), base (s) and incompatible substances (see Chemical Dangers).	Special powder, dry sand, NO other agents. NO water.
EXPLOSION	Risk of fire and explosion on contact with acid(s), base(s), water and incompatible substances.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Prevent deposition of dust.	In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water.
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE!	
•INHALATION	Metallic taste and metal fume fever. Symptoms may be delayed (see Notes).	Local exhaust.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Extinguish or remove all ignition sources. Do NOT wash away into sewer. Sweep spilled substance into containers. then remove to safe place. Personal protection: self-contained breathing apparatus.	Fireproof. Separated from acids, bases oxidants Dry.	Airtight. F symbol N symbol R: 15-17-50/53 S: 2-7/8-43-46-60-61 UN Hazard Class: 4.3 UN Subsidiary Risks: 4.2

SEE IMPORTANT INFORMATION ON BACK

ICSC: 1205

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

IMPORTANT DATA	**PHYSICAL STATE; APPEARANCE:** ODOURLESS GREY TO BLUE POWDER. **PHYSICAL DANGERS:** Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc. **CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. The substance is a strong reducing agent and reacts violently with oxidants. Reacts with water and reacts violently with acids and bases forming flammable/explosive gas (hydrogen - see ICSC0001) Reacts violently with sulfur, halogenated hydrocarbons and many other substances causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established.	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation and by ingestion. **INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed. **EFFECTS OF SHORT-TERM EXPOSURE:** Inhalation of fumes may cause metal fume fever. The effects may be delayed. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact with skin may cause dermatitis.
PHYSICAL PROPERTIES	Boiling point: 907°C Melting point: 419°C Relative density (water = 1): 7.14	Solubility in water: reaction Vapour pressure, kPa at 487°C: 0.1 Auto-ignition temperature: 460°C
ENVIRONMENTAL DATA		

N O T E S

Zinc may contain trace amounts of arsenic, when forming hydrogen, may also form toxic gas arsine (see ICSC 0001 and ICSC 0222). Reacts violently with fire extinguishing agents such as water, halons, foam and carbon dioxide. The symptoms of metal fume fever do not become manifest until several hours later. Rinse contaminated clothes (fire hazard) with plenty of water.

Transport Emergency Card: TEC (R)-43GWS-II+III
NFPA Code: H0; F1; R1;

ADDITIONAL INFORMATION

ICSC: 1205 **ZINC POWDER**

APPENDIX D

HOSPITAL INFORMATION AND MAP

FIELD ACCIDENT REPORT

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME ______________________________ PROJECT. NO.____________

Date of Accident ___________________ Time _______ Report By ________________

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured _______________________________________ DOB or Age ________

How Long Employed ____

Names of Witnesses ____

____

Description of Accident ____

____

____

Action Taken ____

____

____

Did the Injured Lose Any Time? _______ How Much (Days/Hrs.)? __________________

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? ____

____

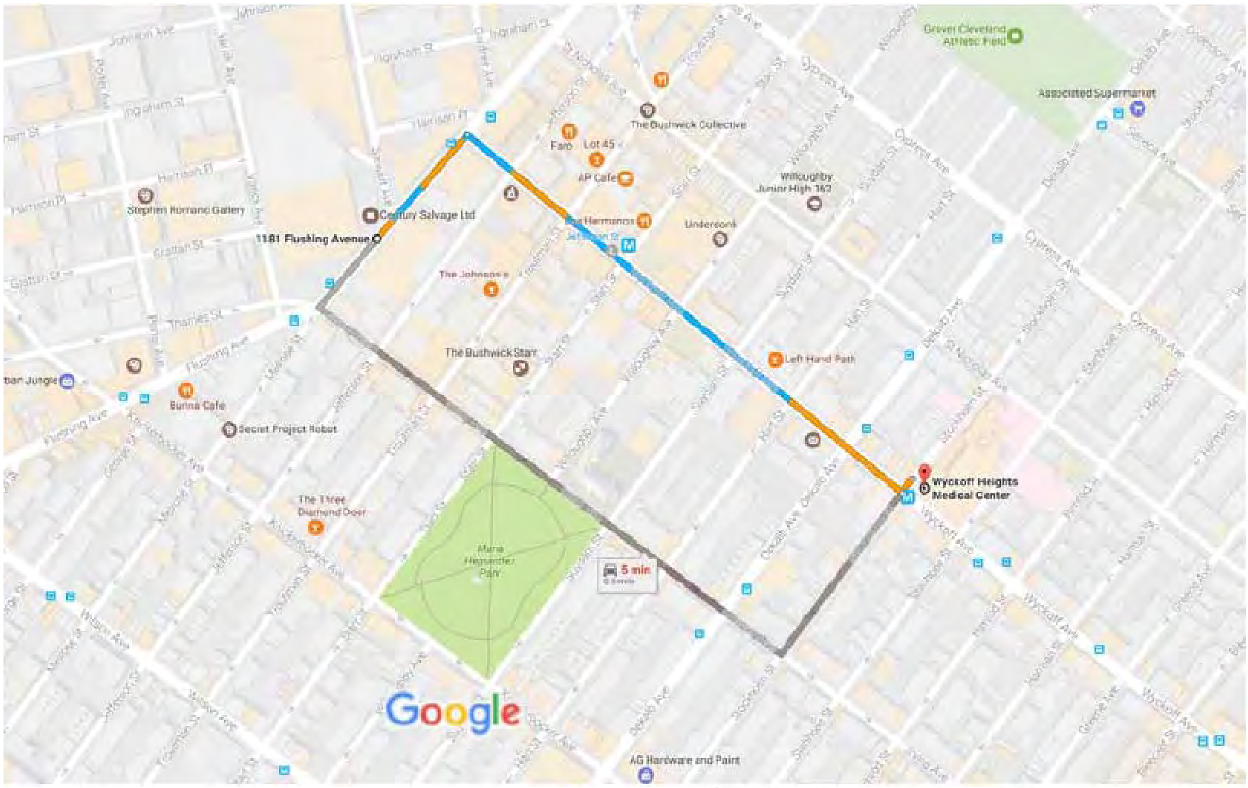
(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

HOSPITAL INFORMATION AND MAP

The hospital nearest the site is:

WYCKOFF HEIGHTS MEDICAL CENTER
374 Stockholm St, Brooklyn, NY 11237
718-963-7272
0.5 Miles – About 4 Minutes



Map data ©2017 Google 200 ft

1181 Flushing Ave

Brooklyn, NY 11237

1. Head northeast on Flushing Ave toward Stewart Ave

495 ft

2. Turn right onto Wyckoff Ave

0.4 mi

3. Turn left onto Stockholm St
   Destination will be on the right

62 ft

Wyckoff Heights Medical Center

374 Stockholm St, Brooklyn, NY 11237

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

ATTACHMENT C
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN
FORMER UNIVERSAL SCRAP METAL PROCESSOR CORP.
1181 Flushing Avenue, Brooklyn, NY

Prepared on behalf of:

Flushing Stewart LLC
266 Broadway Suite 301
Brooklyn, NY 11211

Prepared by:

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
RIDGE, NY 11961

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QUALITY ASSURANCE PROJECT PLAN
FORMER UNIVERSAL SCRAP METAL PROCESSOR CORP.
1181 Flushing Avenue, Brooklyn, NY

TABLES

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the approved work plan.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his / her particular work and of the overall project. The EBC Project Director, Charles Sosik will be directly responsible to the client for the overall project conduct and quality assurance/quality control (QA/QC) for the project. The Project Director will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities. As Project Director Mr. Sosik will also serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- conduct periodic field and sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator and/or the preparer of the DUSR to resolve problems.

Keith W. Butler will serve as the Project Manager and will be responsible for implementation of the IRM and coordination with field sampling crews and subcontractors. Reporting directly to the Project Manager will be the Field Operations Officer, Kevin Waters; who will serve as the on-Site qualified environmental professional who will record observations, direct the field crew and be responsible for the collection and handling of all samples.

1.1 Organization

Project QA will be maintained under the direction of the Project Manager, in accordance with this QAPP. QC for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager
.

GENERAL RESPONSIBILITY	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Supervision of Field Crew, sample collection and handling	K. Waters, EBC
Project Manager	Implementation of the RI according to the RIWP.	K. Butler, EBC
Laboratory Analysis	Analysis of soil samples by NYSDEC ASP methods Laboratory	NYSDOH-Certified Laboratory
Data review	Review for completeness and compliance	3rd party validation

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2.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

2.1 Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

In this plan, Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.

- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA / QC Requirements for Analytical Laboratory

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory that is certified in the appropriate categories. Data generated from the laboratory will be used to evaluate contaminants such as chlorinated and other volatile organic compounds (VOCs) in soil, soil gas and groundwater. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005) and useful for comparison with clean-up objectives. The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in the most recent version of NYSDEC ASP 07/2005).

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hrs by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

2.2.3 Method Blanks

Method blank or preparation blank is prepared from an analyte·free matrix which includes the same reagents, internal standards and surrogate standards as me related samples. II is carried through the

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entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hr period during the analysis of samples for volatiles. An acceptable method blank will contain less than two (2) times the CRQL of methylene chloride, acetone and 2-butanone. For all other target compounds, the method blank must contain less than or equal to the CRQL of any single target compound. For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

2.2.4 Trip Blanks.

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized. laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day. Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will be not opened during this procedure.) A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NY5DEC ASP protocols for samples falling within the quantification limits without dilution.

2.2.6 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Blank (MS/MSDIMSB) Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring recoveries. The MS / MSD / MSB samples will be analyzed for each group of samples of a similar matrix at a rate of 5% (one for every 20 field samples). The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD. 10% of the samples of each matrix should be sampled and anlayzed as Duplicates.

2.3 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = \frac{SSR - SR}{SA} \times 100$$

Where:
SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

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2.4 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2} \times 100$$

Where:
RPD = relative percent difference
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

2.6 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial Investigation Work Plan.

2.7 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP Category B reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory’s ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

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2.8 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

2.9 Sample Handling and Decontamination Procedures

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or cold-pak(s) to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for both soil and groundwater samples (if collected), eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. No field filtering will be conducted; any required filtration will be completed by the laboratory.

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil;
- Rinse with tap water;
- Wash with alconox® detergent solution and scrub ;
- Rinse with tap water;
- Rinse with distilled or deionized water.

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory and duplicate samples will be collected at a rate of one per ten samples submitted to the laboratory.

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3.0 ANALYTICAL PROCEDURES

3.1 Laboratory Analysis

Samples will be analyzed by the NYSDOH ELAP laboratory for one or more of the following parameters: VOCs + TICs in soil / groundwater by USEPA Method 8260C, SVOCs + TICs in soil / groundwater by USEPA Method 8270D, Target Analyte List (TAL) Metals 6010 in soil and groundwater, pesticides / PCBs by USEPA Method 8081B/8082A and VOCs in air by USEPA Method TO15 (Table 2). If any modifications or additions to the standard procedures are anticipated and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by EBC's PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five (5).

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4.0 DATA REDUCTION, REVIEW, AND REPORTING

4.1 Overview

The process of data reduction, review, and reporting ensures the assessments or a conclusion based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

4.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Note that if waste characterization samples are analyzed they will be in results only format and will not be evaluated in the DUSR.

Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs.

Following receipt of the laboratory analytical results by EBC, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

4.3 Laboratory Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Note that waste characterization samples, if analyzed, will be in results only format and will not be evaluated in the DUSR.

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5.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the EBC PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the EBC PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

TABLE 1
SUMMARY OF
SAMPLING PROGRAM RATIONALE AND ANALYSIS

Matrix	Location	Approximate Number of Samples	Frequency	Rationale for Sampling	Laboratory Analysis	Duplicates	Matrix Spikes	Spike Duplicates	Trip Blanks
Soil	Site Wide Excavation	25	1 per 900 square feet of excavation base	Endpoint Verification of footing excavations	VOCs EPA Method 8260B, pesticides, SVOCs EPA Method 8270, Pesticides / PCBs by EPA 8081/8082, and TAL Metals EPA 6010	1 per day	1 per 20 samples	1 per 20 samples	1 per trip
	Excavated Petroleum Impacted Soil	2	1 per 800 cy	Waste Characterization for disposal if not stockpiled on site	VOCs EPA Method 8260B, PAHs EPA Method 8270, RCRA metals, pesticides and PCBs by EPA 8081/8082, other as per disposal facility	0	0	0	0
Soil	Excavated Historic Fill Material	7	1 per 800 cy	Waste Characterization for disposal if not stockpiled on site	VOCs EPA Method 8260B, PAHs EPA Method 8270, RCRA metals, pesticides and PCBs by EPA 8081/8082, other as per disposal facility	0	0	0	0
	Excavated Uncontaminated Native Soil	21	7 Grabs for 1st 1,000 cy, 2 for each additional 1,000 cy As per CP51	Clean Verification for disposal if not stockpiled.	VOCs EPA Method 8260B	0	0	0	0
Soil	Excavated Uncontaminated Native Soil	8	2 Composites for 1st 1,000 cy, 1 for each additional 1,000 cy As per CP51	Clean Verification for disposal if not stockpiled.	SVOCs, pesticides/and PCBs by EPA 8081/8082, and RCRA metals.	0	0	0	0

ATTACHMENT D
Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

FORMER UNIVERSAL SCRAP METAL PROCESSORS CORP.
1181 FLUSHING AVENUE
BROOKLYN, NY

APRIL - 2017

COMMUNITY AIR MONITORING PLAN
TABLE OF CONTENTS
1181 Flushing Avenue, Brooklyn, NY

APPENDICES

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for the excavation and construction activities to be performed under a Remedial Action Work Plan (RAWP) at 1181 Flushing Avenue, in Brooklyn, NY. The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the investigation activities) from potential airborne contaminant releases resulting from excavation activities at the site.

Compliance with this CAMP is required during all activities associated with soil disturbance activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include excavation and loading of affected soil. This CAMP has been prepared to ensure that remedial activities do not adversely affect passersby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of site-related contaminants to off-site areas.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air.

2.0 AIR MONITORING

Petroleum volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and pesticides are the constituents of concern at the Site. The appropriate method to monitor air for these constituents during remediation activities is through real-time VOC and air particulate (dust) monitoring.

2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. When the excavation area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals at the downwind location and will take into account the locations of ventilation system intakes of nearby structures.

Fugitive respirable dust will be monitored using a MiniRam Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Ionscience 3000 photoionization detector (PID), or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will 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. The monitoring work should be performed using equipment appropriate to measure 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.

- 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.

- 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.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in Appendix A, will be completed.

3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remediation activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- limiting the excavation size;
- limiting the drop-height when loading soil into trucks;
- spraying chemical odorants onto the soil;
- covering soil stockpiles with 6-mil plastic sheeting or tarps;
- hauling waste materials in properly tarped containers; and/or
- applying vapor suppressant foam.

4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during excavation and loading activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM_{10}) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m^3$). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ 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 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report as shown in **Appendix A** will be completed.

4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu g/m^3$ at any time during remediation activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- limiting the excavation size;
- spraying water onto the excavation faces and equipment;
- covering soil stockpiles with plastic sheeting or tarps;
- Use of gravel paths / roadways;
- hauling waste materials in properly tarped containers; and/or
- limiting vehicle speeds onsite.

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 $\mu g/m^3$ greater than the upwind levels.

There may also be situations where the dust is generated by remediation activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 $\mu g/m^3$, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

5.3 Data Review

The SSO will interpret all monitoring data based the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH.

APPENDIX A
ACTION LIMIT REPORT

CAMP
ACTION LIMIT REPORT

Project Location: ______________________________

Date: ____________________ Time: ____________________

Name: ____________________

Contaminant: ____________________ PM-10: __________ VOC: ____________________

Wind Speed: ____________________ Wind Direction: ____________________

Temperature: ____________________ Barometric Pressure: __________

DOWNWIND DATA

Monitor ID #: ____________________ Location: __________ Level Reported: ____________________

Monitor ID#: ____________________ Location: __________ Level Reported: ____________________

UPWIND DATA

Monitor ID #: ____________________ Location: __________ Level Reported: ____________________

Monitor ID#: ____________________ Location: __________ Level Reported: ____________________

BACKGROUND CORRECTED LEVELS

Monitor ID #: Location: ____________________ Level Reported: Level Reported: ____________________

ACTIONS TAKEN

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ATTACHMENT E
Citizen Participation Plan

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

FORMER UNIVERSAL SCRAP METAL PROCESSORS CORP.

1181 Flushing Avenue
Brooklyn, NY 11237

July 2015

Contents

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Flushing Stewart LLC**
Site Name: **Former Universal Scrap Processors Corp. (“Site”)**
Site Address: **1181 Flushing Avenue Avenue**
Site County: **Kings**
Site Number: **C224210**

1. What is New York’s Brownfield Cleanup Program?

New York’s Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as “brownfields” so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html.

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision-makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;

- Improving public access to, and understanding of, issues and information related to a particular site and that Site’s investigation and cleanup process;

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process;

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community; and

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision-making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the Site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the Site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the Site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC website. If this occurs, NYSDEC will inform the public in fact sheets distributed about the Site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the Site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the Site is located;
- Residents, owners, and occupants of the Site and properties adjacent to the Site;
- The public water supplier which services the area in which the Site is located;
- Any person who has requested to be placed on the site contact list;

- The administrator of any school or day care facility located on or near the Site for purposes of posting and/or dissemination of information at the facility; and
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the Site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

- **Document repositories** allow the public to access and review project documents including investigation and cleanup work plans and final reports.

The public is encouraged to contact project staff at any time during the Site's investigation and cleanup process with questions, comments, or requests for information. This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the Site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the Site, as described in Section 5.

If the Site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the Site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the Site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the Site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html.

Note: The table identifying the citizen participation activities related to the Site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repositories	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the Site. Additional major issues of public concern may be identified during the course of the Site's investigation and cleanup process.

The Site is located in an Environmental Justice Area. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Because the Site is located in an area with a large Hispanic-American population, all future fact sheets will be translated into Spanish.

The major issues of concern to the public will be potential impacts of nuisance odors, noise and dust during the removal of affected soil at the Site. Another example of a major issue of public concern would be the impact of increased truck traffic on the surrounding neighborhood. Construction safety issues will also be addressed.

This work will be performed in accordance with procedures which will be specified under a detailed Remedial Program which considers and takes preventive measures for exposures to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a Health and Safety Plan (HASP) and a Community Air Monitoring Plan (CAMP) are required components of the remedial program. Implementation of these plans will be under the direct oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

These plans will specify the following worker and community health and safety activities during remedial activity at the Site:

- On-site air monitoring for worker protection;
- Perimeter air monitoring for community protection;
- The use of odor, vapor, and dust controls, such as water or foam sprays, as needed;
- Monitoring and control of soil, sediments, and water generated during remediation; and
- Truck routes which avoid residential streets.

The HASP and the CAMP will be prepared as part of the Remedial Action Work Plan (RAWP) and will be available for public review at the document repository as identified in Appendix A (page 11).

Furthermore, the Applicant has prepared a Scoping Sheet for Major Issues of Public Concern which will assist them in identifying any concerns. Experience from similar projects, 311 complaints and other construction projects in the area will help in identifying such issues.

4. Site Information

Appendix C contains a map identifying the location of the Site.

Site Description

The street address for the Site is 1181 Flushing Avenue, Brooklyn, NY. The Site is located in the East Williamsburg neighborhood of Brooklyn. The Site is comprised of a two tax parcels identified as Block 2994, Lots 9 and 75 and totaling 40,006.98 sq. ft (0.92 acres). The Site has approximately 120 ft of street frontage on Flushing Avenue and 210 feet of street frontage on Stewart Avenue. Currently the property is occupied by a scrap metal recycler. The property is partially developed with a 1-story 4,500 sf commercial building located on Lot 75 which was constructed in 1931. The building yard area and Lot 9 to the north were used as a vehicle dismantling facility (VDF). The VDF no longer operates at this site. The area to the south of the building is used for parking.

The area surrounding the property is highly urbanized and is primarily industrial / commercial in accordance with the M1-1, M1-2 and M3-1 zoning which surrounds the property. Adjacent land use includes large manufacturing / warehouse buildings to the west, north and east and a lumber yard, Metropolitan Transit Authority maintenance building and a wholesale food warehouse to the south.

Residential areas are present further to the south behind the commercial properties along Flushing Avenue.

The elevation of the Site ranges from 16 to 18 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the north. The depth to groundwater beneath the Site is approximately 12 feet below grade. Based on regional groundwater elevation maps, groundwater flows to the northwest toward the English Kills Channel.

History of Site Use, Investigation, and Cleanup

The Site is currently owned by the Flushing Stewart LLC. The Site is currently vacant but was most recently occupied by a Scrap Metal recycling facility.

The Site served as a Long Island Rail Road freight yard from between 1888 and 1907 until sometime between 1951 and 1965. The current building was constructed between 1933 and 1951 in the southeast corner of the Site. In 1951 the building was utilized for fire wood cutting, bagged charcoal storage and automobile storage. The south end of the building, along Flushing Avenue, contained a gasoline tank. In 1965 the south end of the building is no longer present and instead the area, where the gasoline tank had been listed, is a filling station. The structure formerly used for charcoal storage is being used as an auto service. The rest of Lot 75 is lumber storage and Lot 9 still contains two rail road tracks. In 1968 the auto services and filling station remain, and the rest of lot 75 is being utilized for parking. In 1981 the parking area was also being used as an auto parts yard. Staring in 2003 the filling station is no longer depicted at the Site. Between 2007 and 2014 the building on Site was converted from an auto service to a scrap metal facility and the two sets of railroad tracks were removed.

A Phase II investigation performed at the Site in December 2014 identified petroleum contamination in soil and groundwater associated with former underground gasoline tanks on the property. As a result a spill (No. 1410058) was reported to the DEC on January 14, 2015. The site operator is also responsible for Spill No. 0510000 which was opened on 11/21/2005. Multiple chemical oxidation injection events were conducted and data suggests that the groundwater is still impacted above standards.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program (BCP) as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the Site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination on-site, and must conduct a qualitative exposure assessment, (a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the Site and to contamination that has migrated from the Site).

The Applicant proposes that the Site will be used for the construction of a new 6-8 story commercial building which will cover approximately 60 percent of the south lot (lot 75). The project includes 14,362 sf of commercial / retail space, 14,362 sf of community space and 71,810 sf of hotel space. Plans include a full height basement level requiring excavation to a depth of approximately 11 ft below grade. The basement level will be used for meter rooms and retail storage space. The remainder of the property including, Lot 9, will be utilized for parking.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the Site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement (BCA) executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the Site.

Investigation

The Applicant completed a preliminary site investigation before it entered into the BCP. The Applicant will now conduct an investigation of the Site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant previously developed a remedial investigation workplan, which was subject to public comment.

The site investigation has several goals:

1) Define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) Identify the source(s) of the contamination;
3) Assess the impact of the contamination on public health and the environment; and
4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the Site poses a significant threat to public health or the environment. If the Site is a significant threat, it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the Site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Remedy Selection

When the investigation of the Site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the Site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a Certificate of Completion (COC) (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a Remedial Work Plan. The Remedial Work Plan describes the Applicant's proposed remedy for addressing contamination related to the Site.

When the Applicant submits a proposed Remedial Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the Site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the Site, it will approve the FER. NYSDEC then will issue a COC to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the Site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the Site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan (SMP).

An institutional control is a non-physical restriction on use of the Site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the Site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Kyle Forster, P.E.
Environmental Engineer I.
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7015
Tel: (518) 402-9592
Email: kyle.forster@dec.ny.gov

Thomas Panzone
Regional Citizen Participation Specialist
NYSDEC Region 2
Office of Communications Services
47-40 21st Street
Long Island City, NY 11101-5407
Tel: (718) 482-4953
Email: thomas.panzone@dec.ny.gov

New York State Department of Health (NYSDOH):

New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza – Corning Tower Room 1787
Albany, New York 12237
Tel: (518) 402-7860
Email: beei@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Brooklyn Public Library – Bushwick Branch
340 Bushwick Avenue, Brooklyn, NY 11206
(718) 602-1348

Hours

Mon closed
Tue 10:00 am - 6:00 pm
Wed 10:00 am - 8:00 pm
Thu 10:00 am - 8:00 pm
Fri 10:00 am - 6:00 pm
Sat 10:00 am - 5:00 pm
Sun closed

Appendix B - Site Contact List

Local Government Contacts:

Hon. Bill de Blasio
Mayor of New York City
City Hall
New York, NY 10007

Hon. Eric Adams
Brooklyn Borough President
209 Joralemon Street
New York, NY 11201

Ms. Dealice Fuller
Chair, Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY, 11211

Mr. Gerald Esposito
District Manager, Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY, 11211

Ryan Kuonen, Environmental Committee Chairman
Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY, 11211

Hon. Antonio Reynoso
NYC Council Member

244 Union Avenue
Brooklyn, NY 11206

Carl Weisbrod
Commissioner, NYC Dept. of City Planning
22 Reade St.
Third Floor
New York, NY 10007

Dalila Hall
New York City Department of Transportation
Brooklyn Borough Commissioner
55 Water Street, 9th Floor
New York, NY 10041

Kings County Clerk's Office
Nancy Sunshine, County Clerk
360 Adams Street, Room 189
Brooklyn, NY 11201

Hon. Letitia James
Public Advocate
1 Centre Street, 15th Floor
New York, NY 10007

Hon. Scott M. Stringer
Office of the Comptroller
1 Centre Street
New York, NY 10007

Hon. Martin Malave Dilan
NYS Senator
718 Knickerbocker Avenue
Brooklyn, NY 11221

Hon. Maritza Davila
NYS Assembly Member
249 Wilson Avenue
Brooklyn, NY 11237

Hon. Charles Schumer
U.S. Senator
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Nydia M. Velazquez
U.S. House of Representatives
266 Broadway, Suite 201
Brooklyn, NY 11211

John Wuthenow
Office of Environmental Planning & Assessment
NYC Dept. of Environmental Protection
96-05 Horace Harding Expressway
Flushing, NY 11373

Nilda Mesa, Director
NYC Office of Environmental Sustainability
100 Gold Street– 2nd Floor
New York, NY 10038

Daniel Walsh
NYC Department of Environmental Remediation
100 Gold Street – 2^{nd} Floor
New York, NY 10038

Adjacent Property Owner Contacts

Contact information for the identified owners, as listed in the New York City ACRIS Database, are as follows:

West

1. MASLAVI 5 LLC
   1177 FLUSHING AVE.
   BROOKLYN, NY 11237-1717

2. 28 VARICK AVENUE LLC
   C/O JAVANI FASHIONS
   1370 BROADWAY FL. 4
   NEW YORK, NY 10018-7786

   OCCUPANT
   28 VARICK AVENUE
   BROOKLYN, NY 11211

North

3. NYC MTA
   347 MADISON AVE.
   NEW YORK, NY 10017-3706

4. BUSHWICK PARTNERS REALTY, LLC
   47 STEWART AVE.
   BROOKLYN, NY 11237-1517

East

5. 220 INGRAHAM LLC C/O
   220 INGRAHAM ST.
   BROOKLYN, NY 11237-1525

6. BROTHER REAL ESTATE INC.
   1201 FLUSHING AVE.
   BROOKLYN, NY 11237-1701

7. 141 5TH AVE. PAYLESS INC.
   C/O G. JACOBS
   2672 E. 65TH ST.
   BROOKLYN, NY 11234-6824

OCCUPANT
1182 FLUSHING AVENUE
BROOKLYN, NY 11237

South

8. B. AND B. SWEATER MILLS INC.
1160 FLUSHING AVE.
BROOKLYN, NY 11237-1747

9. CHRIST REALTY CORPORATION
1154 FLUSHING AVE.
BROOKLYN, NY 11237-1747

10. CHAO, JOAN
1154 FLUSHING AVE.
BROOKLYN, NY 11237-1747

Local News Media

NY 1 News
75 Ninth Avenue
New York, NY 10011

The Brooklyn Paper
One Metrotech Center, Suite 1001
Brooklyn, NY 11201
(718) 260-4504

New York Daily News
4 New York Plaza
New York, NY 10004

Courier-Life Publications
1 Metro-Tech Center North - 10th Floor
Brooklyn, NY 11201

Brooklyn Daily Eagle
30 Henry Street
Brooklyn, NY 11201

The Brooklyn Papers
1 Metrotech Center, Suite 1001
Brooklyn, NY 11201

Hoy Nueva York
1 MetroTech Center, 18th Floor
Brooklyn, NY 11201

El Diario La Prensa
1 MetroTech Center, 18th Floor
Brooklyn, NY 11201

New York Post
1211 Avenue of the Americas
New York, NY 10036-8790

Public Water Supplier

Hon. Emily Lloyd, Commissioner
New York City Department of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Requested Contacts

No requests have been made at this time.

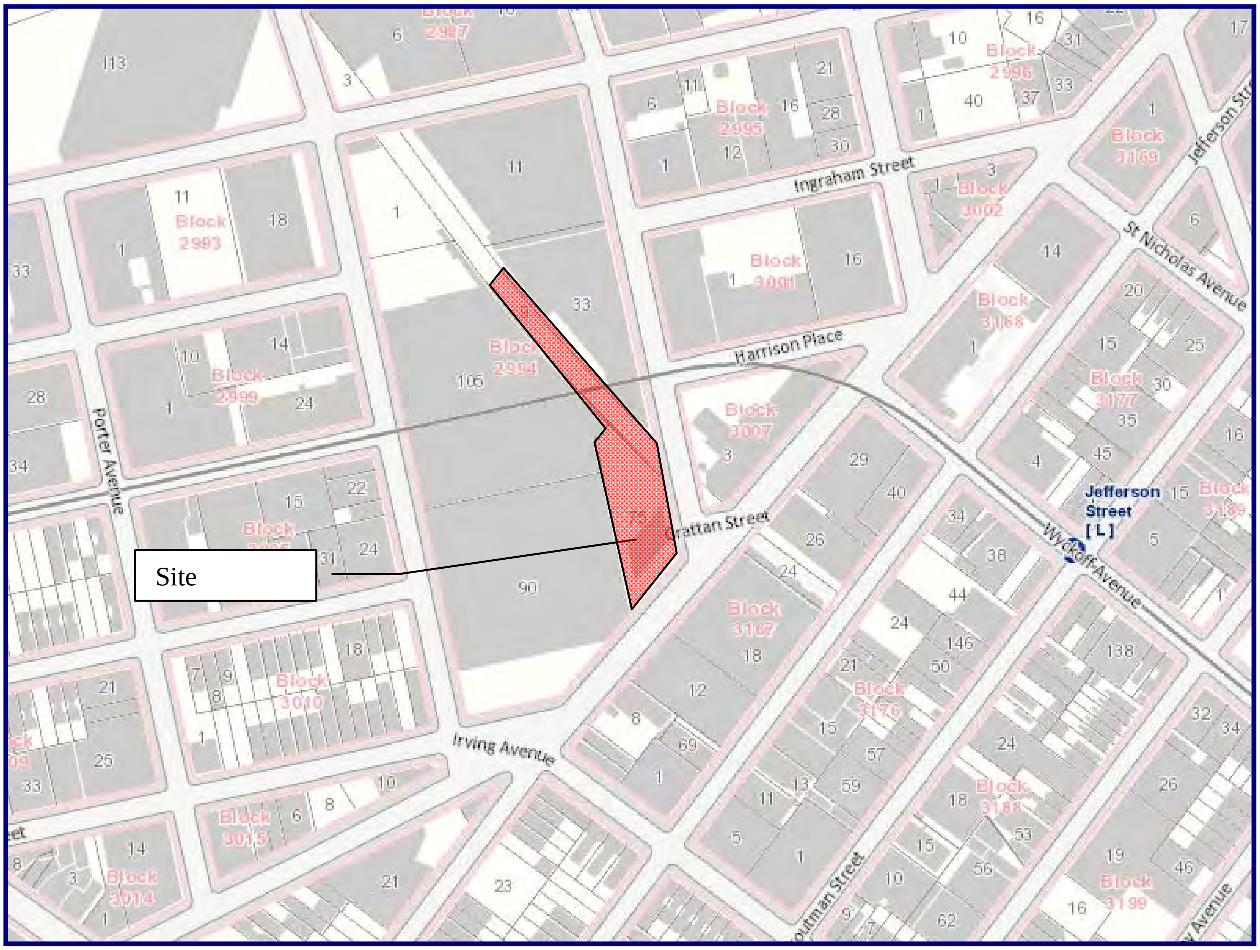
Schools and Daycare Facilities

1. P.S. 123 Suydam
   100 Irving Avenue, Brooklyn, NY 11237
   (718) 821-4810
   Attn: Arelis Parache, Principal

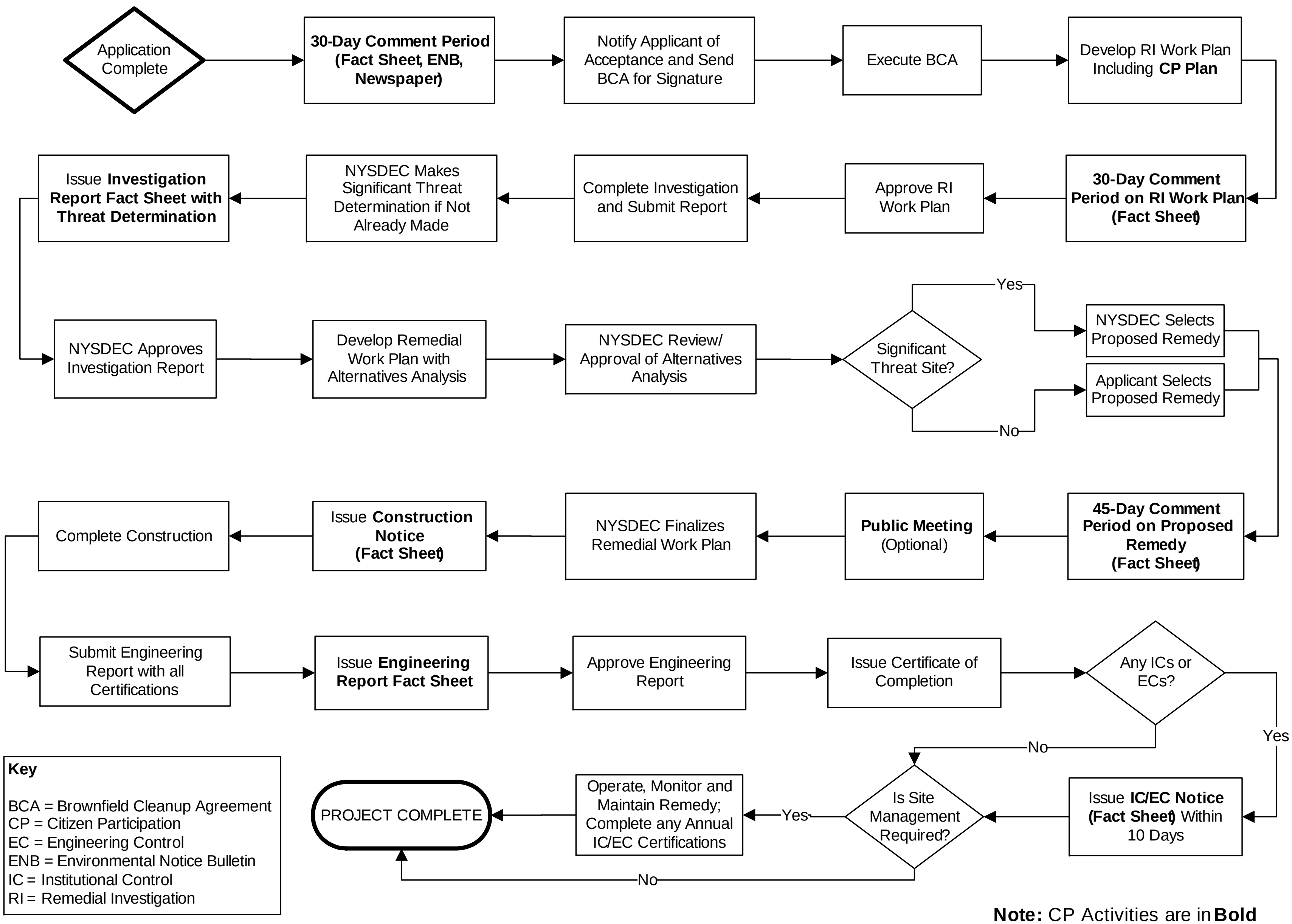
2. J.H.S. 162 The Willoughby
   1390 Willoughby Avenue, Brooklyn, NY 11237
   (718) 821-4860
   Attn: Barbara De Martino, Principal

	A	B	C	D	E	F	G	H	I	J
1										
2	Site Contact List									
3	Site #: C224210									
4	Site Name: Former Universal Scrap Metal Site			List Last Updated: 7-15-						
5	Current Occupant	Name, Title	Address 1	Address 2	Address 3	Street Address	City	State	Zip	Site Name (County)
6	Current Occupant	Hon. Bill de Blasio	NYC Mayor			City Hall	New York	NY	10007	Former Universal Scrap Metal Site (Kings)
7	Current Occupant	Hon. Scott Stringer	NYC Comptroller			1 Centre Street	New York	NY	10007	Former Universal Scrap Metal Site (Kings)
8	Current Occupant	Hon. Letitia James	Public Advocate			1 Centre Street	New York	NY	10007	Former Universal Scrap Metal Site (Kings)
9	Current Occupant	Carl Weisbrod	Commissioner, NYC Dept. of City Planning			22 Reade Street	New York	NY	10007	Former Universal Scrap Metal Site (Kings)
10		Emily Lloyd	Commissioner, NYC Dept. of Environmental Protection			59-17 Junction Boulevard	Flushing	NY	11373	Former Universal Scrap Metal Site (Kings)
11		Nilda Mesa, Director	NYC Office of Environmental Sustainability			100 Gold Street - 2nd Floor	New York	NY	10038	Former Universal Scrap Metal Site (Kings)
12		John Wuthenow	Office of Environmental Assessment & Plannin	NYC Dept. of Environmental Protection		96-05 Horace Harding Expressway	Flushing	NY	11373	Former Universal Scrap Metal Site (Kings)
13		Hon. Eric Adams	Brooklyn Borough President			209 Joralemon Street	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
14		Ms. Dealice Fuller	Brooklyn Community Board # 1			435 Graham Avenue	Brooklyn	NY	11211	Former Universal Scrap Metal Site (Kings)
15		Mr. Gerald Esposito	Brooklyn Community Board # 1			435 Graham Avenue	Brooklyn	NY	11211	Former Universal Scrap Metal Site (Kings)
16		Ryan Kuonen, Environmental Committee Chairman	Brooklyn Community Board 1			435 Graham Avenue	Brooklyn	NY	11211	Former Universal Scrap Metal Site (Kings)
17		Hon. Antonio Reynoso	NYC Council Member			244 Union Avenue	Brooklyn	NY	11206	Former Universal Scrap Metal Site (Kings)
18		Dalila Hall	New York City Department of Transportatio	Brooklyn Borough Commissioner		55 Water Street, 9th Floor	New York	NY	10041	Former Universal Scrap Metal Site (Kings)
19		Nancy Sunshine, County Clerk	Kings County Clerk's Office			360 Adams Street, Room 189	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
20		Hon. Martin Malave Dilan	NYS Senator			718 Knickerbocker Avenue32	Brooklyn	NY	11221	Former Universal Scrap Metal Site (Kings)
21		Hon. Maritza Davila	NYS Assembly Member			2492 Wilson Avenue	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
22		Hon. Charles Schumer	U.S. Senator			780 Third Avenue, Suite 2301	New York	NY	10017	Former Universal Scrap Metal Site (Kings)
23		Hon. Kirsten Gillibrand	U.S. Senator			780 Third Avenue, Suite 2601	New York	NY	10017	Former Universal Scrap Metal Site (Kings)
24		Hon. Nydia M. Velazquez	U.S. House of Representatives			266 Broadway, Suite 201	Brooklyn	NY	11211	Former Universal Scrap Metal Site (Kings)
25		John Wuthenow	Office of Environmental Planning & Assess	NYC Dept. of Environmental Protection		96-05 Horace Harding Expressway	Flushing	NY	11373	Former Universal Scrap Metal Site (Kings)
26		Daniel Walsh	NYC Department of Environmental Remediation			100 Gold Street – 2nd Floor	New York	NY	10038	Former Universal Scrap Metal Site (Kings)
27		MASLAVI 5 LLC				1177 FLUSHING AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
28		28 VARICK AVENUE LLC	C/O JAVANI FASHIONS			1370 BROADWAY FL. 4	New York	NY	10018	Former Universal Scrap Metal Site (Kings)
29		OCCUPANT				28 VARICK AVENUE	Brooklyn	NY	11211	Former Universal Scrap Metal Site (Kings)
30		NYC MTA				347 MADISON AVE.	New York	NY	10017	Former Universal Scrap Metal Site (Kings)
31		BUSHWICK PARTNERS REALTY, LLC				47 STEWART AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
32		220 INGRAHAM LLC C/O				220 INGRAHAM ST.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
33		BROTHER REAL ESTATE INC.				1201 FLUSHING AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
34		141 5TH AVE. PAYLESS INC.	C/O G. JACOBS			2672 E. 65TH ST.	Brooklyn	NY	11234	Former Universal Scrap Metal Site (Kings)
35		OCCUPANT				1182 FLUSHING AVENUE	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
36		B. AND B. SWEATER MILLS INC.				1160 FLUSHING AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
37		CHRIST REALTY CORPORATION				1154 FLUSHING AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
38		CHAO, JOAN				1154 FLUSHING AVE.	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)
39		NY 1 News				75 Ninth Avenue	New York	NY	10011	Former Universal Scrap Metal Site (Kings)
40		The Brooklyn Paper				One Metrotech Center, Suite 1001	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
41		New York Daily News				4 New York Plaza	New York	NY	10004	Former Universal Scrap Metal Site (Kings)
42		Courier-Life Publications				1 Metro-Tech Center North - 10th Floor	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
43		Brooklyn Daily Eagle				30 Henry Street	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
44		The Brooklyn Papers				1 Metrotech Center, Suite 1001	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
45		Hoy Nueva York				1 MetroTech Center, 18th Floor	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
46		El Diario La Prensa				1 MetroTech Center, 18th Floor	Brooklyn	NY	11201	Former Universal Scrap Metal Site (Kings)
47		New York Post				1211 Avenue of the Americas	New York	NY	10036	Former Universal Scrap Metal Site (Kings)
48		P.S. 123 Suydam	Attn: Arelis Parache, Principal			100 Irving Avenue	Brooklyn	NY	11237	Former Universal Scrap Metal Site (Kings)

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



ATTACHMENT F
Resumes

AMC Engineering
99 Jericho Turnpike, Suite 300J
Jericho, NY 11590
Phone: (516) 417-8588

ARIEL CZEMERINSKI, P.E.

Mr. Czemerinski is a New York State Professional Engineer and CEO of AMC Engineering PLLC an EBC affiliate. Mr. Czemerinski has with 20 years of experience in the chemical and environmental areas. Areas of expertise include environmental compliance, permitting, remedial system design, process and plant safety, and management of a production facility. Mr. Czemerinski is a Registered Professional Engineer in NY, IN, IL, and MI.

Professional Experience
AMC: 14
Prior: 6 years

Education
Master of Science in Chemical Engineering, Columbia University, New York, NY, Feb. 1990. Bachelor of Science in Chemical Engineering, University Of Buenos Aires, Buenos Aires, Argentina, May 1987

Areas of Expertise

- Vapor Intrusion - Barrier and Sub Slab Venting System Design
- Environmental Assessment Statements and Environmental Impact Assessments under CEQR, ULURP
- Remedial Program Design and Management
- Environmental Compliance, Clean Water Act, Clean Air Act, Hazardous Materials
- Dewatering & Treatment System Design
- NYCDEP Sewer Discharge Permitting
- Transfer Station Permitting and Compliance
- Chemical Process Design and Optimization
- Wastewater Treatment Systems and Permitting, SPEDES, Air
- Zoning Regulations and Permitting
- Safety and Environmental Training
- Waste Management Plans

Professional Certifications

- OSHA 40-hr HAZWOPER
- OSHA 10-hr Construction Safety and Health

AMC Engineering
99 Jericho Turnpike, Suite 300J
Jericho, NY 11590
Phone: (516) 417-8588

~~PROJECT EXPERIENCE (Representative Projects)~~

Project: Domsey Fiber Corp. - 431 Kent Avenue, Brooklyn NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Express Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Springfield Gardens Residential Area BMP - Springfield Gardens, Queens, NY
Project Description: NYC Residential infrastructure (sewer, gas, water) upgrade, drainage channel installation and pond restoration. Soil contaminated with, petroleum and heavy metals requiring excavation, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: EIC Associates - NYCEDC
Regulatory Authority: NYSDEC, NYCParks
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Domino Sugar Site - Kent Avenue, Brooklyn NY
Project Description: NYC E-Designation. Soil contaminated with semi-volatile organic compounds and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Two Trees Management
Regulatory Authority: NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Uniforms For Industry Site - Jamaica Avenue, Queens NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, mop oil and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

AMC Engineering
99 Jericho Turnpike, Suite 300J
Jericho, NY 11590
Phone: (516) 417-8588

PROJECT EXPERIENCE (Representative Projects)

Project: Former Charles Pfizer & Co. Site - 407 Marcy Avenue, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Rabsky Group
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former East Coast Industrial Uniforms Site - 39 Skillman Street, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Riverside Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former BP Amoco Service Station Site - 1800 Southern Boulevard, Bronx, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: SoBro, Joy Construction
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Dico G Auto & Truck Repair Site - 3035 White Plains Road, Bronx, NY
Project Description: NYS Brownfield cleanup project. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

AMC Engineering, PLLC
18-36 42nd Street
Astoria, NY 11105
718-545-0474
Fax 516-706-3214

Andrew Sung

RELEVANT EXPERIENCE

***AMC Engineering, PLLC** – Environmental Engineer* October 2014 – Present

- Designed and assembled documentation for environmental regulatory compliance permits, such as construction groundwater dewatering, dry cleaners installation, and autobody spray booth installation.
- Generated reports for the State (NYS DEC) and City (NYS DEP) pertaining to environmental findings and remediation, such as Remedial Investigation Reports, Remedial Action Reports, Final Engineering Reports, and Site Management Plans.
- Generated reports for clients pertaining to soil removal and disposal, such as Materials Handling Plans and Excavated Materials Disposal Plans
- Performed fieldwork in the following areas: soil waste characterization sampling, in-situ chemical injections, groundwater sampling, silica dust and air sampling, community air monitoring for trucking and soil excavation, and environmental inspections for: vapor barriers, sub-slab depressurization systems, and erosion & sediment control (SWPPP inspections)
- Supervised new hires, training them in CAD design activities, report writing, and field activities.
- Coordinated and scheduled drilling activities with clients and drillers (C Squared Environmental Corporation)
- Filled in as driller's apprentice on an as-needed basis for C Squared Environmental Corporation
  - Performed soil borings, monitoring wells installation, in-situ chemical injections, and soil-gas vapor implants installations

CERTIFICATIONS / TRAINING / LICENSES

- OSHA 40 HOUR HAZWOPER (and 8-hour refreshers) October 2014 – Present
- OSHA 10 HOUR CONSTRUCTION March 2015 – Present
- CERTIFICATE OF EROSION & SEDIMENT CONTROL TRAINING October 2014 – October 2017
- MTA NYC TRANSIT TRACK SAFETY CERTIFICATION March 2016 – March 2018
- ENGINEER IN TRAINING (EIT) [ID: 14-944-15] March 2014 – Present

TECHNICAL SKILLS

- *Computer Software*: TurboCAD, Microsoft Office—Word, Excel, PowerPoint
- *Programming*: C/C++, Wolfram Mathematica, Matrix Laboratory (MATLAB)

EDUCATION

***Stony Brook University – SUNY**: B.E Chemical and Molecular Engineering* Graduated: May 2014

- Recipient of: Weinig Foundation Scholarship, and Presidential Scholarship
- University Scholar (Fall 2010 – May 2014)

PROFESSIONAL AFFILIATIONS

***American Institute of Chemical Engineers (AIChE)**, Metro New York Section* June 2013 – Present

- **Chapter Treasurer** September 2016 - Present
- **Student Outreach Coordinator** September 2015 – Present

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Charles B. Sosik, PG, PHG, Principal

Professional Experience

28 years

Education

MS, Hydrogeology, Adelphi University, NY
BS, Geology, Northern Arizona University, AZ

Areas of Expertise

- Brownfields Redevelopment
- Hazardous Waste Site Investigations
- Pre-purchase Site Evaluations and Support
- Regulatory Negotiations
- Remedial Planning and "Cost to Cure" Analysis
- Strategic Planning
- Real Estate Transactions
- NYC "E" Designations

Professional Certification

- Professional Geologist, NH
- Professional Geologist, Hydrogeologist, WA
- OSHA 40-hr HAZMAT
- OSHA 8-hr. Supervisor
- NYC OER Qualified Environmental Professional

Professional Affiliation / Committees

- NYS Council of Professional Geologists (NYSCPG)
- Association of Groundwater Scientists & Engineers (AGSE)
- NYS RBCA Advisory Committee
- Massachusetts LSP Association
- New Hampshire Association of Professional Geologists
- Interstate Technology Regulatory Council/MTBE Team
- Environmental Business Association, Brownfields Task Force
- Part 375 Working Group

PROFILE

Mr. Sosik has 28 years of experience in environmental consulting. He specializes in advising clients on managing environmental compliance with federal, state, and municipal agencies and has successfully directed numerous investigation and remediation projects involving petroleum, pesticides, chlorinated solvents, heavy metals and radiologically activated media. His work included extensive three-dimensional investigations on MTBE, which have been used effectively to help shape public policy. He also has experience in applying models to groundwater related problems and has completed several large-scale projects to determine fate and transport of contaminants, establish spill scenarios, and closure criteria. His experience and expertise in the area of contaminant hydrogeology has resulted in requests from environmental attorneys, property owners and New York State to serve as an expert witness and technical advisor on a variety of legal disputes.

For the past 15 years Mr. Sosik has been primarily engaged in providing environmental consulting to developers responding to the extensive re-zoning of former industrial and commercial properties, which is currently taking place throughout New York City. These services include everything from pre-purchase evaluations and contract negotiations to gaining acceptance in and moving projects through the NYS Brownfields Program. Mr. Sosik has taken a pro-active role in the continued development of the NYS Brownfields Program and related policy, by attending numerous working seminars, active participation in work groups and task forces and by providing commentary to draft versions of new guidance documents. Throughout his professional career, Mr. Sosik has remained committed to developing innovative cost- efficient solutions to environmental issues, specifically tailored to the needs of his clients.

SELECTED PROJECTS

<u>Scavenger Waste Treatment Facility (SWTF), Suffolk County, NY</u>

Water Treatment Plant EIS - Focused EIS - In response to requests from the Suffolk County Council on Environmental Quality and the Brookhaven Conservation Advisory Council, Mr. Sosik prepared a focused EIS to evaluate the potential impacts to an important surface water resource from the proposed facility including cumulative and synergistic effects with established contaminant plumes in the area.

<u>Advanced Residential Communities, Rockville Centre, NY</u>

Brownfield Project – As the senior project manager on this large scale, high profile redevelopment project, Mr. Sosik was asked to develop a plan to accelerate the regulatory process in the face of general community opposition. Through numerous discussions with the BCP management team, He was able to condense the schedule and review period, through the submission of supporting documents (Investigation Report, Remedial Work Plan) with the BCP application package. Community opposition, which focused on the environmental condition of the site as a means to block the project, was used to advantage in expediting approval of the aggressive interim remedial plan. This will allow the developer to begin remedial work approximately 5 months ahead of schedule.

<u>Former Temco Uniform site, West Haverstraw, NY</u>

Brownfield Project – Mr. Sosik took over management of this project from another consultant following transition of this VCP site to the BCP. Mr. Sosik used the opportunity to renegotiate and revise the scope of work to allow a more cost effective and focused investigation plan without re-writing or resubmitting the RIWP. During the NYSDEC's review of the transition package, he met with and coordinated changes with the NYSDEC Project Manager to gain approval. The result saved the client a significant amount of money, but perhaps more importantly in this case, did so without loss of time.

<u>Grovick Properties, Jackson Heights, NY</u>

Brownfield Project – This Brownfield property is somewhat unique in that it had been investigated and partially remediated by the NYSDEC through the petroleum spill fund. The client was interested in purchasing the property and redeveloping it as office and retail space. Mr. Sosik reviewed the NYSDEC investigation and developed a supplemental plan to meet the requirements of an RI under the BCP program. By performing this limited amount of field work “up-front” he was able to complete an RI Report and Remedial Plan and submit both with the BCP application package. The NYSDEC and NYSDOH approved the RI Report and the Remedial Plan with minor changes. This cut 120 days from the review process and allowed the client to arrange financing and move his project forward knowing what the clean-up costs would be at the outset.

Metro Management, Bronx, NY

Brownfield Project – The site of a former gas station, the developer had planned to construct a 12-story affordable housing apartment complex with first floor retail space. Since the site was located in an Environmental zone, potential tax credits of 22% for site development, remediation and tangible property could be realized under the BCP. In a pre-application meeting with the NYSDEC, Mr. Sosik realized that the department did not believe the site was eligible for the BCP, since it had been previously investigated and closed under the spills program.

Mr. Sosik assisted the developer in securing financing, and due to the demands of an aggressive construction schedule developed an Interim Remedial Measure (IRM), based on chemical oxidation treatment. Working closely with the clients environmental counsel, Mr. Sosik was able to get the IRM approved without a public comment period. Implementation of the IRM is currently underway.

The project was awarded the 2009 NYC Brownfield Award for Innovation.

Brandt Airflex, NY

Technical Consulting Services - Mr. Sosik provided senior level technical advice and strategic planning in developing an off-site RI/FS for the site, in negotiating a tax reduction for the property due to the environmental condition and in preparing a cost to cure estimate for settlement between business partners. After achieving a favorable tax consideration and settlement agreement for his client

Allied Aviation Services, Dallas, Fort Worth, Airport, Dallas, TX

Jet Fuel Investigation - Mr. Sosik developed and managed an investigative plan to quickly identify the extent and source of jet fuel which was discharging from the Airport’s storm drain system to a creek a mile away. Through the use of a refined conceptual model, accelerated investigative techniques and a flexible work plan, he was able to identify the source of the fuel and the migration route within a single week. He then identifled remedial options and successfully negotiated a risk based plan with the Texas regulatory agency that had issued a notice of enforcement action against the facility.

KeySpan – Former LILCO Facilities, Various NY Locations

Pesticide Impact Evaluation - Mr. Sosik developed, negotiated and implemented a site screening procedure to evaluate impact to public health and the environment as the result of past herbicide use at 211 utility sites. Using an unsaturated zone leaching model (PRZM) on a small subset of the sites, he was able to establish mass loading schedules for the remaining sites. This was combined with public well data in a GIS environment to perform queries with respect to mass loading, time transport and proximity to vunerable public supply wells. Using this approach Mr. Sosik was able to show that there were no concerns for future impact. This effort satisfied the public health and resource concerns of the state environmental agency and county health department in a reasonable amount of time and at a fraction of the cost of a full scale investigation.

Former Computer Circuits (Superfund) Site, Hauppauge, NY

CERCLA RI/FS - As Senior Project Manager for the site, he played a major role in regaining control of the investigation activites for the PRP. This action prevented the USEPA from initiating an extensive investigation at the site using a RAC II contractor allowing the client to perform a more efficient investigation. He was involved in all negotiations with EPA and was the project lead in developing a revised site characterization plan (work plan, field sampling plan, quality assurance plan, etc.). By carefully managing all phases of the investigation and continued interaction with each of the three regulatory agencies involved, Mr. Sosik was able to keep the project focused and incrementally reinforce the clients position. The estimated cost of the revised investigation is expected to save the client 1.5 to 2 million dollars.

Sun Oil, Seaford, NY

Remediation Consuliting Services & Project Management - Under an atmosphere of regulatory distrust, political pressure and mounting public hostility toward the client, Mr. Sosik conducted an off-site 3-D investigation to define the extent of contamination and the potential impact on public health. By designing and implementing an aggressive source area remediation program and personal interaction with the public and regulatory agencies, he was able to successfully negotiate a limited off-site remediation favorable to the client. Source area remediation was completed within 6 months and the project successfully closed without damage to the client’s public image or working relationship with the regulatory agencies.

Con Edison, Various Locations, NY

Hydrogeologic Consulting Services - Under a general consulting contract, Mr. Sosik conducted detailed subsurface hydrogeologic investigations at five locations to assist in the development of groundwater contingency planning. He also developed and implemented work plans to investigate and remediate existing petroleum, cable fluid, and PCB releases at many of the generating facilities and substations. An important aspect of his role was in assisting the client in strategic planning and negotiations with the regulatory agency.

Keyspan - Tuthill Substation, Aqueboque, NY

Accelerated Site Characterization - Using accelerated site characterization techniques, Mr. Sosik presented the project as a case study in establishing the transport of an herbacide and its metobolites aplied at utility sites in the 1980’s The results were then used to establish a screening method for evaluating 211 similar sites controlled by the client in a reasonable and eficient manner.

NYSDEC Spill, East Moriches, NY

Spill Release Analysis - With recognized expertise in the area of gasoline plume development on Long Island, Mr. Sosik was asked by

Charles B. Sosik, PG, PHG, Principal

the State to establish the release date (and principal responsible party) of an extensive petroleum spill, which impacted a residential neighborhood. He used multiple lines of evidence, and a new EPA model (HSSM), which he has helped to refine, to reconstruct the release scenario and spill date, in support of the State Attorney General's cost recovery effort from the PRP.

Minmilt Realty, Farmingdale, NY

Fate & Transport Modeling - He completed an RI/FS at this location for a PCE plume that had been in transit for over 30 years. Mr. Sosik applied a conservative model to evaluate time/concentration impacts under a variety of transport scenarios to a municipal wellfield located 13,000 feet away. Through the use of the model and careful interpretation of an extensive data set compiled from several sources, Mr. Sosik was able to propose a plan which was both acceptable to the regulator and favorable to the client.

Sebonack Golf Course Project, Town of Southampton, NY

IPM Pesticide Study - Provided professional hydrogeologic services in support of the EIS prepared for the development of the site. The proposed development included an 18-hole golf course, clubhouse, dormitory facility, cottages, associated structures, and a 6,000 square foot research station for Southampton College. Mr. Sosik performed an extensive evaluation (using a pesticide-leaching model) on the effects of pesticide and nitrogen loading to groundwater as part of the projects commitment to an Integrated Pest Management (IPM) approach.

NYSDEC, Spills Division, Regions 1 – 4

Petroleum Spills Investigation & Remediation - As a prime contractor/consultant for the NYSDEC in Regions 1-4, Mr. Sosik has managed the investigation and remediation of numerous petroleum spills throughout the State. Many of these projects required the development of innovative investigation and remediation techniques to achieve project goals. He was also involved in many pilot projects and research studies to evaluate innovative investigation techniques such as accelerated site characterization, and alternative approaches to remediation such as monitored natural attenuation and risk based corrective action.

Sun Oil, E. Meadow, NY

Exposure Assessment - Performed to seek closure of the spill file, despite the presence of contaminants above standards, Mr. Sosik determined after the extended assessment that the level of remaining contamination would not pose a future threat to human health or the environment. He used multiple lines of evidence, and a fate and transport model to show that degradation processes would achieve standards within a reasonable time.

Sand & Gravel Mine, NY

Property Development - As part of the development of a sand and gravel mine, Mr. Sosik provided environmental consulting services to assist in obtaining a mining permit, which would result in the construction of a 150-acre lake. Specifically, Mr. Sosik investigated if the proposed lake would reduce groundwater quantity to domestic and public well fields, and/or accelerate the migration of potential surface contaminants to the lower part of the aquifer. After assuming the lead role in negotiations with the regulatory agency, Mr. Sosik was able to obtain a permit for the client by adequately addressing water quality and quantity issues, and by preparing a monitoring plan and spill response plan, acceptable to all parties.

NYSDEC, Mamaroneck, NY

Site Characterization / Source Identification - In a complex hydrogeologic setting consisting of contaminant transport through fractured metomorphic bedrock and variable overburden materials, Mr. Sosik was able to develop and implement a sub-surface investigation to differentiate and separate the impact associated with each of two sources. The results of this investigation were successful in encouraging the spiller to accept responsibility for the release.

Riverhead Municipal Water District, NY

Site Characterization / Remedial Planning - Using accelerated characterization techniques, he implemented a 3-D site investigation to identify two service stations 4,000 ft. away as the source of contamination impacting a municipal wellfield. In accordance with the strict time table imposed by the need to return the wellfield to production by early spring, he designed and implemented a multi-point (9 RW, 6 IW) recovery and injection well system using a 3-d numerical flow model, and completed the project on time. Using a contaminant transport model, Mr. Sosik developed clean-up goals which were achieved in 9 months of operation, well below the projected 3 to 5 year project duration.

Montauk Fire Department, NY

Site Assessment - Mr. Sosik performed a limited investigation and used a 2-D flow model to demonstrate that the property could not have been the source of contamination which had impacted an adjacent wellfield as per the results of a previous investigation. This small focused effort successfully reversed a $500,000, and rising, claim against the department by the water district and the NYSDEC.

PREVIOUS EXPERIENCE

P.W. Grosser Consulting, Bohemia, NY
Senior Project Manager, 1999-2006

Environmental Assessment & Remediation, Patchogue, NY
Senior Project Manager, 1994-1999

Miller Environmental Group, Calverton, NY
Project Manager, 1989-1994

DuPont Biosystems, Aston, PA
Hydrogeologist, 1988-1989

Charles B. Sosik, PG, PHG, Principal

EXPERT WITNESS TESTIMONY AND DEPOSITIONS

Fact Witness -Testimony on relative age of petroleum spill based on nature and extent of residual and dissolved components at the Delta Service Station in Uniondale, NY Fall/1999

Expert Witness / Expert Report for defendant in cost recovery case by NYS Attorney General regarding a Class II Inactive Hazardous Waste (State Superfund) project by the NYSDEC (October 2004 – present, Report: March 2005, Deposition: April 2005, 2nd Report: Aug. 2013, 2nd Deposition Nov. 2013, Bench Trial: December 2013 - qualified as expert in Federal Court),

Expert Witness / Fact Witness for plaintiff seeking compensation for partial expenses incurred during the investigation and remediation of a USEPA CERCLA site due to the release and migration of contaminants from an “upgradient” industrial property. (Deposition May 2005, case settled April 2007).

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Holtzville, NY (Deposition April 2005 - case settled).

Expert Witness – Statement of opinion and expert testimony at trial for plaintiff seeking damages from a major oil corporation for contamination under a prior leasing agreement in Rego Park, NY. Case decided in favor of plaintiff. Trial July 2007, in favor of Plaintiff. Qualified as Expert.

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Lindenhurst, NY (Trial date Dec. 2009, in favor of plaintiff. Qualified as Expert State Supreme Court.

Expert Witness - for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Riverhead, NY. Case settled July 2008.

Expert Witness for plaintiffs in class action case with respect to damages from chlorinated plume impact to residences in Dayton, OH. (Draft Report – May 2013).

Expert Witness / Fact Witness for defendant with respect to cost recovery and third party responsibility for a NYSDEC petroleum spill site in Lindenhurst, NY (Expert Statement of Fact – October 2005).

Expert Witness for plaintiff seeking damages related to a petroleum spill from the previous owner/operator of a gas station in College Point, NY. Case settled 2009.

Expert Witness for plaintiff (municipal water supply purveyor) seeking damages from major oil companies and manufacturer of MTBE at various locations in Suffolk County, NY. Expert reports July 2007, August 2007 and October 2007, Case settled August, 2008.

Expert Witness - Deposition for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Sag Harbor, NY. August 2002

Expert Witness for defendant responding to a claim from adjacent commercial property owner on the origin of chlorinated solvents on plaintiff's property located in Cedarhurst, NY. Expert opinion submitted to lead counsel on March 6, 2009, case settled April 2009.

Expert Report - for Attorney General on modeling performed to determine the spill release scenario at a NYSDEC petroleum spill site in East Moriches, NY. June 2000.

Expert Witness - for plaintiff in case regarding impact to private wells from a spill at adjacent Town and County properties with open gasoline spill files in Goshen, NY. Expert report submitted August 2013.

Expert Witness for defendant with respect to cost recovery from Sunoco for a NYSDEC petroleum spill site. (Declaration – January 2013).

Expert Witness - for plaintiff (municipal water supply purveyor) seeking damages from Dow Chemical for PCE impact at various locations in Suffolk County, NY. Affidavit submitted 2011.

MODELING EXPERIENCE (PARTIAL LISTING)

PROJECT	MODEL	APPLICATION
Riverhead Water District, Riverhead, NY	MODFLOW, MODPATH	Remediation system design to intercept MTBE plume and prevent continued impact to municipal well field.
NYSDEC - Region 1, Holbrook, NY	MODFLOW, MODPATH	Simulate transport of MTBE plume to predict future impact.
NYSDEC - Region 1, East Moriches, NY	HSSM	Evaluate release scenario and start date of petroleum spill in support of cost recovery by NYS AG office.
AMOCO, Deer Park, NY	HSSM	Estimate release amount, start date and spill scenario to evaluate the potential for mass unaccounted for
Keyspan Energy, Nassau/Suffolk Counties Substations	PRZM	Estimate mass load of simazine used at 211 electric substations and screen sites according to potential for human health and ecological impacts.
Saboneck Golf Club, Southampton NY	PRZM	Estimate mass load of proposed pesticides on new golf course to evaluate acceptability under an IPM program.
Suffolk County Department of Public Works (SCDPW) Scavenger Waste Treatment Plant, Yaphank, NY	DYNFLOW, DYNTRAC	Evaluate time-transport and nitrogen impact on local river system.
SCDPW SUNY Waste Water Treatment Plant, Stony Brook, NY	DYNFLOW, DYNTRAC	Determine outfall location and time-transport of nitrogen from proposed upgrades to an existing wastewater treatment plant
Water Authority of Great Neck North Great Neck, NY	MODFLOW, MODPATH, MT3D	Review of modeling study performed by EPA to evaluate potential future impact to Well field from PCE plume. Identified serious flaws in model construction and implementation, which invalidated conclusions

PUBLICATIONS / PROFESSIONAL PAPERS

Smart Pump & Treat Strategy for MTBE Impacting a Public Water Supply (14th Annual Conference on Contaminated Soils Proceedings, 1998)
Transport & Transformation of BTEX & MTBE in a Sand Aquifer (Groundwater Monitoring & Remediation 05/1998)
Characteristics of Gasoline Releases in the Water Table Aquifer of Long Island (Petroleum Hydrocarbons Conference Proceedings, 1999)
Field Applications of the Hydrocarbon Spill Screening Model (HSSM) (USEPA Interactive Modeling Web Course www.epa.gov/athens/software/training/webcourse Authored module on model application and applied use of calculators, 02/2000)
Comparative Evaluation of MTBE Sites on Long Island, US EPA Workshop on MTBE Bioremediation (Cincinnati, 02/2000)
Comparison of Four MTBE Plumes in the Upper Glacial Aquifer of Long Island (American Geophysical Union, San Francisco, 12/1996)
Analysis and Simulation of the Gasoline Spill at East Patchogue, New York (American Geophysical Union, San Francisco, 12/1998)

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Keith W. Butler, Senior Project Manager

PROFILE

Mr. Butler has extensive project management experience with respect to environmental due diligence and subsurface investigations. He is responsible for the preparation of project proposals, Phase I and II Environmental Site Assessments, Work Plans, Health and Safety Plans, Quality Assurance Project Plans, and investigation reports. Additionally, Mr. Butler has conducted and managed numerous Phase I and II ESAs. In these roles, Mr. Butler is responsible for applying the various state and local regulations, which govern environmental compliance and determine the need for additional investigation and/or remediation.

SELECTED PROJECTS

Madison National Bank, Various Sites, New York
Mr. Butler served as the Project Manager and principal contact for Madison National Bank. He was responsible for the preparation of Transaction Screen and Phase I/II Environmental Site Assessments (ESAs) at various sites throughout the New York metropolitan area, as required by the bank to satisfy client mortgage or construction loan requests.

Jewish Home & Hospital, Manhattan, NY
Most recently, Mr. Butler completed a Phase I ESA at their Bronx campus to obtain US. Housing and Urban Development (HUD) funding for a future construction project. Mr. Butler was also responsible for implementing a Remedial Action Work (RAW) Plan at the Bronx facility as required by the NYSDEC under a Voluntary Cleanup Agreement. The RAW included the preparation of contract documents, excavation of over 2,000 tons petroleum contaminated soils, installation of a Soil Vapor Extraction (SVE) system remedial oversight, and sampling.

Pulte Homes of New York, Patchogue, NY
Mr. Butler served as the Project Manager for the re-development of this six-acre site and was responsible for field oversight and coordination between remediation contractors and various regulatory agencies. Initial phases of the project included the completion of Phase I and II ESAs. Subsequent remediation consisted of UST removal, excavation of petroleum-impacted soils, closure of three NYSDEC spill numbers, removal of contaminated UIC sediment/sludge, the closure of commercial and residential UIC structures and the excavation of arsenic and metals contaminated soil. The project was conducted under approved Remedial Work and Soil Management Plans with oversight from the State, County and Village agencies.

Town of Islip, Blydenburgh Road Landfill, Hauppauge, NY
Mr. Butler served as the Project Manager for the groundwater and leachate monitoring program at the Blydenburgh Road Landfill - Cleanfills 1 and 2 and Leachate Impoundment Area. Mr. Butler was the principal contact for the Town's Resource Recovery Agency. He prepared the quarterly and annual monitoring reports, oversaw sampling efforts, and coordinated with the Town's analytical laboratory and data validation contractors. Mr. Butler was also responsible for preparing quarterly well condition reports and leachate quality reports for compliance with the Town's Suffolk County Discharge Certification Permit.

Ogden Aviation, Various Sites, JFK International Airport, Jamaica, New York
Mr. Butler served as the project manager for the rehabilitation of the satellite fuel farm recovery well system. Recovery wells at the fuel farm had become clogged with iron deposits and bacteria limiting product recovery efforts. Mr. Butler developed and supervised chemical cleaning and redevelopment of recovery wells under the approval of the NYSDEC. The chemical treatment has resulted in significant increases in product recovery volumes.

Brookhaven National Laboratory, Upton, NY
Mr. Butler has worked on a number of remediation system and monitoring well installation projects at BNL. His duties included oversight of installations, system pump tests, performance evaluations, and well development. He also provided oversight of soil borings, temporary well construction, soil and water sampling, and air monitoring for groundwater screening survey of two operable units in hazardous and radioactive waste storage areas. Mr. Butler also provided oversight for groundwater monitoring, well construction, well abandonment, and methane-monitoring wells for landfill closure.

metroPCS, Various Sites, New York
Mr. Butler served as the Project Manager for metroPCS' Long Island region telecommunications site acquisition and expansion program. Mr. Butler was responsible for the preparation of Phase I ESAs, the conduct of Phase II ESAs, including asbestos, lead paint and soil sampling, and coordination of National Environmental Policy Act (NEPA) reports and planning studies at various locations proposed for construction of new cellular telephone facilities. Reports and associated communications were transmitted electronically through metroPCS' data management system.

Dormitory Authority - State of New York, Harlem Hospital Center Modernization Project - Hazardous and Universal Waste Survey, Harlem Hospital, New York, NY
Mr. Butler served as the field team leader for conducting hazardous and universal waste surveys in multiple buildings affiliated with Harlem Hospital Center. The survey included the identification of hazardous and universal waste materials including chemicals, paints, fluorescent bulbs, high intensity discharge bulbs/fixtures, battery operated equipment, above and underground petroleum storage tank identification, PCB containing light ballasts and electrical equipment.

Keith W. Butler, Senior Project Manager

The hospital is comprised of a number of buildings, many that were abandoned and slated for demolition.

SVE Monitoring at Newark International Airport, Elizabeth, NJ
A routine leak detection test indicated that two 10,000-gallon underground storage tanks, which were used to store unleaded gasoline, had failed tightness tests. Follow-up investigation revealed that the product had impacted the subsurface environment. In response to this, a soil vapor extraction system was installed to reduce the residual concentrations of petroleum constituents in soil and groundwater and to minimize vapor migration into subsurface utility vaults. Mr. Butler was responsible for implementing the Remedial Action Work Plan, developed for the site by Ogden and the State of New Jersey. Activities conducted under the RAW include quarterly groundwater monitoring, air sampling, vacuum pressure monitoring, system maintenance and reporting.

Federal Express Site, Newark International Airport, Elizabeth, NJ
Mr. Butler worked with Ogden Aviation and the State of New Jersey to address outstanding environmental issues at the site related to a spill of jet fuel, which occurred during a construction accident. Mr. Butler performed a site assessment, which included groundwater monitoring, product gauging, and groundwater flow modeling. After reviewing these data, Mr. Butler determined that fill material at the site was contributing to soil and groundwater contamination and has petitioned the State for partial site closure. Mr. Butler is continuing to address the remaining area of concern through product recovery and continued monitoring.

Northrop Grumman, Various Sites
Mr. Butler conducted three Phase I ESAs and a Phase II investigation for the presence of PCBs in soil. He also inspected and supervised the removal of underground storage tanks, asbestos abatement projects, and sanitary system closures related to the facility decommissioning. Mr. Butler also conducted groundwater investigations and provided oversight during soil sampling, drilling and soil remediation activities.

New York City Department of Environmental Protection, Various Sites
Mr. Butler served as an Environmental Scientist for hazard investigation at seven sewage pump stations. Mr. Butler addressed a wide range of environmental concerns including asbestos, lead based paints, PCB oil, light ballasts, and other hazardous building materials. He conducted field investigations, sampling, and prepared Hazardous Materials Survey Reports for use during preparation of plans and specifications for proposed pump station construction projects.

Fresh Kills Landfill, Staten Island, New York
Mr. Butler participated in the field operations during pump and yield tests conducted on Cells 1 and 9. The tests were performed to determine the hydraulic properties of the landfill's refuse. He collected groundwater and leachate measurements in recovery wells and in adjacent observation wells under pumping and non-pumping conditions.

PREVIOUS EXPERIENCE

DECA Real Estate Advisors
Director of Environmental Services, 2011-2017

VHB Engineering, Surveying and Landscape Architecture PC, Hauppague NY
Senior Project Manager, 2005-2011

Parsons Brinkerhoff, Inc. New York NY
Senior Project Manager, 2004-2005

P.W. Grosser Consulting, Bohemia, NY
Senior Project Manager, 1998-2004

Eder Associates, Locust Valley, NY
Field Hydrogeologist, 1992-1998

EDUCATION

BS, Geology, Slippery Rock University of Pennsylvania, 1990

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

OSHA Certification, 40-hour Health & Safety Training at Hazardous Waste Sites

OSHA Certification, 8-hour Refresher Health & Safety Training at Hazardous Waste Sites

OSHA Confined Space Entry Training

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin R. Brussee, Senior Project Manager

Professional Experience
EBC: January 2008
Prior: 6 years

Education
Bachelor of Science, Environmental Science, Plattsburgh State University, NY
Master of Science, Environmental Studies, University of Massachusetts, Lowell

Areas of Expertise
- Management of Site Investigations / Remedial Oversight NYC "E" Designation Sites
- Management of RI Investigations / RAWP Implementation NYS BCP Sites
- NYSDEC Spill Site Investigations
- Phase I / Phase II Property Assessments
- Waste Characterization / Soil Management

Professional Certification
- OSHA 40-hr HAZWOPER
- OSHA 8-hr HAZWOPER Supervisor

PROFILE

Mr. Brussee has 10 years experience as an environmental consultant/contractor and has worked on and managed a wide range of environmental projects. Mr. Brussee has conducted Phase I, II and III Environmental Site Assessments for commercial, industrial, and residential properties in New York, New Jersey, Maryland and Delaware.

Mr. Brussee's field experience includes tank removal and installations, spill management and closure, soil and groundwater sampling, and both the oversight and operation of soil boring and well installation equipment. In addition, Mr. Brussee has performed project research, data reduction and evaluation, and has prepared reports for both regulatory and client use.

PREVIOUS EXPERIENCE

Eastern Environmental Solutions, Inc., Manorville, NY
Project Manager, 2006-2008

EA Engineering, Science & Technology
Hydrogeologist, 2005-2006

P.W. Grosser Consulting, Bohemia, NY
Field Hydrogeologist, 2002-2003

Kevin R. Brussee, Senior Project Manager

SELECT PROJECT EXPERIENCE

Project:	Former Dico G, Autio and Truck Repair Site - Bronx Park Apartments, redevelopment from commercial to mixed use
Location:	Bronx, NY, White Plains Road
Type:	NYS BCP Site, Former gas station, repair shop & junk yard
Contamination:	Petroleum - Gasoline
Role:	Project Manager, during Site Management Phase

Project:	Former Uniforms for Industry Site – Richmond Hill Senior Living Residences / Richmond Place
Location:	Jamaica Ave, Richmond Hill Queens, NY
Type:	NYS BCP, NYC E-Site Hazmat, Noise, Former industrial Laundry
Contamination:	Chlorinated Solvents, Historic Fill, Petroleum - Fuel oil/Mop oil
Role:	Project Manager, RAWP implementation

Project:	Former Gas Station / car wash to mixed use affordable housing / commercial
Location:	Bronx, NY, Southern Boulevard
Type:	NYS BCP, NYC E-Site Hazmat, Former gas station / gar wash
Contamination:	Petroleum - Gasoline
Role:	Project Manager, RAWP implementation

Project:	Redevelopment of former industrial property to residential
Location:	Williamsburg section of Brooklyn, NY, Bedford Ave
Type:	NYC E-Designation Site, Former dye manufacturing plant
Contamination:	Hazardous levels of heavy metals, fuel oil tanks
Role:	Project Manager, RAWP implementation

Project:	Former Domsey Fiber Corp Site
Location:	Williamsburg section of Brooklyn, NY, Kent Ave
Type:	NYC E-Designation Site, Former commercial property
Contamination:	Chlorinated solvents, fuel oil and Historic fill
Role:	Project Manager, RIWP Development and Implementation, RAWP development and implementation, waste characterization and soil management

PUBLICATIONS

Chemical Stress Induced by Copper, Examination of a Biofilm System;
(Water Science Technology, 2006; 54(9): 191-199.)

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin Waters, Field Manager

Professional Experience
EBC: October 2010
Prior: 5 years

Education
Bachelor of Science, Geology, State University of New York, Stony Brook

Areas of Expertise
- Field Operations
- Phase II and RI Implementation, Site Characterization Studies
- Health & Safety Monitoring and Oversight
- Waste Characterization / Soil Management
- Site Logistics

Professional Certification
- OSHA 40-hr HAZWOPER
- OSHA 8-hr HAZWOPER Supervisor

PROFILE

Mr. Waters has 12 years experience as an environmental consultant and has worked on a wide range of environmental projects. Mr. Waters is EBC's manager of field operations and has extensive experience on remedial construction projects including site characterization, waste classification, soil management and disposal, dewatering operations, community air monitoring and health & safety and performance sampling.

Mr. Waters' field experience includes soil, air and groundwater sampling, operation and maintenance of groundwater remediation systems, tank removals, spill management and closure, and oversight of monitoring well installations. In addition, Mr. Waters has prepared reports for both regulatory and client use.

PREVIOUS EXPERIENCE

P.W. Grosser Consulting, Bohemia, NY
Field Hydrogeologist, 2003-2008

SELECT PROJECT EXPERIENCE

Project:	Former Gas Station / car wash to mixed use affordable housing / commercial
Location:	Bronx, NY, Southern Boulevard
Type:	NYS BCP, NYC E-Site Hazmat, Former gas station / gar wash
Contamination:	Petroleum - Gasoline
Role:	Field Operations Manager, Health and Safety Officer

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Kevin Waters, Field Manager

SELECT PROJECT EXPERIENCE

Project:	Former Uniforms for Industry Site – Richmond Hill Senior Living Residences / Richmond Place
Location:	Jamaica Ave, Richmond Hill Queens, NY
Type:	NYS BCP, NYC E-Site Hazmat, Noise, Former industrial Laundry
Contamination:	Chlorinated Solvents, Historic Fill, Petroleum - Fuel oil/Mop oil
Role:	Field Operations Manager, Health and Safety Monitoring and Field Oversight
Project:	Rikers Island – West Intake Facility
Location:	NYC Department of Corrections, Rikers Island, NY
Type:	Municipal Construction Project
Contamination:	Hazardous levels of lead, heavy metals in Historic fill
Role:	Field Operations Manager, Health and Safety Monitoring and Field Oversight
Project:	Residential Redevelopment Project
Location:	Williamsburg Section of Brooklyn, Wallabout Street
Type:	NYC E-Designation Site
Contamination:	Hazardous levels of lead, heavy metals, SVOCs in Historic fill
Role:	Implement RI Work Plan, Supervise sample collection in all media
Project Name:	Former Domsey Fiber Corp.
Location:	Brooklyn NY, S. 9th Street, Wythe and Kent Avenues Williamsburg
Program Type:	NYS BCP, NYC E-Site Hazmat / Noise
Role:	Field Operations Manager - managing and supervising field crews in sample collection, Health and Safety Monitoring and Field Oversight
Project Name:	Former 110th Street Station
Location:	Manhattan, NY, 2040 Frederick Douglas Boulevard, Harlem
Program Type:	NYS BCP, NYC E-designation Hazmat
Role:	Field Operations Manager - managing and supervising field crews in sample collection, Health and Safety Monitoring and Field Oversight
Project Name:	Former East Coast Industrial Uniforms
Redevelopment:	Industrial to residential (market rate condos)
Location:	Brooklyn, NY, 39 Skillman Street, Williamsburg
Program Type:	NYS BCP
Role:	Field Operations Manager - managing and supervising field crews in sample collection, Health and Safety Monitoring and Field Oversight

Environmental Business Consultants •1808 Middle Country Road, Ridge, NY 11961
Ph 631.504.6000 • Fax 631.924.2870 • Email kwaters@ebcincny.com

ATTACHMENT G
BCP Signage Specifications

Sign Requirements

Size: Horizontal format – 96” wide by 48” high

Construction Materials: Aluminum or wood blank sign boards with vinyl sheeting.

Inserts: **“**New York State and DEC logo”, “Program Name”, “Site Name”, “Site No.”, “Name of Party Performing Remedial Activities or New York State Department of Environmental Conservation”, “Governor”, “DEC Commissioner”, “Municipal Executive”, “Transform the Past...Build for the Future”.

Color Scheme: All body font should be black or green Pantone 350 C or CMYK 80/43/83/42. If blue is desired, use following values: Pantone 288 C or CMYK 100/87/27/19.

New York State and DEC logo: use eps file here (it is high resolution and scalable. If vendor needs a different format, use jpg file here . Both utilize the correct color.

Text:

Program Name (choose one):

State Superfund Program
Brownfield Cleanup Program
1996 Clean Water/Clean Air Bond Act – Environmental Restoration Program
Voluntary Cleanup Program
Petroleum Remediation Program

$\Big\}$ Green text (PANTONE 350C or CMYK 100/43/83/42

Site Name: Blue text (PANTONE 288C or CMYK 100/87/27/19)

Site Number: Blue text (PANTONE 288C or CMYK 100/87/27/19)

Name of Party Performing Remedial Activities or New York State Department of Environmental Conservation: Green text (PANTONE 350C or CMYK 100/43/ 83/42

Governor: Black text

DEC Commissioner: Black text

Municipal Executive: Black text

Transform the Past....Build for the Future: Blue text (PANTONE 288C or CMYK 100/87/27/19)

Type Specifications:	All type is Ariel. Format is: Center each line of copy with initial caps and small Letters.
Production Notes:	96” wide x 48” high aluminum blanks will be covered with vinyl sheeting to achieve background color. Copy and logo will be silk screened on this surface.
See Attached Format:	Next page.

8'

4'

2"		
6"	NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation — Logo (Use eps or jpg file) Green Text (See Key) White Background	
2"		
4"	Program Name	Green Text (See Key)
2"		
4"	Site Name	Blue Text (See Key)
2"		
2"	Site No.	BlueText (See Key)
2"		
2"	Remedial Party <u>or</u> New York State Department of Environmental Conservation	Green Text (See Key)
2"		
2"	Governor	Black Text
2"		
2"	Commissioner	Black Text
2"		
2"	Municipal Executive	Black Text
2"		
4"	Transform the Past…. Build for the Future	Blue Text (See Key)
2"		

<u>Color Key for Text</u>
Green Text = Pantone 350C or CMYK 80/43/83/42
Blue Text = Pantone 288C or CMYK 100/87/27/19

Project Sign Format

ATTACHMENT H
Estimated Remedial Costs

Former Universal Scrap MetalSite
1181 Flushing Avenue
Brooklyn, NY

Summary of Project Costs

TASK - ENVIRONMENTAL REMEDIATION	NYS Brownfields Cleanup Program Costs by Task Track 1	Track 2
Excavation and Disposal	$ 762,832.50	$ 762,832.50
Waste Charaterization	$ 21,350.00	$ 21,350.00
Endpoint analyis, DUSR, EDDs	$ 26,750.00	$ 26,750.00
Air Monitoring and Field Oversight	$ 76,500.00	$ 76,500.00
Project Management	$ 53,925.00	$ 53,925.00
Dewatering Permits and Treatment System	$ 61,750.00	$ 61,750.00
Status Reports	$ 4,200.00	$ 4,200.00
Environmental Easement Package	-	$ 12,500.00
Site Management Plan	-	$ 11,500.00
Final Engineering Report	$ 25,450.00	$ 25,450.00
Subtotal	$ 1,032,757.50	$ 1,056,757.50
15% Contigency	$ 154,913.63	$ 158,513.63
Total	**$ 1,187,671.13**	**$ 1,215,271.13**

ATTACHMENT I
Geotechnical Report

GEOTECHNICAL DATA REPORT
FLUSHING STEWART PROJECT
MRCE File 12403

Riverside Developers USA, Inc.
266 Broadway, Suite 301
Brooklyn, New York 11211

Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 West 34th Street
New York, NY 10122

May 19, 2015
Rev. 1, May 21, 2015

Mueser Rutledge
Consulting Engineers
14 Penn Plaza · 225 West 34th Street · New York, NY 10122
Tel: (917) 339-9300 · Fax: (917) 339-9400
www.mrce.com

May 19, 2015 (*Revision 1, May 21, 2015*)

Riverside Developers USA, Inc.
266 Broadway, Suite 301
Brooklyn, NY 11211

Attention: Mr. Mordy Steinfeld

Re: Geotechnical Data Report
Flushing Stewart Project
Brooklyn, New York
MRCE File No. 12403

Greetings:

In accordance with your authorization to proceed, Mueser Rutledge Consulting Engineers (MRCE) has completed our Phase 1 geotechnical report using Cone Penetration Tests (CPT) probes and existing nearby geotechnical data available from our files, as part of the geotechnical subsurface investigation for the referenced project.

This report presents geotechnical data for project use, including cone penetrometer test records and compiled available geotechnical boring logs from nearby sites. Additional geotechnical subsurface information from sampled boreholes advanced using casing and mud rotary drilling techniques, monitoring of groundwater data, and results laboratory testing data will be collected, evaluated and summarized in a subsequent letter report.

EXHIBITS

The following exhibits are attached to illustrate our report:

Figure No. 1	Topographic Map – Site Location Plan
Drawing No. T-1	Field-Revised Boring Location Plan
Drawing No. T-2	Section A-A
Figure No. 2	Cone Penetration Test Summary Plots and Stratigraphy
Figure No. 3	*Flood Rate Insurance Map*
Appendix A	ConeTec CPT Probe Logs
Appendix B	Historic Boring Information
Appendix C	NYCT Letter of No Impact and Submission

SITE AND PROJECT DESCRIPTION

The project site is in Brooklyn, New York, as shown in Figure 1, with addresses 1181-1189 Flushing Avenue and 25-41 Stewart Avenue. The site consists of Brooklyn Block 2994, Lot 75, at the intersection of Flushing Avenue and Stewart Avenue, and Lot 9 divided into Parcels A and B connecting that lot to Johnson Avenue near its intersection with Varick Avenue, as shown on the attached drawings. Lot 75 is 22,740 sq. ft., Lot 9 includes former Parcels A at 17,267 sq. ft., and Parcel B at 10,545 sq. ft.

A new mixed use hotel and retail space development tower is proposed to include 8-stories above ground plus a one story basement on Lot 75 at the intersection of Flushing and Stewart Avenues, plus at grade parking north of the tower and NYCT subway tunnel.

SITE GEOLOGY AND HISTORY

The Paleozoic metamorphic bedrock at the site is at roughly elevation -250 ft. The rock is overlain by the Cretaceous Raritan Clay formation that is found around elevation -175 ft.. During the Pleistocene a series of glaciers advanced and retreated across the region. During the peak of the last inter-glacial period sea-level rose above the current level. A marine clay, the Gardiners Clay, was deposited along the southern shore of Long Island, and this clay is present below the site at roughly elevation -75'. The last ice advance built up the terminal moraine about 2 miles to the south, and when the ice retreated it left behind thick layers of glacial till, outwash and glacial lake silt and clay. Subsequent Holocene sea-level rise has allowed organic clay and marsh deposits to fill in low-lying areas.

SUBSURFACE INVESTIGATIONS

Previous Investigations: Review of neighborhood geotechnical subsurface information in our files included two geotechnical investigations conducted near the site. In October and November 1990, Converse Engineering Consultants, PC conducted several geotechnical borings in a plot bordered by Wyckoff Ave. to the south, and Stockholm St. and Stanhope St. to the west and east, respectively. A boring location plan and logs for several of these borings are attached in Appendix B. This site is approximately 2,200 feet southeast of the project site.

We reviewed geotechnical information from a Brooklyn project near the intersection of Bogart Ave. and Harrison St. Attached in Appendix B is a summary of subsurface strata characteristics and two geotechnical boring logs from this project. The project site was located approximately 2,200 feet west of the project site.

Current Investigation: This project subsurface investigation includes up to 12 geotechnical borings (in progress), six Cone Penetration Test (CPT) probes and up to eight test pits. We prepared specifications for the drilling and cone penetrometer work and solicited bids from five drilling contractors and one cone penetrometer contractor.

The boring contract was awarded CMI Subsurface Investigations, Inc. of Tappan, New York, and the cone penetrometer contract was awarded to ConeTec, Inc. of West Berlin, New Jersey.

CPT probes, Nos. CPT-5, CPT-7, and CPT-9 through CPT-12 made at corresponding proposed borehole locations, were completed on May 18, 2015. CPT probes were conducted under the continuous inspection of our resident engineer, Mr. Jerry Chan. As-drilled CPT locations were field measured off existing site features and are shown with the proposed boring locations on drawing BLP-1. Results of the CPT probes are attached as Appendix A.

Borings, Nos. B-1 through B-12, are currently in progress using a truck-mounted drill rig, rotary drilling methods and a combination of casing and drilling mud to stabilize the borehole. Two borings will be backfilled with observation wells to measure the groundwater level with time across the site. Soils samples are planned on five foot centers by using a 2-inch O.D. split-spoon sampler driven with a drop hammer weighing 140 pounds and falling through a height of 30 inches. The number of hammer blows required to advance the split-spoon sampler through each of four, six-inch drive intervals will be recorded. The Standard Penetration Test (STP) resistance or N-value, expressed in blows per foot, is an indication of the density of the material sampled and is calculated by summing the blows from the second and third six-inch intervals. In some instances, where the sampler is unable to penetrate the full 24 inches due to the presence of dense soils or other obstructions, the sampler will be driven until 50 blows are administered in a six-inch interval and the actual penetration of the sampler was measured and recorded. Recovered soil samples will be classified in the field and placed in jars for preservation and transport to our laboratory.

SUBSURFACE CONDITIONS

The subsurface stratigraphy was developed from the CPT probes conducted during this investigation as shown on Figure 2. The historic borings conducted near the site provide further insight into the material composition of the stratigraphy defined by the piezocones. Sample descriptions provided on the historic boring logs in Appendix B include the Unified Soil Classification System (USCS) symbol. Soil description guidelines and an explanation of the USCS are shown on Drawing No. GS-R. General descriptions of materials encountered in CPT probes are summarized below in order of increasing depth. Drawing No. T-2, Section A-A with SPT Stratification, and Figure 2, provide a summary of subsurface conditions encountered in the form of geologic sections.

Stratum S1 – Silty Sand/ Sand. The uppermost stratum encountered in CPT probes was silty sand, sand and sandy silt, ranging in thickness from 10 to 14 feet, averaging approximately 11.5 feet thick. The stratum generally consisted of medium compact to compact silty sand, with some soft sandy silt and silt.

Stratum M1 – Sandy Silt. S1 was underlain by a layer of soft to medium sandy silt deposits ranging from 1 to 8 feet thick, averaging approximately 4 feet thick.

Stratum S2 – Silty Sand/Sand. M1 was underlain by a layer of medium compact silty sand and sand deposits ranging from 16 to 29 feet thick, averaging approximately 23.5 feet thick.

Stratum S3 – Sand. S2 was underlain by a layer of medium compact to compact sand, trace gravelly sand. No CPT probes penetrated the S3 sand layer, however, two of the piezocones, CPT-7 and CPT-9, showed the layer extends to at least a 100 foot depth, with a minimum thickness of approximately 60 feet.

Groundwater. Groundwater was measured at approximately 16 feet below grade *corresponding to El. +1 (NAVD 88)* in the CPT probes, uniform across the site. Groundwater levels will be further recorded and evaluated in the proposed observation wells.

CONCLUSIONS AND RECOMMENDATIONS

Subsurface Conditions

The site subsurface consists mainly of granular cohesionless sandy soils with a trace to some silt or fine silty layers. No extensive organic or compressible materials were encountered or identified by the CPT probes which use the Robertson and Campanella correlations for cone bearing resistance to penetration and friction ratio to identify soil behavior type. Subsurface soils mainly consisted of Type 8 sand and silty sand and Type 9 sands with thinner potentially discontinuous or intermixed layers of Type 7 silty sand to sandy silt.

Groundwater

Groundwater was interpreted from CPT probes at 16-ft below ground surface. A preliminary design groundwater elevation at 14-ft below the ground surface is recommended, corresponding to El. +3 NAVD 88 datum. *According to the FEMA Region 2 Coastal Analysis and Mapping information updated following the hurricane Sandy event, the site falls into the low flood risk unshaded Zone X, defined as an area outside the 1% and 0.2% annual chance floodplains. Being that the site spans from one block to several blocks from shaded Zone X with moderate coastal flood risk and a block further from Zone AE with base coastal flood El. +10 (NAVD 88), we recommend the basement foundation walls and temporary excavation support system be checked for a temporary flood condition with groundwater rising to El. +10, which will concurrently provide added protection against temporary flooding resulting from adjacent water main breaks.*

Foundation Support

Without organic or compressible deposits on site, building loads from the new building can likely be supported on shallow spread footings founded below the single level basement on natural sand deposits above the static groundwater at approximately El. *+1*, NAVD 88 datum. This would allow for approximately an 8 to 10-ft clear height basement, and slab and footing thickness below. A preliminary allowable bearing capacity of 3 to possible 4 tsf for spread footings bearing in cohesionless sandy soils at that depth is recommended from review of the soil behavior type, consistency and resistance to penetration, and available CPT empirical relationships.

Excavation Support and Underpinning

Excavation for the basement of the tower portion of the new building will require excavation support and potentially underpinning. Excavation along streets will likely be accomplished using soldier piles and timber lagging. Jack hammering was necessary to break the concrete at the surface of the site for CPT probes. The truck rig was then able to advance CPT probes to between 47 and 100-ft depth, with one probe encountering refusal at 47-ft depth, and three others reaching refusal between 80 and 83-ft depth. The two remaining probes reached the maximum target depth of 100-ft below grade. Thus it can be reasonably inferred that soldier piles can be driven and extended to required depths of 25 to 35-ft along the Flushing and Stewart Avenue street sides whereas those installed within an influence of the adjacent buildings would be drilled to minimize vibrations and potential building settlement or structural damage.

Adjacent buildings, should their foundations be encountered shallower than proposed subgrade, will require underpinning to extend the foundation loads beneath the proposed adjacent excavation levels. Underpinning would likely be accomplished by sequentially excavating and replacing soil beneath the adjacent building wall footings with concrete piers. Test pits and pre-construction building condition surveys are planned to further investigate existing adjacent building foundation and superstructure conditions for use in final design.

Seismic Evaluation

A seismic evaluation will be refined in final design. The site presently classifies as Site Class D, a stiff soil profile with soil shear wave velocities in the 600 to 1,200 ft/sec, standard penetration resistance between 15 and 50 blows per foot and undrained shear strengths in the 1,000 to 2,000 psf range. Design spectral response values S_{DS} and S_{D1} of 0.294 and 0.117 are recommended.

Construction Monitoring

Adjacent buildings should be monitored for vibrations and horizontal and vertical deformation throughout the excavation and foundation phase. The pre-construction building condition surveyed will be conducted and reviewed to establish criteria for vibrations and deformation in accordance with NYC Building Code requirements.

This subsurface investigation serves to define subsurface conditions at the Flushing Stewart Project site for use in the design development phase. Interpreted stratification from CPT probes and recommendations made in this report will be further refined and supplemented by the geotechnical borings, test pits, percolation tests, groundwater measurements and adjacent building preconstruction building condition surveys which will aid in progressing final design.

If you have any questions regarding this data report, please contact us.

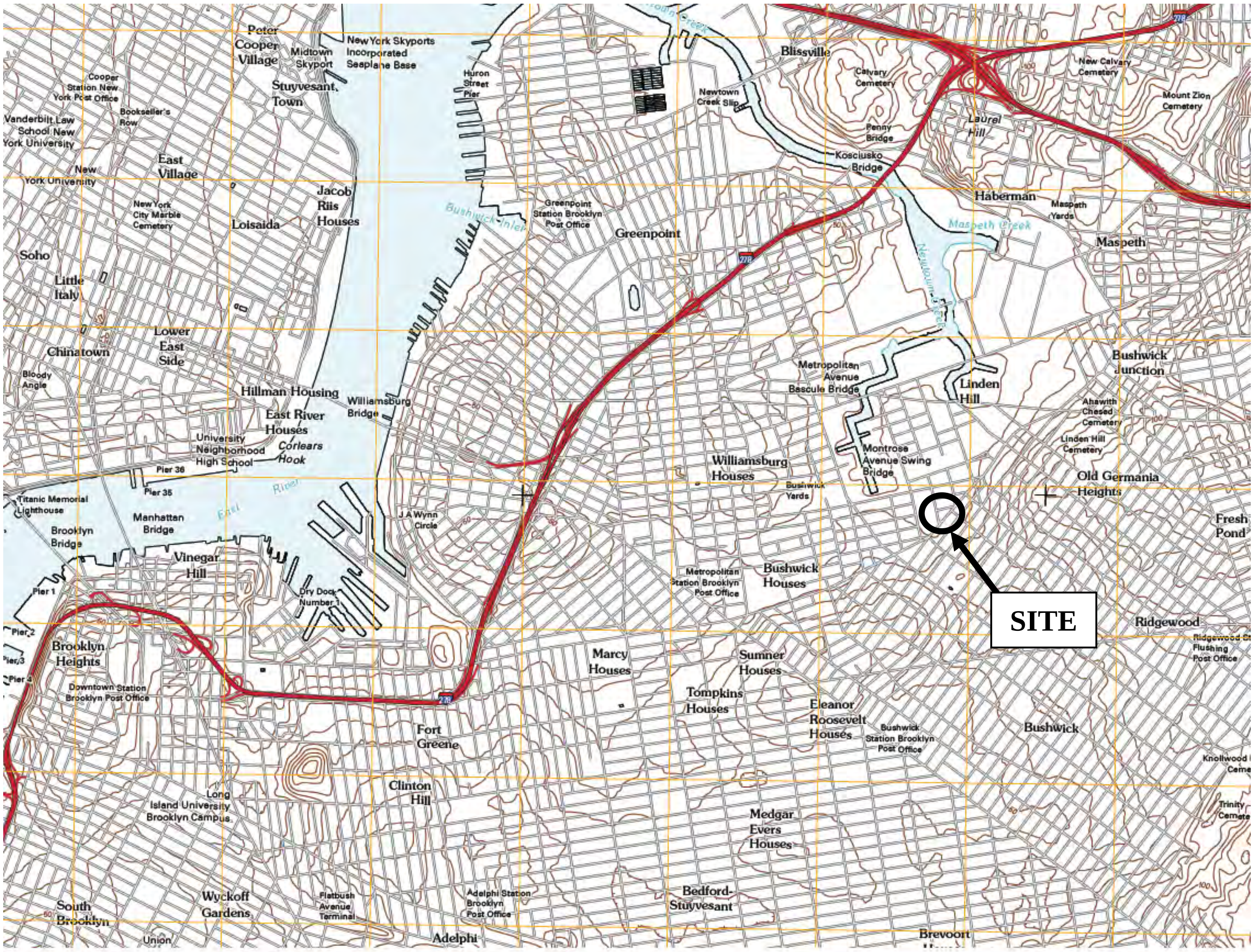
Very truly yours,

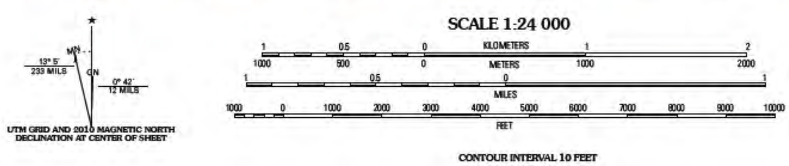
MUESER RUTLEDGE CONSULTING ENGINEERS

By: Joel L Volterra

Joel L. Volterra, PE

PED:JLV:DRG:F:\124\12403\Geotechnical Report\Report text.docx

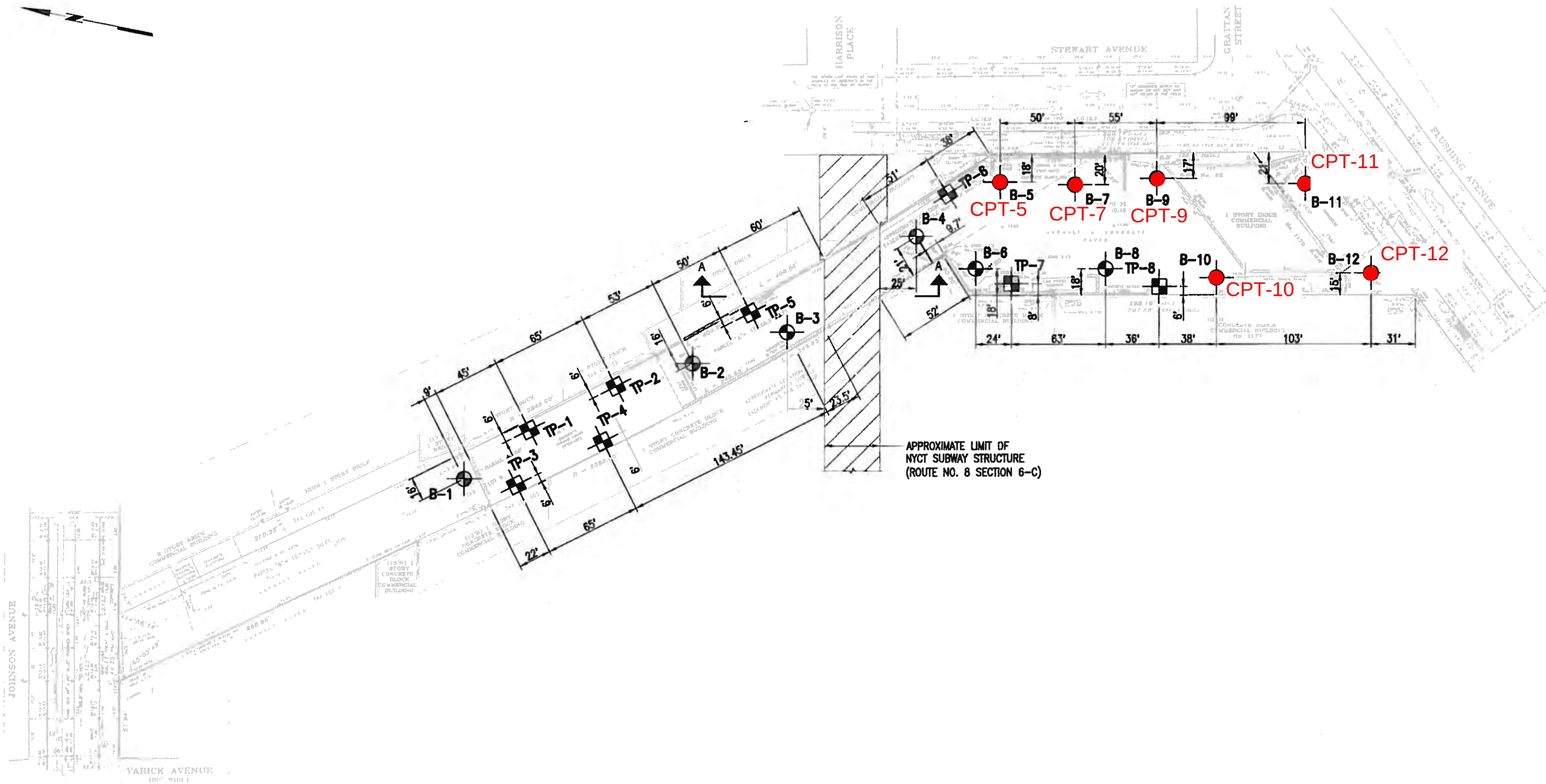




SOURCE:

USGS TOPOGRAPHIC MAP, BROOKLYN, N.Y., DATED 2010.

FLUSHING STEWART PROJECT		
BROOKLYN NEW YORK		
RIVERSIDE DEVELOPERS USA, INC. BROOKLYN NEW YORK		
MUESER RUTLEDGE CONSULTING ENGINEERS 225 WEST 34TH STREET, NEW YORK, NY 10122		
SCALE -	**MADE BY:** PED **DATE:** 05-19-15 **CH'KD BY:** **DATE:**	**FILE NO.** **12403**
TOPOGRAPHIC MAP		FIGURE NO. **1**



PLAN

GRAPHIC SCALE

40' 20' 0 40' 80'

NOTES:

1. PLAN IS BASED ON ARCHITECTURAL SURVEY OF PROPERTY BY LEONARD J. STRANDBERG AND ASSOCIATES, DATED DECEMBER 18, 2014 AND ON NAVD 88 DATUM.
2. SUBWAY LIMITS AND INFORMATION OBTAINED FROM NYC TRANSIT FILE NO. A5688, DRAWING NOS. A-1 AND C-1, FOR ROUTE NO.8, SECTION 6-C.
3. FOR SECTION, SEE DRAWING NO. T-2.
4. FOR BORING NOTES, SEE DRAWING NO. T-2.
5. LOCATIONS OF CPT PROBES WERE FIELD MEASURED BY CONETEC AND MRCE OFF EXISTING SITE FEATURES.

LEGEND:

B-1P – PROPOSED BORING LOCATION

"P" – INDICATES PIEZOMETER INSTALLATION

TP-1 – PROPOSED TEST PIT LOCATION

– INDICATES PROJECT SITE

MRCE #1

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT

BROOKLYN NEW YORK

RIVERSIDE DEVELOPERS USA INC.

BROOKLYN NEW YORK

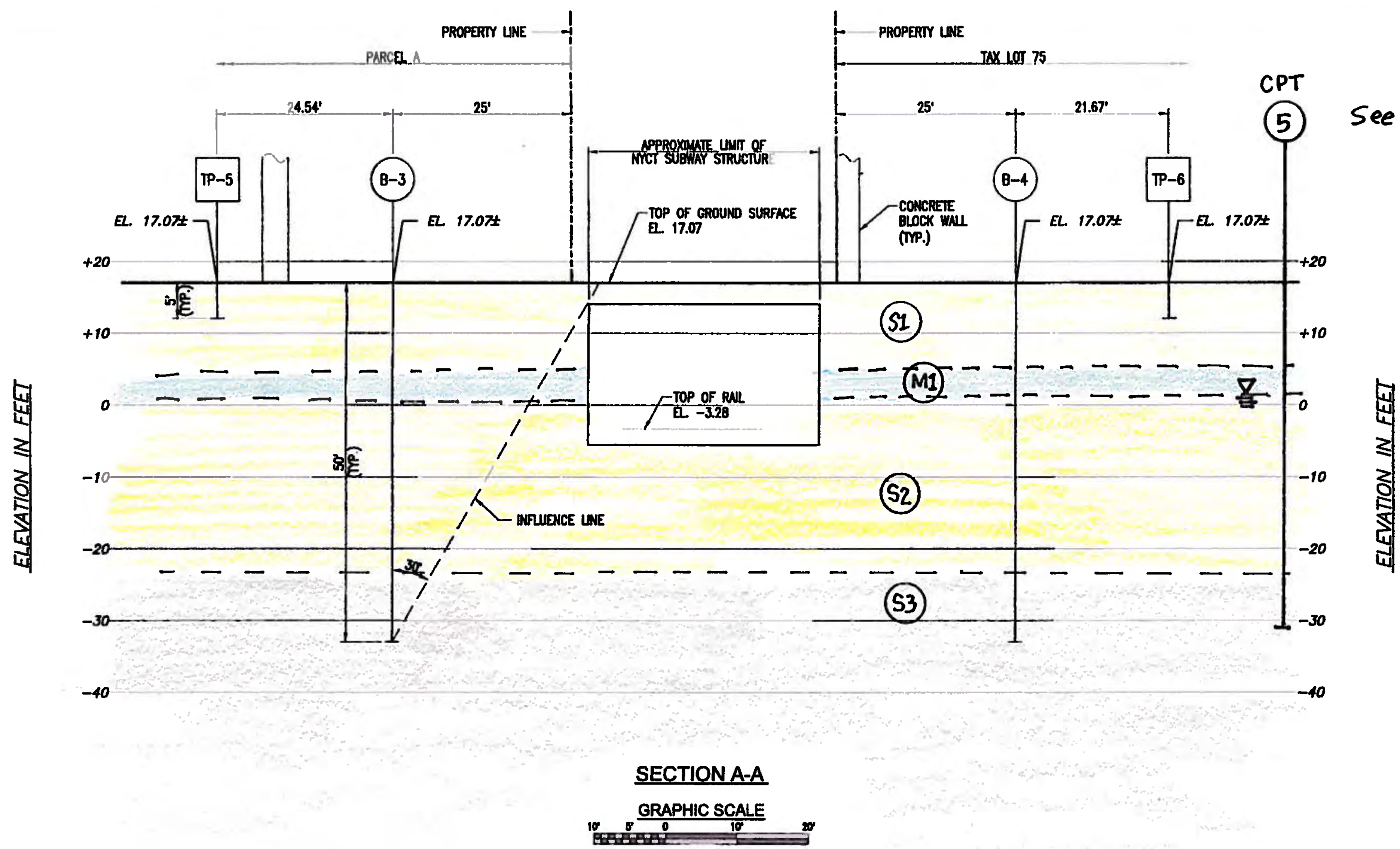
MUESER RUTLEDGE CONSULTING ENGINEERS

14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: K.J.	DATE: 03-18-2015	FILE NUMBER
AS NOTED	CH'KD BY: T.S.	DATE: 03-18-2015	12403

BORING LOCATION PLAN

DRAWING NUMBER T-1



SECTION A-A

GRAPHIC SCALE

See also CPT probe logs for CPT-7, 9, 10, 11 and 12.
CPT-7 & CPT-9 progressed to 100 ft below ground.

BORING AND TEST PIT NOTES:

1. BORINGS SHALL BE LOCATED AS SHOWN ON DRAWING NO. T-1.
2. BORINGS SHALL BE MADE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SUBSURFACE BORINGS AND SAMPLING BY MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE).
3. BORINGS WILL BE MADE UNDER THE CONTINUOUS INSPECTION OF MRCE.
4. THE DRILL RODS SHALL BE PLUMBED BEFORE AND DURING THE DRILLING OF BORINGS ADJACENT TO NYCT STRUCTURES. IF A BORING IS SIGNIFICANTLY OUT OF PLUMB, AS DETERMINED BY MRCE, THE BOREHOLE SHALL BE GROUTED AND AN OFFSET BORING WILL BE DRILLED.
5. BORINGS WILL BE MADE WITH A TRUCK MOUNTED DRILL RIG USING MUD-ROTARY DRILLING METHODS EMPLOYING DRILLING FLUIDS TO MAINTAIN A STABLE BOREHOLE. CASING WILL BE USED ON AN AS-NEEDED BASIS TO SUPPLEMENT DRILLING FLUIDS.
6. BORINGS B-3 AND B-4 WILL BE CASED TO THE BOTTOM OF THE SUBWAY STRUCTURE.
7. A POSITIVE HEAD USING HEAVY DRILLING FLUID SHALL BE MAINTAINED AT ALL TIMES.
8. IF LOSS OF DRILLING FLUID IS OBSERVED, CASING SHALL BE ADVANCED TO THE DEPTH WHERE LOSS OCCURRED.
9. BORINGS WILL BE MINIMUM 3½ INCH DIAMETER AND ARE TO EXTEND 50 FEET.
10. BOREHOLES WITHOUT PIEZOMETERS SHALL BE GROUTED UPON COMPLETION.
11. PIEZOMETERS WILL BE INSTALLED IN TWO OF THE COMPLETED BOREHOLES.
12. THE BORING CONTRACTOR SHALL COMPLY WITH NEW YORK CITY TRANSIT REQUIREMENTS AND INSURANCE CLAUSES SHOWN ON DRAWING NO. T-3.
13. TEST PITS SHALL BE ADVANCED BY EXCAVATOR AND/OR HAND DIGGING TO DEPTH SUFFICIENT TO OBSERVE EXISTING BUILDING FOUNDATIONS.
14. TEST PIT SIDES SHALL BE SAFELY SLOPED OR SUPPORTED BY SHEETING AND BRACING TO ENABLE PERSONNEL TO ENTER THE PIT.
15. UPON COMPLETION TEST PITS SHALL BE BACKFILLED WITH EXCAVATED MATERIAL AND THE SURFACE RESTORED.

SECTION NOTES:

1. FOR SECTION LOCATION, SEE DRAWING NO T-1.
2. ELEVATIONS SHOWN REFER TO NAVD 88 DATUM, AND EQUAL TO EL. 98.45 REFERENCED TO NYC TRANSIT DATUM.

See text for strata descriptions

Revised 5/19/15 Made By: JCV

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT
BROOKLYN NEW YORK

RIVERSIDE DEVELOPERS USA INC.
BROOKLYN NEW YORK

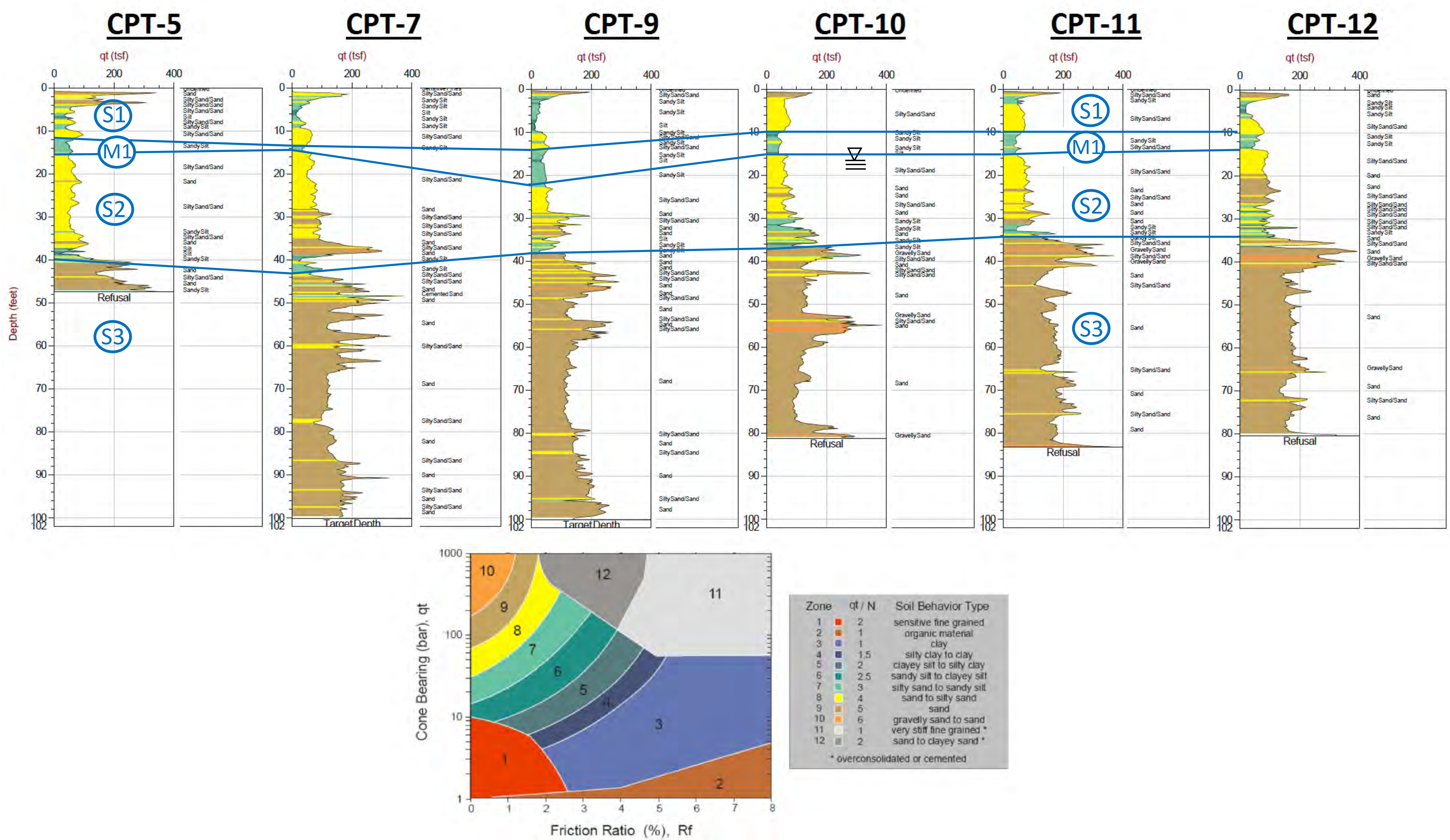
MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: K.J. DATE: 03-18-2015	FILE NUMBER
AS NOTED	CHK'D BY: T.S. DATE: 03-18-2015	12403.

SECTION A-A
WITH CPT STRATIFICATION

DRAWING NUMBER T-2

Printed by: Kenneth Oefelein
Printed on: Thursday, Mar 19, 2015 – 11:20:37 AM
Last saved by: koefelein on Thursday, Mar 19, 2015 11:20:29 AM
G:\DWGS\12\12403\T-2.dwg



Soil Behaviour Type Chart, Robertson (1990)

FIGURE 2

SOURCE:

FEMA New York City Preliminary FIRM Data Viewer
Dated 12/5/13 accessed on line 5/21/15.

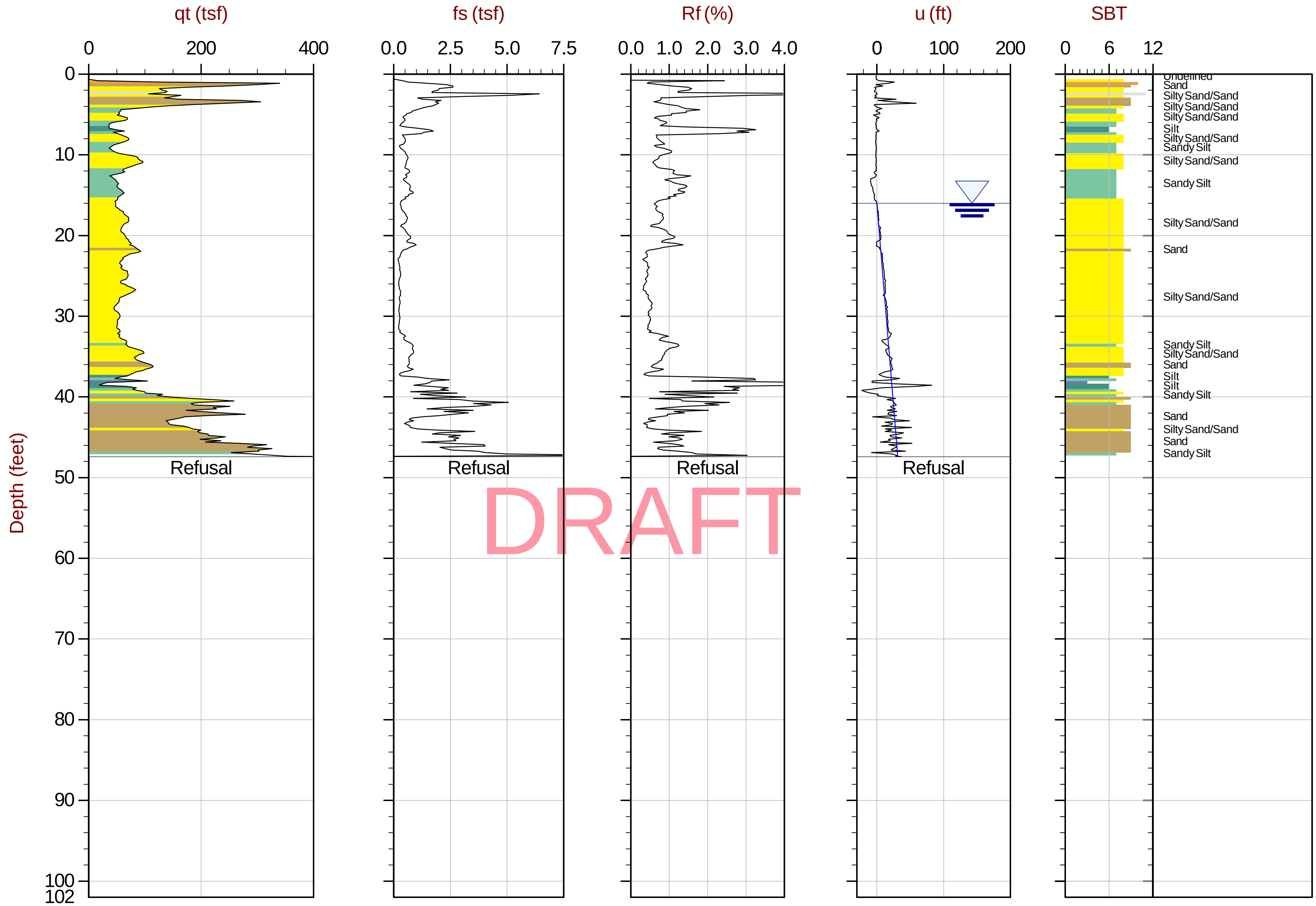
Site is shown green translucent.
Shaded Zone X is tan, Zone AE shaded blue.
Site falls into Unshaded Zone X.

FLUSHING STEWART PROJECT BROOKLYN NEW YORK			
RIVERSIDE DEVELOPERS USA, INC. BROOKLYN NEW YORK			
MUESER RUTLEDGE CONSULTING ENGINEERS 225 WEST 34TH STREET, NEW YORK, NY 10122			
SCALE -	**MADE BY: JLV** **CH'KD BY:**	**DATE: 05-21-15** **DATE:**	**FILE NO.** **12403**
Flood Rate Insurance Map			FIGURE NO. **3**

Appendix A
ConeTec CPT Probe Logs

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 12:06
Site: 1175 Flushing,
Sounding: CPT15-05
Cone: 206:T1500F15U500



Max Depth: 14.450 m / 47.41 ft
Depth Inc: 0.050 m / 0.163 ft

File: 15-53040_CP05.DAT

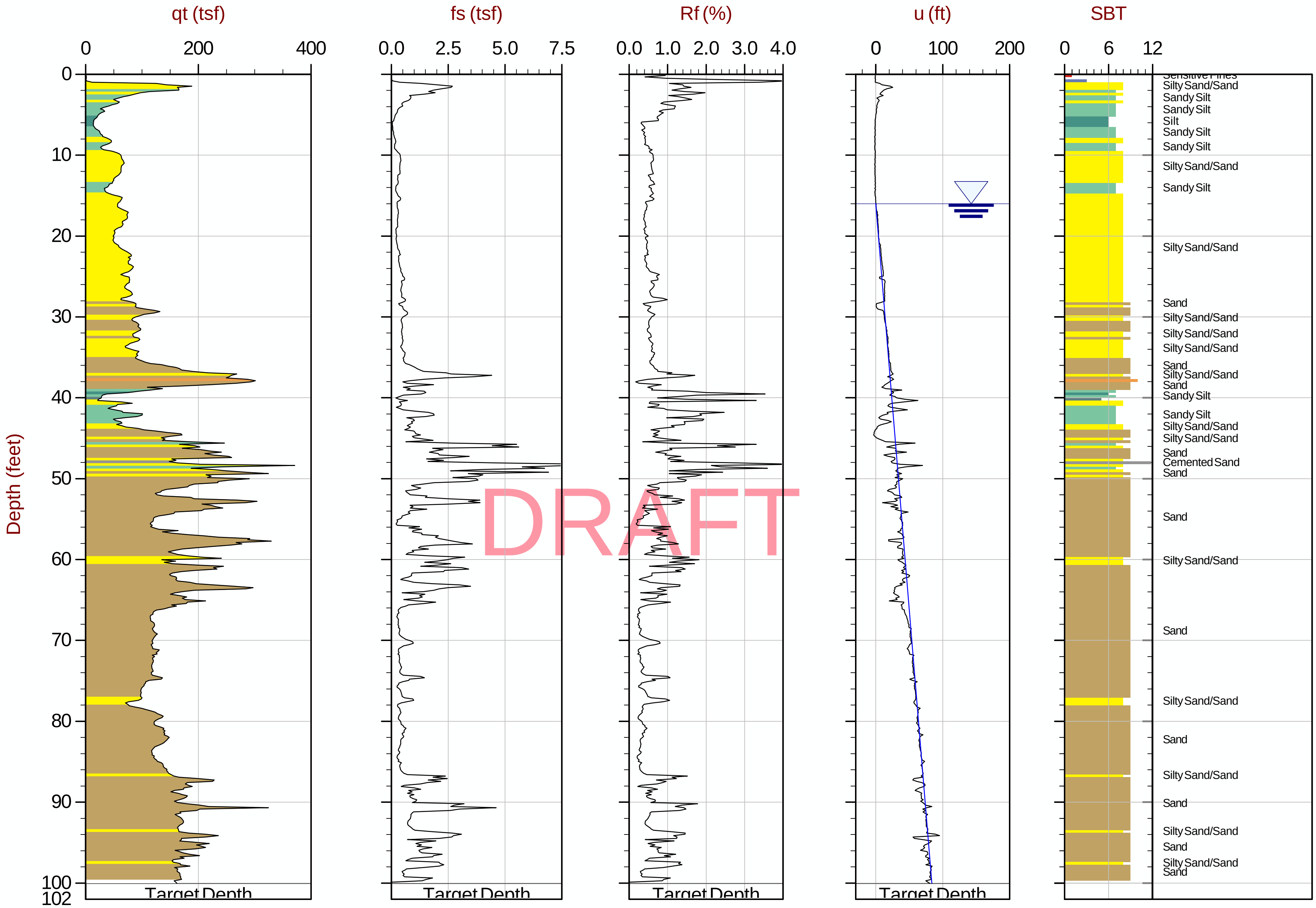
SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506797 E: 590769

ConeTec

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 12:49
Site: 1175 Flushing,

Sounding: CPT15-07
Cone: 206:T1500F15U500



Max Depth: 30.500 m / 100.06 ft
Depth Inc: 0.050 m / 0.164 ft

File: 15-53040_CP07.DAT

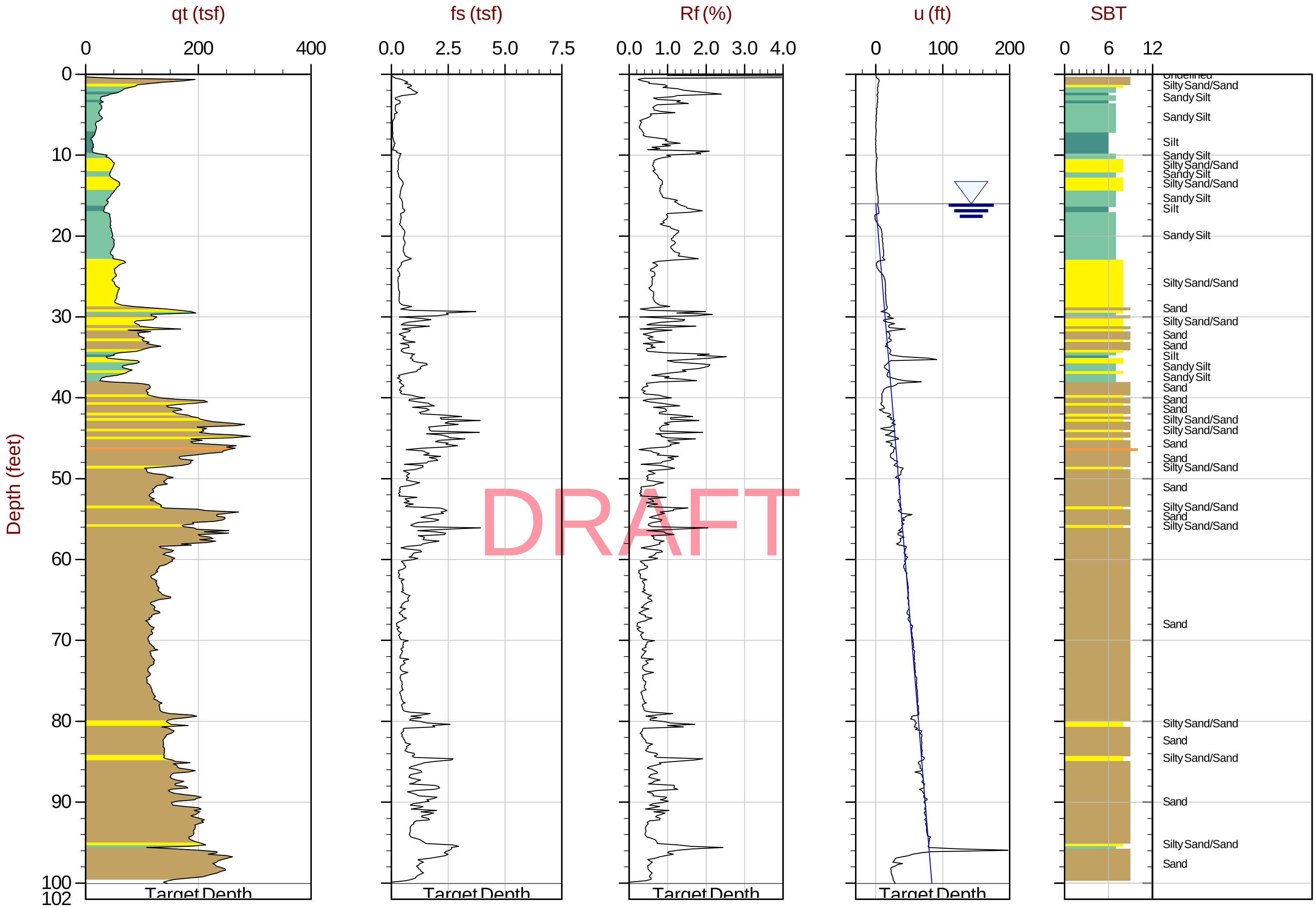
SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506784 E: 590773

ConeTec

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 13:57
Site: 1175 Flushing,

Sounding: CPT15-09
Cone: 206:T1500F15U500



Max Depth: 30.500 m / 100.06 ft
Depth Inc: 0.050 m / 0.164 ft

File: 15-53040_CP09.DAT

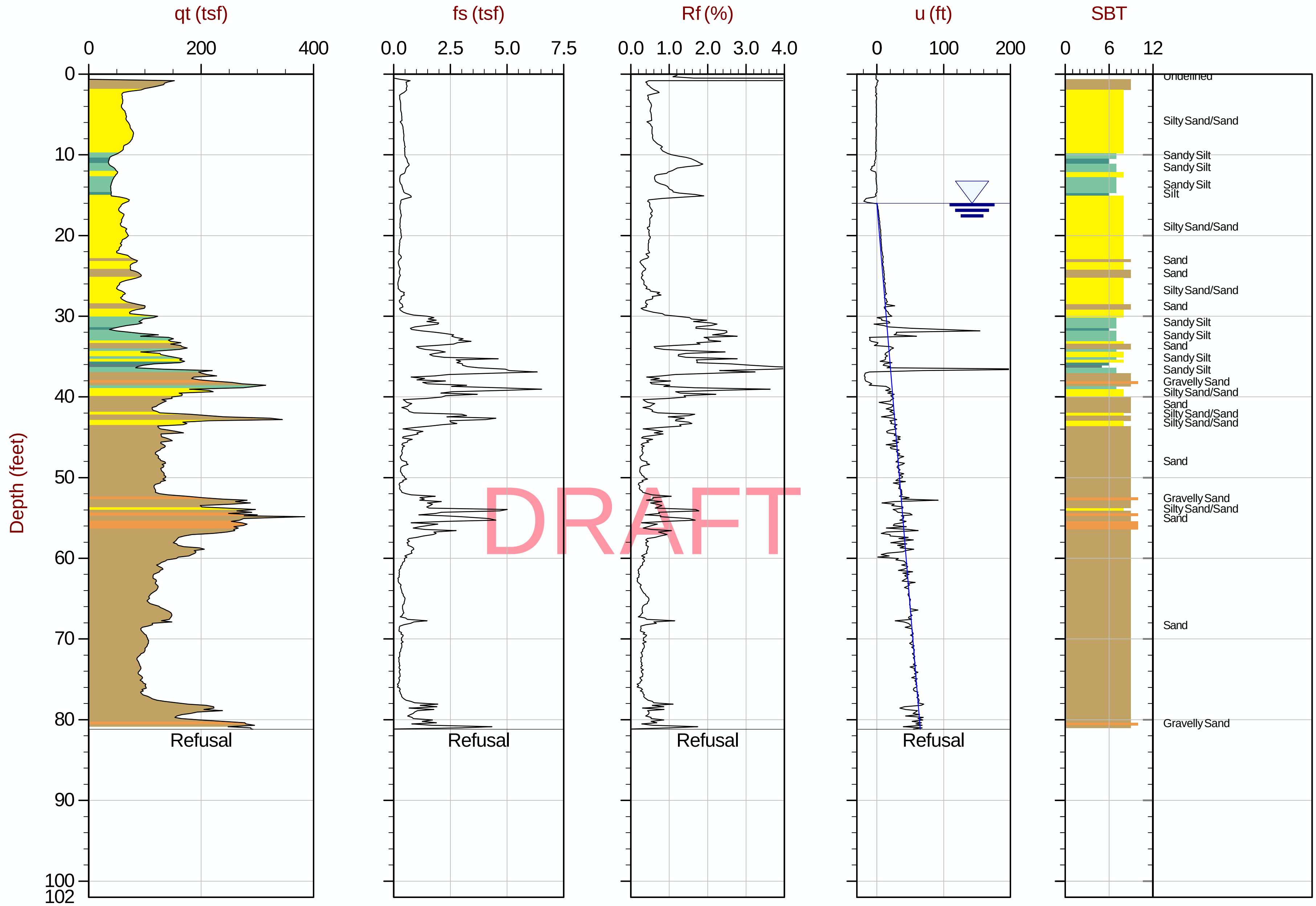
SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506771 E: 590775

ConeTec

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 11:02
Site: 1175 Flushing,

Sounding: CPT15-10
Cone: 206:T1500F15U500



Max Depth: 24.750 m / 81.20 ft
Depth Inc: 0.050 m / 0.164 ft

File: 15-53040_CP10.DAT

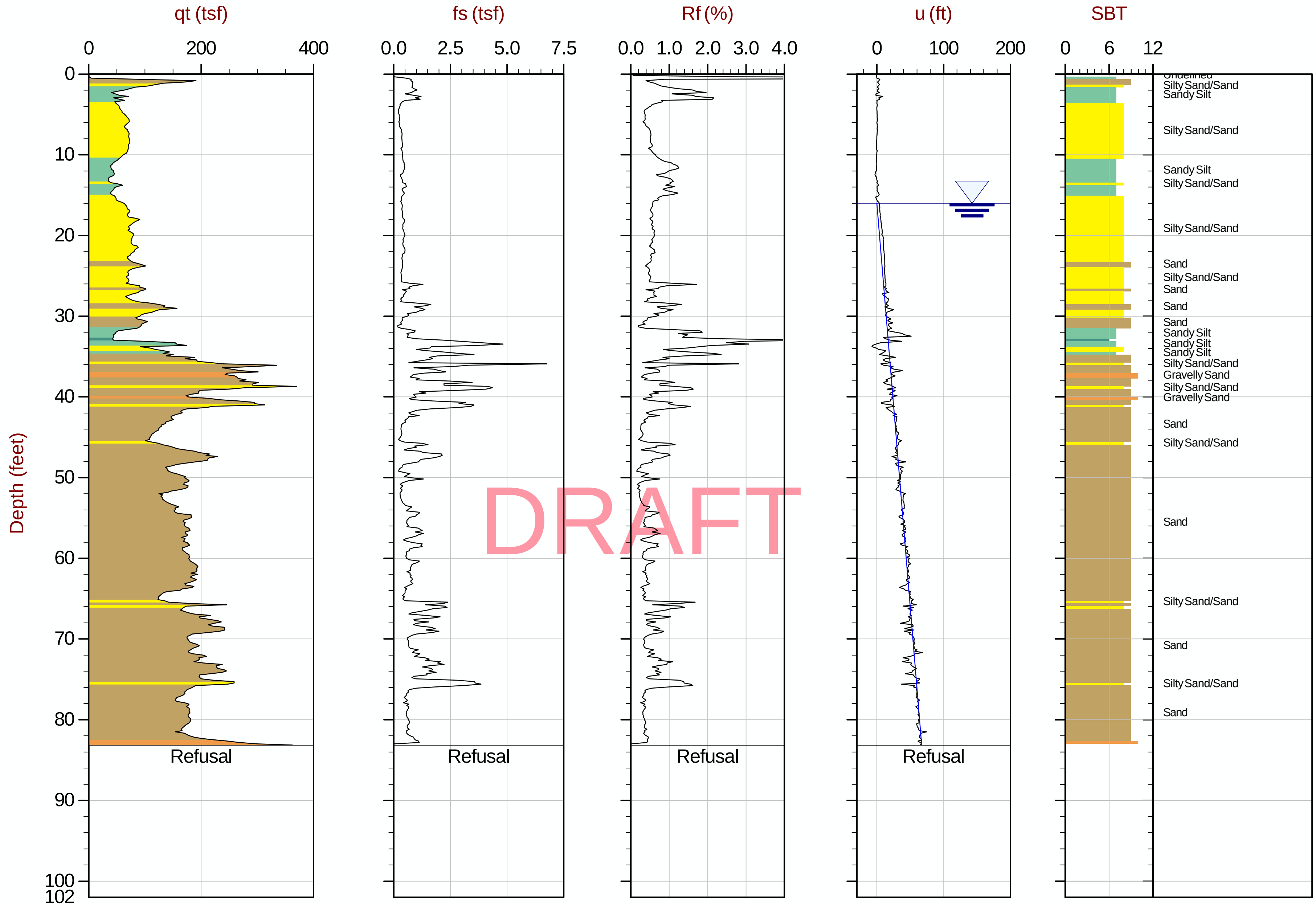
SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506754 E: 590758

CONETEC

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 09:50
Site: 1175 Flushing,

Sounding: CPT15-11
Cone: 206:T1500F15U500



Max Depth: 25.350 m / 83.17 ft
Depth Inc: 0.050 m / 0.164 ft

File: 15-53040_CP11.DAT

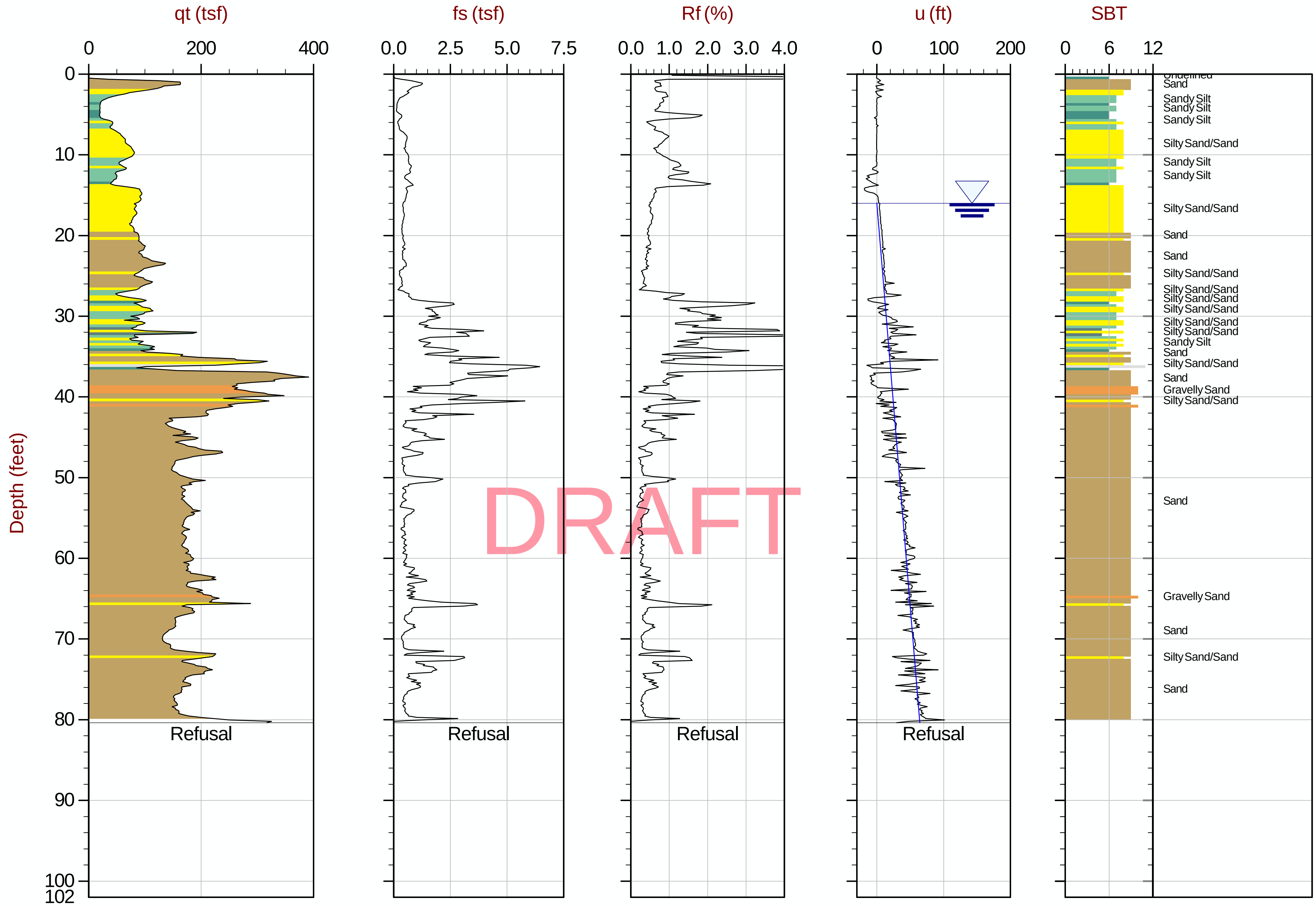
SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506738 E: 590781

ConeTec

Mueser Rutledge

Job No: 15-53040
Date: 05:18:15 08:50
Site: 1175 Flushing,

Sounding: CPT15-12
Cone: 206:T1500F15U500



Max Depth: 24.500 m / 80.38 ft
Depth Inc: 0.050 m / 0.164 ft

File: 15-53040_CP12.DAT

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4506725 E: 590770

Appendix B

Historic Boring Information

Bushwick Shaft - Summary of Strata Characteristics

Classification and Description of Strata	Unified Classification	From Depth Top	From Depth Bot	Thickness ft.	Blow Count N/ft.	Properties: Water Content	Properties: Density Dry, pcf	Properties: Shear Str. ksf	Properties: Permeability cm/sec	Performance: Seepage, Sloughing and Wall Stability
Fill - Brn silty f to m sand, tr. to sm. gravel, total depth uncertain.	SM	0	34	34 ?	15 to 20	20	110	medium friction	up to 10^{-2}	Erratic permeability, may be in contact to Newtown Creek.
General glacial outwash Tan-brn f to c sand, tr. to sm. gravel, silt layers - coarser w depth.	SP-SM ↓ SP	34	93	59	15 → 35	17	116	medium friction	10^{-2}	Lenticular, anisotropic may also have easy recharge from shallow sources.
Basel outwash - gravel and fine to coarse sand, silt & cemented layers.	GM & GP-GM	93	100	7	30 to 35	15	120	high friction	up to 2×10^{-1}	May be highly permeable, inflow concentrated on surface of Gardiners underlying, 5 to 15% fines.
Gardiners "Clay" - stiff gray, micaceous clayey silt, lignite lenses, thin sand lenses & partings.	CL & MH	100	132	32	15 → 30	20 to 25	105	2	10^{-4}	Friable, sloughing with inflowing seepage, much sand lensing.
Gardiners Sand Member silty f sand layered with silt, lignite and cemented sand.	ML & SM	132	152	20	30 to 50 occ. cement.	20	110	medium friction	10^{-3}	Only moderate increase in permeability from clay member, probably easy sloughing & piping.
Raritan Clay - Hard mottled plastic clay gray silty clay pockets, occ. fine lenses.	CL & CH	152	217	65	25 → 50	25 to 30	98	4	10^{-5}	Essentially impervious except on joints and fractures. Probably acts like jointed soft rock.
Raritan Sand Member Brn silty f. to m. sand, with silt and clay seams.	CL & SC	217	226	9	55 to 75	18	115	high friction	10^{-3}	Not much permeability, probably limited recharge.
Decomposed Rock, Very hard grn.-gray clayey silt, sandier & rockier with depth	MH occ ML	226	276	50	35 → 55 → >100	30 → 25	98	3 → 8	10^{-5} → 10^{-3}	Impervious and stiff at top, slightly pervious and rocky at base and very hard.
Bedrock, hornblende mica gneiss		276	to base				165 → 170	rock	10^{-2} → 10^{-6}	Moderate permeability in upper jointed zone, [illegible] becomes intact

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

FILE NO. 7271

PROJECT Bushwick Shaft 20

BORING NO. BK 20B-A & A1

SURFACE ELEV. +16.6

PROJECT LOCATION Brooklyn, New York

MADE BY: [illegible]

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
							Boring BK 20B-A from 0.0 - 13.0'
					5.0		
1D	5.0 7.0	6-7-8-13	Yellow brown fine sandy silt trace clay, gravel (ML)(FILL)				
					10.0		
2D	10.0 12.0	19-30-43 49	Yellow brown silty fine to medium sand trace gravel, clay (SM) (FILL)				Boring BK20B-A1 started from 13.0'
					15.0		
1D	15.0 17.0	10-20-57- 21	Yellow brown silty fine to medium sand trace gravel, clay (SM) (FILL)			2"	140 lb hammer Small sample
					20.0		
2D			NO SAMPLE (BOULDER)				
				FILL	25.0		140 lb hammer
3D	26.0 28.0	41-42-57- 46	Brown gravel some fine to medium sand, silt (GM) (FILL)				
					30.0		
4D	30.0 32.0	31-47-61 70	Yellow brown gravel some silt fine to medium sand (GM)(FILL)				Very small sample
					35.0		
5D	35.0 36.5	36-79- 101	Red brown silty fine to medium sand and gravel (GM) (Possible FILL)				Small sample
					38		
				Red brown fine to coarse sand, some gravel, trace to some silt (GLACIAL OUTWASH)	40.0		
6D	40.0 42.0	48-35-[illegible] [illegible]	Red brown fine to coarse sand some silt, gravel (SM)				
					45.0		
7D	45.0 47.0	32-55-52- 72	Red brown fine to medium sand trace gravel, silt, coarse sand (SP-SM)				
					50.0		
8D	50.0 52.0	31-49-50 57	Red brown fine to medium sand some gravel trace silt (SP-SM)			2"	140 lb hammer Very small sample

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 2 OF 5
FILE NO. 7271
BORING NO. ER30E-A1
SURFACE ELEV. +16.6

PROJECT Bushwick Shaft 30

PROJECT LOCATION Brooklyn New York

MADE BY: [illegible]

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
					55		
9D	55.0 55.5	131	NO SAMPLE				
					60		
10D	60.0 62.0	44-53-61 63	Brown fine to medium Sand Some gravel, Silt (SM)				
					65		
11D	65.0 67.0	39-53-50 65	Brown fine to Coarse Sand and gravel trace Silt (GP-GM)	(GLACIAL OUTWASH)			
					70		
12D	70.0 72.0	23-70-72 95	Brown fine to Coarse Sand Some gravel trace Silt (SP-SM)			2"	140 lb hammer Very Small Sample
					75		
13D	75.0 77.0	34-69-73 75	Do 12D (SP-SM)				Very Small Sample
					80		
14D	80.0 82.0	42-66- 84-108	Brown fine to medium Sand Some gravel trace Silt, coarse Sand (SP-SM)				
					85		
15D	85.0 86.0	38-122	Gravel (GP)				Very Small Sample Not representative
					90		
16D	90.0 91.0	37-117	NO SAMPLE				
					95		
17D	95.0 97.0	45-67-77 101	Brown fine to Coarse Sand and gravel tr Si (GP-GM)				Small sample
					100		
18D	100.0 101	56-101	Brown fine to medium Sand Some gravel, Silt (SM)				Very Small Sample

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 3 OF 6
FILE NO. 7271
BORING NO. BK 20B-A1
SURFACE ELEV. +16.6

PROJECT ____________________

PROJECT LOCATION ____________________

MADE BY: Abu Arif Azam

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				(GLACIAL OUTWASH)	105		
19D	105.0 107.0	69-57-26 13	Do 18D (SM)				Very small sample
					110		
20D	110.0 112.0	24-27-24 40	Brown fine to medium sand some silt trace gravel (SM)			2"	140 lb hammer Very small sample
					115		
21D	115.0 115.5	41-101	NO SAMPLE				
					118		
				Slightly micaceous clayey silt trace cemented silt (GARDINERS CLAY)	120		
22D	120.0' 121.0	80-102	TOP yellow clayey silt trace cemented silt (MH) BOT Gray clayey silt (MH)				DRY SAMPLE
					125		
23D	125.0 126.0	42-73. 101	NO SAMPLE				
					130		
24D	130.0 132.0	24-32-50 99	Dark gray slightly micaceous clayey silt trace cemented silt (MH)				
					133		
				Gray silty fine sand, tr mica, clay lignite, occasional fine sandy silt layers (GARDINERS SAND MEMBER)	135		
25D	135.0 137.0	39-60-77 88	Gray silty fine sand (SM)				
					140		
26D	140.0 142.0	44-60- 80-89	Gray silty fine sand trace mica, clay (SM)			2"	140 lb hammer
					145		
27D	145.0 147.0	34-49-80 110	Gray slightly micaceous fine sandy silt tr. clay, lignite, lignite layers (ML)				
					150		
28D	150.0 152.0	44-66-83. 101	Gray silty fine sand trace clay, mica (SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 4 OF 6
FILE NO. 7271
BORING NO. BK 20B-A1
SURFACE ELEV. +16.6
MADE BY: Abu Arif Azmi

PROJECT Bushwick Shaft 20

PROJECT LOCATION Brooklyn New York

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				GARDINERS SAND MEMBER	155		
29D 30D	155.0 156.3	61-169- 100/4"	Tan fine to medium sand some silt trace coarse sand, gravel, clay pockets (SM)			2"	140 lb hammer
					160		
31D	160.0 161.5	88-220- 208	NO SAMPLE				
					163		
				Red-gray clay to silty clay trace lignite occasional sand layers (RARITAN CLAY)	165		
32D	165.0 167.0	1-30-49- 49	Gray and red brown clay trace lignite (CH)				
					170		
33D	170.0 171.8	25-57- 104-107/4"	Gray silty clay trace fine sand (CL)				
					175		
34D	175.0 176.3	74-131- 104/4"	Interlayered silty fine sand and light gray clay (SM & CH)				
					180		
35D	180.0 181.4	23-23- 101/5"	Yellow gray silty clay (CL)			2"	140 lb hammer Very little sample. DRY.
					185		
36D	185.0 186.4	39-62 101/5"	Gray clay (CH)				DRY SAMPLE
					190		
37D	190.0 192.0	1-41-22. 100	Mottled gray red clay (CH)				
					195		
38D	195.0 197.0	0-45-69 87	Light gray & yellowish gray clay (CH)				
					200		
39D	200.0 201.8	43-76-80. 107/4"	Red gray-yellow gray clay (CH)				

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 5 OF 6
FILE NO. 7271
BORING NO. BK 20B-A1
SURFACE ELEV. +16.6
MADE BY: Abu Arif Azam

PROJECT Bushwick Shaft 20

PROJECT LOCATION Brooklyn, New York

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				RARITAN CLAY	205		
40D	205 206.4	33-94- 107/3"	Gray Clay (CH)				
					210		
41D	210.0 211.0	48-101	Red gray Clay (CH)			2"	140 lb hammer
					215		
42D	215.0 216.0	40-134	Light gray Silty Clay Some fine to medium Sand (CL)		217		
				RARITAN SAND MEMBER	220		
43D	220.0 220.8	73-129/3"	Tan, dk gray Clayey fine Sand (SC)				
					222		
				DECOMPOSED TO WEATHERED ROCK	225		
44D	225.0 225.9	51-107/4"	White to green Clayey Silt (MH)				Rock Structure Visible
					230		
45D	230.0 231.5	39-62- 100	Yellow to dark blue clayey Silt Some rock fragments (Slickensided)				Rock Structure Visible
					235		
46D	235.0 326.	75-101	NO SAMPLE				
					240		
47D	240.0 242.0	1-37-77- 102	White to yellow green Clayey Silt Some fine to Coarse Sand (MH)			2"	140 lb hammer Rock Structure Visible
					245		
48D	245.0 246.0	44-101	White to yellow decomposed to weathered rock				Rock Structure Visible
					250		
49D	250.0 251.0	50-100	Yellow, yellow green & blue Do 48D				Do

BORING NO. BK 20B-A

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 6 OF 6
FILE NO. 7271
BORING NO. BK-20B-A1
SURFACE ELEV. ± 16.6

PROJECT Bushwick Shaft 20

PROJECT LOCATION Brooklyn New York

MADE BY: Abu Arif Azmu

SAMPLE NO.	SAMPLE DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				Do			
					255		
50D	255.0 256.5	1-56-101	Do 49D		257		
				Weathered Rock	260		
51D	260.	100/0"	No SAMPLE				
					265		
52D	265.0 265.2	100/2"	No SAMPLE				
					269		Top of Rock
				Rock	270		at 269.0'
							Rock is of very good quality
							Bottom of boring 380.7'
					380.7		

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 1 OF 5
FILE NO. 7271
BORING NO. BK 20B-B
SURFACE ELEV. +16.9

PROJECT: Buskwick Shaft 20B

PROJECT LOCATION: Brooklyn, New York

MADE BY: Abu Arif Ami

SAMPLE NO.	SAMPLE DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
					0		300 lb hammer was used to drive spoon. For 2" Φ spoon the drop was 24"
					5		
1D	5.0' – 7.0'	7-6-4-6	Yellow brown Clayey fine to medium Sand trace bricks (SC) (FILL)	FILL		2"	For 3" Φ spoon the drop was 30". Used 140 lb hammer with 30" drop from 5.0 feet to 25.0 feet
2D	10.0' – 12.0'	18-24-30-31	Yellow brown Clayey fine to medium Sand trace gravel, Coarse Sand (SC) (FILL)		10		
3D	15.0 – 17.0	18-15-25-25	NO SAMPLE		15		
4D	20.0 – 20.7	31-100/3"	Yellow brown Clayey fine Sand some gravel (SC) (FILL)		20		Very small sample
5D	25.0 – 27.0	44-57-87-73	NO SAMPLE		25		
6D	30.0 – 32.0	20-25-29-36	Dark brown silty fine Sand, trace Clay, gravel (SM)		30	3"	
7D	35.0 – 37.0	17-35-30-36	Brown fine to Coarse Sand Some silt, Clay, gravel, bricks (SM-SC) (FILL)		35		
					38		
8D	40.0 – 42.0	22-31-30-31	Red brown fine to Coarse sand, Some gravel, trace Silt (SP-SM)	Brown-red brown fine to Coarse Sand trace to some gravel, trace Silt (GLACIAL OUTWASH)	40		
9D	45.0 – 47.0	17-38-42-41	Do 8D (SP-SM)		45		
10D	50.0 – 52.0	15-20-25-26	Do 8D (SP-SM)		50		

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 2 OF 5

FILE NO. 7271

PROJECT Bushwick Shaft 20B

BORING NO. BK20B-B

SURFACE ELEV. +16.9

PROJECT LOCATION Brooklyn New York

MADE BY: Abu Arif Azam

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				(GLACIAL OUTWASH)	55		
11D	55.0 57.0	17-23-39- 43	Brown fine to Coarse sand trace gravel, silt (SP)				
					60		
12D	60.0 62.0	4-21-34- 36	Do 11D (SP-SM)				
					65		
13D	65.0' 67.0	17-31-32 37	Do 11D (SP-SM)				
					70		
14D	70.0 72.0	22-27-30 34	Brown fine to medium Sand, trace gravel, Coarse Sand Silt (SP)				
					75	3"	
15D	75.0 77.0	22-26-35 34	Brown fine to medium sand Some gravel, tr coarse sand, silt (SP)				
					80		
16D	80.0 82.0	24-43-34 80	Brown fine to medium sand trace gravel, silt (SP-SM)				
					85		
17D	85.0 87.0	19-37-36- 40	Brown fine to medium sand some silt trace gravel (SM)				
					89		
				GRAVEL, SOME FINE TO COARSE SAND, TRACE SILT	90		
18D	90.0 92.0	11-41-48 46	Brown gravel Some Coarse to fine Sand trace silt (GP-GM)				From 89.0 - 110.0; probably Erosional Surface
					95		
19D	95.0 97.0	20-37-46 43	Do 18D (GP)				
					100		
20D	100.0 101.5	32-80-100	Brown gravel & fine To Coarse Sand, trace Silt (GP & SP)				

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 3 OF 5
FILE NO. 7271
BORING NO. BK 20B-B
SURFACE ELEV. +16.9
PROJECT Bushwick Shaft 20B
PROJECT LOCATION Brooklyn New York
MADE BY: Abu Arif Azmi

SAMPLE NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				GRAVEL SOME FINE TO COARSE SAND			
					105		
21D	105.0	13-30-33-	NO SAMPLE (Probably Do "20D)				
	107.0	28					
					110		
22D	110.0	16-15-16.	NO SAMPLE	Gray slightly micaceous clayey silt (GARDINERS CLAY MEMBER)			Wash indicates change to gray silt & clay at 110.0' depth
	112.0	21					
					115		
23D	115.0	14-16-20	NO SAMPLE				
	117.0	20					
					120		
24D	120.0	8-28-39	Stiff gray clayey silt trace mica (MH)			2"	140 lb hammer Pocket Penetrometer reading=3.5 tsf
	122.0	74					
					125		
25D	125.0	76-101-	Gray clayey silt trace mica (MH)				DRY SAMPLE
	126.5	77					
					130		
26D	130.0	37-51-56.	Dark gray slightly micaceous clayey silt trace fine sand, cemented silt (MH)				
	132.0	89					
					133		
				Gray brown silty fine sand some clay; silt layers trace lignite, clay (GARDINERS SAND MEMBER)	135		
27D	135.0	37-53-70.	Light gray silty and clayey fine to medium sand (SM & SC)				
	137.0	91					
					140		
28D	140.0	15-27-30	Gray silty fine sand trace clay (SM)			3"	
	142.0	38					
					145		
29D	145.0	12-28-45-	Interlayered gray silty fine sand and clayey silt trace lignite layers (SM & MH)				
	147.0	63					
					150		
30D	150.0	24-36-54	Interlayered fine sand some silt and silty clay trace lignite layers. (SM & CL)				
	152.	70					

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

SHEET 4 OF 5
FILE NO. 7271
BORING NO. BK 20 B-B
SURFACE ELEV. +16.9

PROJECT Bushwick Shaft 20B
PROJECT LOCATION Brooklyn New York
MADE BY: Abu Arif Azmi

SAMPLE NO.	SAMPLE DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
				GARDINERS SAND MEMBER	155		
31D	155.0 157.0	35-54-70- 73	yellow brown fine to medium sand some silt trace clay (SM)				
					160		
32D	160.0 162.0	28-30-34- 50	TOP- Brown silty fine sand tr lignite, mica (SM) BOT- Stiff red clay (CH)		161		
				Hard light gray and red clay trace lignite (RARITAN CLAY)	165		
33D	165.0 167.0	17-22-31- 37	Red to dark gray clay trace cemented silt (CH)				DRY SAMPLE
					170		
34D	170.0 172.0	19-31-47- 56	Red - yellow - gray clay (CH)				DRY SAMPLE
					175		
35D	175.0 177.0	26-43-54 88	Dark gray and black silty clay some lignite layers (CL)				DRY SAMPLE
					180		
36D	180.0 182.0	29-40-54 63	Hard gray to brown clay trace lignite. (CH)			3"	
					185		
37D	185.0 187.0	19-58-97- 111	Light gray and red mottled clay (CH)				DRY SAMPLE
					190		
38D	190.0 191.5	26-58-79	Hard light gray and red clay (CH)				
					195		
39D	195.0 196.5	23-50-75	Light gray and red clay trace silt pockets (CH)				
					200		
					201		

MUESER RUTLEDGE CONSULTING ENGINEERS

CLASSIFICATION OF DRY SAMPLES AND ROCK

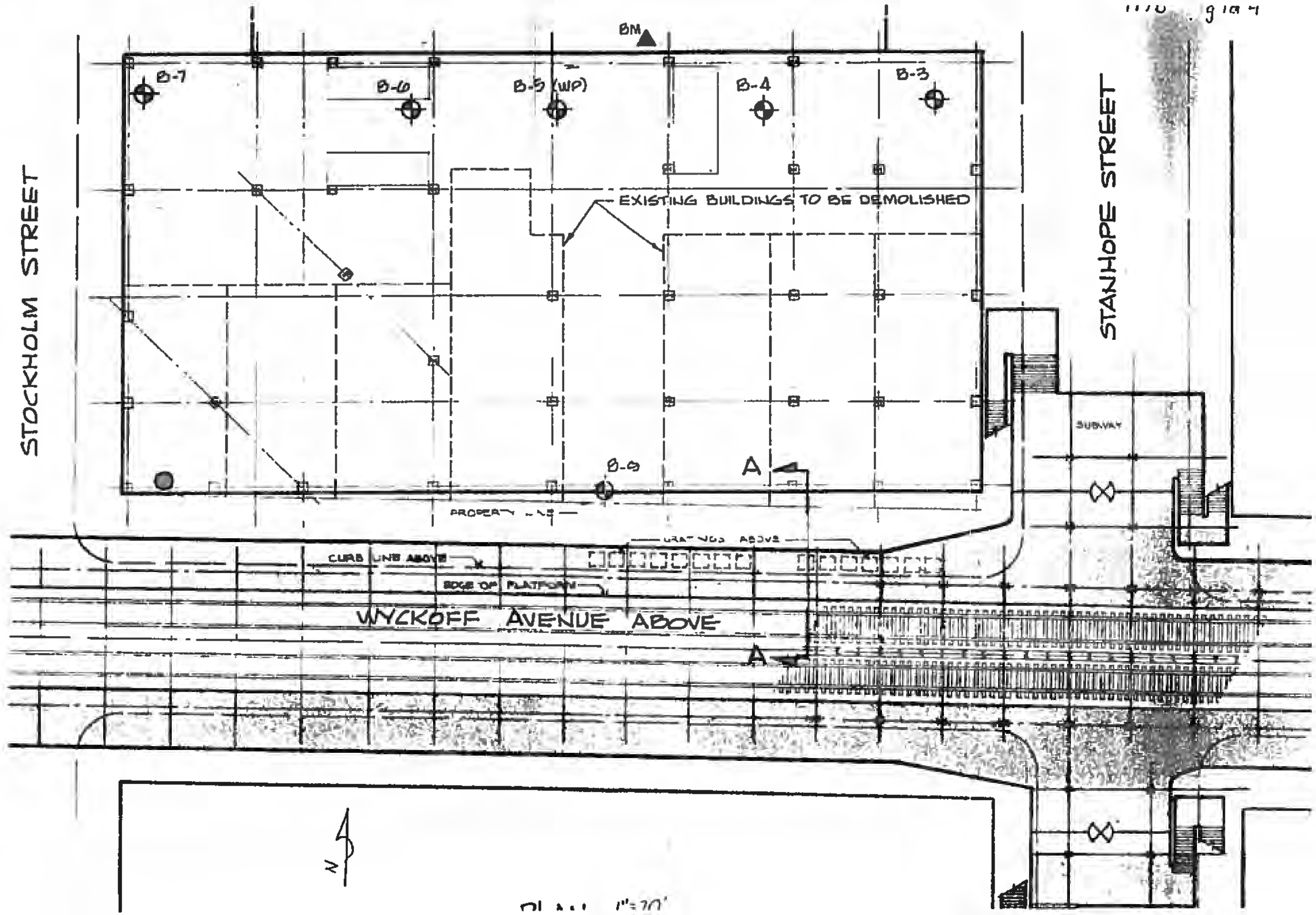
SHEET 5 OF 5
FILE NO. 7271
BORING NO. BK 20B-B
SURFACE ELEV. +16.9

PROJECT: Bushwick Shaft 20B

PROJECT LOCATION: Brooklyn, New York

MADE BY: Abu Arif Azmi

SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	SPOON DIA.	REMARKS
40D	200.0 201.5	27-50-65	TOP "Do" 39D (CH) BOT Light gray, dk gray, green yellow Silty Clay some fine Sand trace gravel (CL)	Fine to medium Sandy Clay and Clayey fine Sand (RARITAN SAND MEMBER)	201 205		
41D	205.0 206.4	33-68 100/5"	Lt gray & yellow green fine to medium Sandy Clay (CL)		210		DRY SAMPLE
42D	210.0 210.5	100/6"	"Do" 41D (CL)		215	2"	140 lb hammer
43D	215.0 216.5	9-25-50	Light gray Clayey fine Sand (SC)		220	2"	
44D	220.0 222.0	33-57-31 34	Light to dark gray Clayey Silt some fine to coarse Sand (Decomposed Rock) (MH)	DECOMPOSED ROCK	225		DRY SAMPLE
45D	225.0 227.0	?-17-24 32	Yellow green to blue Clayey Silt (Decomposed Rock) (MH)		230		DRY SAMPLE ROCK STRUCTURE VISIBLE
46D	230.0 231.4	20-66- 93/5"	Yellow gray clayey silt (MH) (Decomposed Rock)		235		
47D	235.0 237.0	?-12-20- 46	Yellow gray to blue gray to black clay (Decomposed Rock) (CH)		240		DRY SAMPLE ROCK STRUCTURE VISIBLE
48D	240.0 242.0	0-11-21- 26	White to dark green clayey silt some fine to coarse sand trace rock fragments (MH) (Decomposed Rock)		245		DRY SAMPLE
49D	245.0 247.0	6-15-25- 31	Dark blue decomposed rock		250	2"	Rock Structure Visible 50D - DRY SAMPLE
50D	250.0 251.3	24-29- 50/3"	Dark blue to green to red brown decomposed rock				Bottom of boring at 256.0'



B-7
B-6
B-5 (WP)
B-4
B-3
BM
EXISTING BUILDINGS TO BE DEMOLISHED
STOCKHOLM STREET
STANHOPE STREET
B-9
A
PROPERTY LINE
SUBWAY
GRATINGS ABOVE
CURB LINE ABOVE
EDGE OF PLATFORM
WYCKOFF AVENUE ABOVE
A
N

CONVERSE CONSULTANTS, PC — TEST BORING LOG — BORING NO. [illegible]

PROJECT NAME: [illegible] Heights Hospital — LOCATION: Brooklyn, NY

CLIENT: [illegible] Heights Medical Center

BORING CONTRACTOR: Converse Construction

GROUND WATER MEASUREMENTS: DATE | TIME | DEPTH | CASING — [illegible]

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
1		S-1	63 / 44 / 37 / 47	Miscellaneous Fill: Bricks, rubble, wood, gravel, etc (11-65)	
2					
3		S-2	52 / 47 / 39 / 59	Same (11-65)	
4					
5		S-3	8 / 13 / 7 / 18	Fill: Sand, gravel, bricks (11-65)	
6					
7		S-4	14 / 18 / 6 / 9	No Recovery: Brick fragments in tip of spoon	
8				8'6"	
9		S-5	32 / 50 / 47 / 48	Brown and gray poorly graded coarse to fine sand with gravel (SP) (6-65)	
10					
11		S-6	20 / 39 / 38 / 66	Brown poorly graded coarse to fine sand with silt and gravel (SP-SM) (6-65)	
12					
13					
14					
15					
16		S-7	36 / 30 / 33 / 29	Brown poorly graded coarse to fine sand with gravel (SP) (6-65)	
17					
18					
19					
20					
21		S-8	10 / 14 / 17 / 22	Brown well graded coarse to fine sand with gravel (SW) (6-65)	
22					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

CONVERSE CONSULTANTS, PC — TEST BORING LOG — BORING NO. [illegible]

PROJECT NAME: [illegible] Heights Hospital — LOCATION: Brooklyn, NY

CLIENT: [illegible] Heights Medical Center

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
23					
24					
25					
26		S-9	11 / 15 / 15 / 16	Same (6-65)	
27					
28					
29					
30					
31		S-10	24 / 30 / 36 / 34	Same (6-65)	
32					
33					
34					
35					
36		S-11	41 / 28 / 37 / 34	Same (6-65)	
37					
38					
39					
40					
41		S-12	19 / 27 / 25 / 26	Same (6-65)	
42				End of Boring at 42'0"	
43					
44					
45					
46					
47					
48					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

TEST BORING LOG

DEPTH FT.	SAMPLE NO.	BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
1	S-1	6, 1	Fill: Brown and gray silty sand with gravel and bricks (11-65)	HSA indicates hollow stem auger
2				
3	S-2	10, 20, 10, 8	Same (11-65)	
4				
5	S-3	5, 6, 5, 4	Fill: Brown sand with gravel and bricks (11-65)	
6				
7	S-4	3, 1, 1, 1	Fill: Brown silt sand with bricks (11-65)	
8				
9	S-5	1, 3, 2, 3	Same (11-65)	
10				
11	S-6	8, 3, 4, 10	Same (11 65)	
12				
13				
14				
15				
16	S-7	14, 27, 60, 100/3"	Brown and gray poorly graded course to fine sand with gravel (SP) (6-65)	
17				
18				
19				
20				
21	S-8	11, 18, 26, 34	Same, well graded (6-65)	

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONSULTING REPORT, OF WHICH THIS LOG IS A PART.

TEST BORING LOG

DEPTH FT.	SAMPLE NO.	BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
23				
24				
25				
26	S-9	20, 25, 27, 28	Same (6-65)	
27				
28				
29				
30				
31	S-10	20, 35, 53, 45	Same (SP-SM) (6-65)	
32				
33				
34				
35				
36	S-11	36, 37, 36, 30	Same, with red shale fragments (6-65	
37				
38				
39				
40				
41	S-12	21, 26, 24, 26	Brown and gray poorly graded course to fine sand with gravel (SP) (6-65)	
42			End of Boring at 42'0"	
43				
44				
45				
46				
47				
48				

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONSULTING REPORT, OF WHICH THIS LOG IS A PART.

CONVERSE ENGINEERING CONSULTANTS, PC	TEST BORING LOG	BORING NO. [illegible]
PROJECT NAME [illegible]	LOCATION Brooklyn, NY	[illegible]

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
1		S-1	2 20 40 19	Fill: Brown silty sand with gravel (11-65)	HSA indicates hollow stem auger
2					
3		S-2	26 27 19 16	Same, with brick fragments (11-65)	
4					
5		S-3	14 11 11 7	Same (11-65)	
6					
7		S-4	8 6 11 12	Fill: Brown sand with silt and gravel (11-65)	
8					
9		S-5	14 16 9 14	Same, with brick fragments (11-65)	
10					
11		S-6	15 10 8 8	Same (11-65)	
12				12'6"±	
13					
14					
15					
16		S-7	21 25 22 30	Brown well graded coarse to fine sand with gravel (SW) (6-65)	
17					
18					
19					
20					
21		S-8	12 15 16 20	Same (6-65)	
22					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

CONVERSE ENGINEERING CONSULTANTS, PC	TEST BORING LOG	BORING NO. [illegible]
PROJECT NAME [illegible]	LOCATION Brooklyn, NY	[illegible]

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
23					
24					
25					
26		S-9	13 10 22 25	Same (6-65)	
27					
28					
29					
30					
31		S-10	17 22 23 18	Same, with cobbles and boulders (6-65)	
32					
33					
34					
35					
36		S-11	22 64 65 48	Brown poorly graded sand with gravel (SP-GP) (6-65)	
37					
38					
39					
40					
41		S-12	46 22 17 20	Same (6-65)	
42				End of Boring at 42'0"	
43					
44				Installed a 2-inch diameter PVC groundwater observation piezometer with slotted screen from 32'0" to 42'0". Sand pack from 10'0" to 42'0" and bentonite pellets from 5'0" to 10'0". On site soil above 5'0".	
45					
46					
47					
48					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

TEST BORING LOG

DEPTH FT.	SAMPLE NO.	SAMPLE SPOON BLOWS	DESCRIPTION/CLASSIFICATION	REMARKS
1	S-1	11 15 17	Asphalt pavement over [illegible] gravel [illegible] 0'4" / Fill: Bricks, rubble, wood etc. (11-65)	
3	S-2	14 25 24 25	Fill: Brown silty sand with gravel and bricks (11-65)	
5	S-3	17 11 8 8	Same (11-65)	
7	S-4	7 6 6 7	Same (11-65)	
9	S-5	7 11 14 13	Same (11-65)	
11	S-6	10 16 8 9	Same (11 65)	
13			13'0"+/-	Boulder from 12.5' to 13.5'
16	S-7	10 23 28	Brown poorly graded gravel with sand (GP-SP) (6-65)	
21	S-8	13 21 21 24	Brown poorly graded coarse to fine sand (SP) (7-65)	

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

TEST BORING LOG

DEPTH FT.	SAMPLE NO.	SAMPLE SPOON BLOWS	DESCRIPTION/CLASSIFICATION	REMARKS
26	S-9	1 7 20 37	Brown poorly graded coarse to fine sand with gravel (SP) (6-65)	Predominantly gravel in cuttings.
31	S-10	14 27 38 39	Brown poorly graded gravel with sand (GP-SP) (6-65)	
36	S-11	20 57 64 100/3"	Same (6-65)	
41	S-12	21 42 33 23	Same (6-65)	
42			End of Boring at 42'0"	

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

117D pg 4 of 4

CONVERSE ENGINEERING CONSULTANTS, PC — TEST BORING LOG

PROJECT NAME: Wyckoff Heights Hospital — LOCATION: Brooklyn, NY
CLIENT: Wyckoff Heights Medical Center
Converse Construction

BORING NO. B-7
SHT. NO. 1 OF 2
PROJ. NO. 90-67126-01
ELEVATION 97.7
DATUM Assumed
DATE START 11/5/90
DATE FINISH 11/6/90
DRILLER L. Poppenburg
FIELD REP.

	CASING	SAMPLE	CORE	TUBE
TYPE	HW	SS		
DIA.	4"	2"		
WT.		140 lb		
FALL		30"		

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
				Concrete Pavement 0'6"	
1		S-1	30, 25, 21	Fill: Brown and gray silty sand with gravel and brick fragments (11-65)	
2					
3		S-2	38, 18, 17, 4	Fill: Dark gray gravel with sand (11-65)	
4					
5		S-3	9, 4, 3, 9	Same, with concrete fragments (11-65)	
6				6'0"	
7		S-4	34, 40, 38, 25	Brown silty sand (SM) (7-65)	
8					
9		S-5	44, 32, 37	Brown poorly graded coarse to fine sand with gravel (SP) (6-65)	
10		S-6	41, 100/3"	Tan poorly graded coarse to fine sand with silt and gravel (SP-SM) (6-65)	
11					
12					
13					
14					
15					
16		S-7	19, 30, 30, 24	Brown and gray poorly graded coarse to fine sand with gravel (SP) (6-65)	
17					
18					
19					
20					
21		S-8	12, 11, 24, 32	Brown well graded coarse to fine sand with gravel (SW) (6-65)	
22					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

CONVERSE ENGINEERING CONSULTANTS, PC — TEST BORING LOG

PROJECT NAME: Wyckoff Heights Hospital — LOCATION: Brooklyn, NY
CLIENT: Wyckoff Heights Medical Center

BORING NO. B-7 — SHT. NO. 2 OF 2 — PROJ. NO. 90-67126-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	SAMPLE SPOON BLOWS PER 6"	DESCRIPTION/CLASSIFICATION	REMARKS
23					
24					
25					
26		S-9	12, 14, 13, 9	Brown and gray poorly graded coarse to fine sand with gravel (SP-GP) (6-65)	
27					
28					
29					
30					
31		S-10	30, 24, 26, 15	Same (6-65)	
32					
33					
34					
35					
36		S-11	38, 24, 20, 30	Brown and gray poorly graded gravel with sand (GP) (6-65)	
37					
38					
39					
40					
41		S-12	14, 19, 21, 15	Same (6-65)	
42				End of Boring at 42'0"	
43					
44					
45					
46					
47					
48					

FOR INTERPRETATION OF SOIL, ROCK, AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE REPORT, OF WHICH THIS LOG IS A PART.

Appendix C

NYCT Letter of No Impact and Submission

New York City Transit

Department of Capital Program Management
OUTSIDE PROJECTS
2 Broadway - 7th Floor, New York, NY 10004

DATE: 4/21/2015

BUILDING DEPARTMENT APPLICATION NO: Borings

BOROUGH OF: Brooklyn

TO: BOROUGH COMMISSIONER/SUPERINTENDENT/DIRECTOR, DEPARTMENT OF BUILDINGS

- ☐ MANHATTAN: Mr. Martin Rebholz, R.A., 280 Broadway-3d Fl, New York, NY 10007
- ☒ BROOKLYN: Mr. Ira Gluckman, R.A., 210 Joralemon Street, 8th Fl, Brooklyn, NY 11201-3715
- ☐ QUEENS: Mr. Dereck Lee, R.A., 120-55 Queens Blvd., Kew Gardens, NY 11424
- ☐ BRONX: Mr. Werner deFoe, RA., 1932 Arthur Avenue, 5th Fl, Bronx, NY 10457-6306
- ☐ STATEN ISLAND: Mr. Ira Gluckman, R.A., 10 Richmond Terrace, Borough Hall, 2nd Floor, SI, NY 10301-1903
- ☐ CRANES & DERRICKS: Mr. Faisal Muhammad, P.E., Director, 280 Broadway, 5th Fl., New York, NY 10007

RE: LOCATION 1181-1189 Flushing Ave.
25-41 Stewart Ave.
Brooklyn

APPLICANT David R. Good, P.E.
Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th St NY NY 10122

DWG NO(S) & DATE T-1 & T-2 all dated 4/14/2015

Dear Sir:

The above applicant recently transmitted drawings of proposed construction at the above location for NYC Transit review and approval.

The drawings listed above indicate that this construction will have **No Impact** on NYC Transit facilities. However, NYC Transit review will be required for any revisions to this proposed construction or for the use of cranes for construction in this vicinity.

This letter does not constitute certification by the NYCT pursuant to the Zoning Resolution of the City of New York as to any matter, including, but not limited to matters arising under Section 95-041 thereof.

Very truly yours,

R Udeshi

R. Udeshi, P.E.
Principal Engineer

Examiner: Shu Chang

Per: ____________________

- ☐ Applicant ____________________
- ☐ Infrastructure
- ☐ *T. Jensen, Chief of Bureau Fire Prevention, NYC Fire Department, 9 Metrotech Center – 3rd Fl, Brooklyn, NY 11201
- ☐ R. Udeshi
- ☐ Master File
- ☐ Owner:

* (For Tank Installation Only)

New York City Transit

CPM Outside Projects, Division of Engrg Srvcs
Rajen Udeshi, P.E., Principal Engineer
2 Broadway, NY, NY 10004, 7th Fl.

Office: (646) 252-3117
Fax: (646) 252-4613

PROJECTS APPLICATION

Date March 19, 2015

Dept of Building Application No. . . . . None at this time . . . .

C/N Number . . . .

Borough of **Bronx** [ ] **Brooklyn** [X] **Manhattan** [ ] **Queens** [ ] **Staten Island** [ ]

Alteration	[ ]	Project Address: 1175 Flushing Avenue
Borings	[X]	
Crane	[ ]	Cross Street: Flushing Avenue and Stewart Avenue
Demolition	[ ]	
De-watering	[ ]	Applicant: Joel Volterra
Hoist	[ ]	
Master Climber	[ ]	Company Name: Mueser Rutledge Consulting Engineers
New Building	[ ]	
Sidewalk Bridge	[ ]	Company Address: 225 West 34th Street, New York 10122
Sidewalk/Vault	[ ]	
Support of Excavation	[ ]	Phone Number: 917-339-9363
Gas Station	[ ]	
Gas Tank Removal	[ ]	Owner: Riverside Developers USA Inc.
Utilities	[ ]	
Miscellaneous	[ ]	

1st Submission [X]	**2nd Submission** [ ]	**3rd Submission** [ ]
4th Submission [ ]	**5th Submission** [ ]	**6th Submission** [ ]

NYCT Engineer . . . .

Remarks . . . .

. . . .

Please allow three weeks for New York City Transit comments

Mueser Rutledge
Consulting Engineers
14 Penn Plaza · 225 West 34th Street · New York, NY 10122
Tel: (917) 339-9300 · Fax: (917) 339-9400
www.mrce.com

March 19, 2015

New York City Transit Outside Projects
2 Broadway – 7th Floor
New York, NY 10004

Attention: Rajen Udeshi, P.E., Principal Engineer

Re: Approval of Subsurface Investigation
1175 Flushing Avenue
Brooklyn, NY
MRCE File 12403

Dear Mr. Udeshi:

Mueser Rutledge Consulting Engineers (MRCE) is planning a subsurface investigation for the referenced project. The site is 1175 Flushing Avenue in the Borough of Brooklyn in New York City on tax Block 2994, Lot 75, at the intersection of Flushing Avenue and Stewart Avenue, and Parcels A and B connecting that lot to Johnson Avenue near its intersection with Varick Avenue, as shown on the attached drawings. The NYCT Subway L Line (Route No. 8, Section No. 6-C) runs along Harrison Place and beneath the site. The attached Drawing No. T-1 shows the limits of the site in relation to the subway structure. As shown on Drawing No. T-1, a portion of the site is located above the subway structure as it runs beneath the site.

A proposed subsurface investigation consisting of twelve (12) borings and eight (8) test pits, is shown on Drawing No. T-1. All borings and test pits will be made within the site and are scheduled to start as soon as possible. The purpose of the investigation is to understand the subsurface conditions for a proposed development. The following drawings are attached for your review:

Drawing No. T-1	Boring Location Plan
Drawing No. T-2	Section A-A
Drawing No. T-3	NYCT General Notes
Drawing No. T-4	NYCT Insurance Requirements

We have researched information on the subway line L route which runs beneath the site to determine the position of the subway with respect to the proposed borings. NYC Transit Drawings Nos. A-1, and C-1 for Route No. 8, Section 6-C from your archives were used to develop our drawings and are attached to facilitate your review. Drawing No. T-1 shows the proposed borings in relation to the NYCT subway structures. General drilling procedures for the proposed borings are included on Drawing No. T-2.

MRCE does not foresee any impact to the subway structure as a result of the proposed borings. We request that you review the drawings and provide approval to proceed with the proposed investigation. If you have comments or questions, we will address them accordingly.

If you have any questions, please contact me at (917) 339-9363 or jvolterra@mrce.com.

Thank you for your consideration.

Very truly yours,

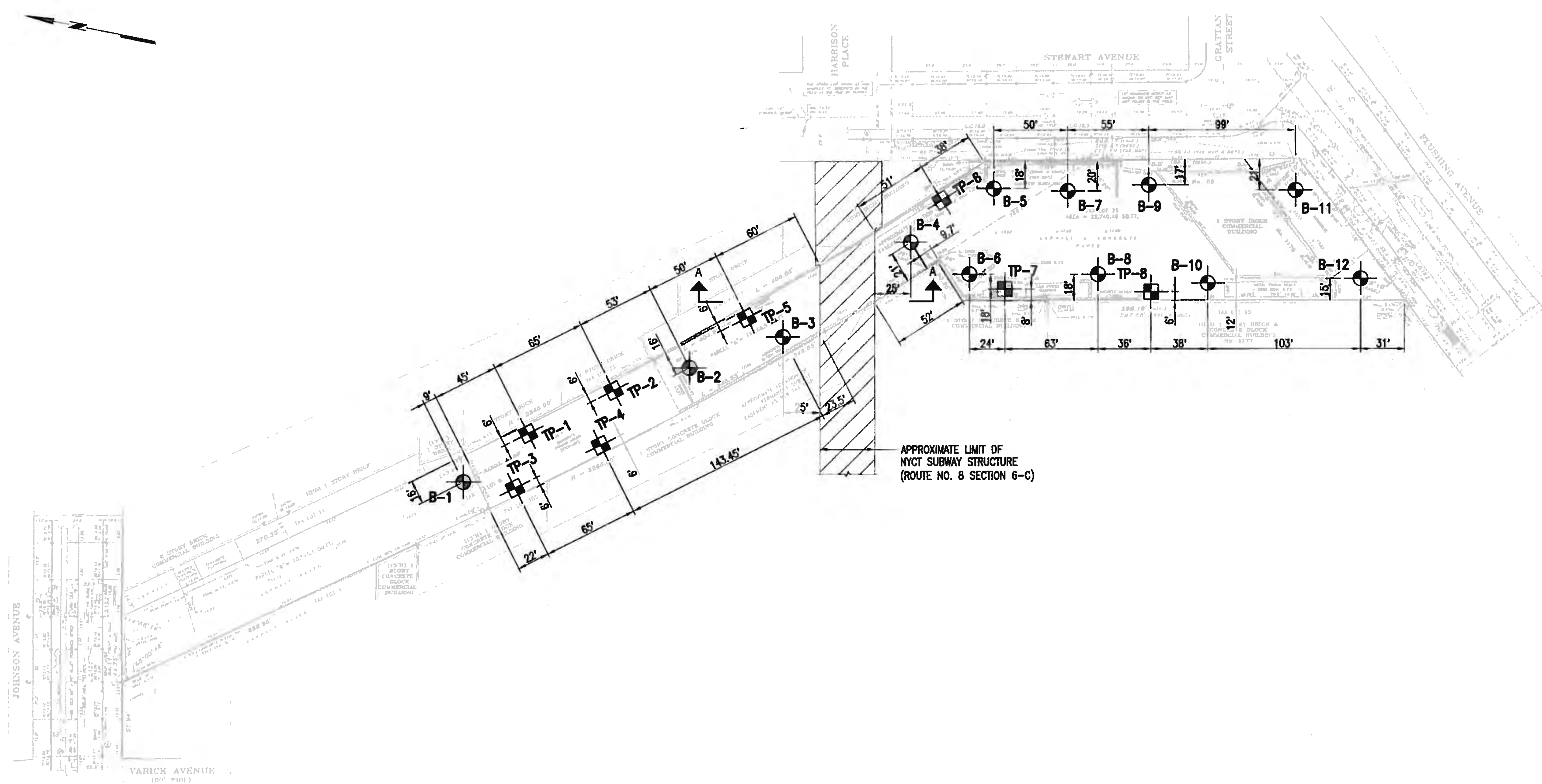
MUESER RUTLEDGE CONSULTING ENGINEERS

By: Joel L Volterra
Joel L. Volterra

Attachments
TJS:JLV:F:\124\12403\NYCT\12403_NYCT Approval Letter_2015-03-19.docx

Drawings T-1 through T-4

Boring Location Plan and Section, and Transit Authority Notes



P L A N

GRAPHIC SCALE

40' 20' 0 40' 80'

NOTES:

1. PLAN IS BASED ON ARCHITECTURAL SURVEY OF PROPERTY BY LEONARD J. STRANDBERG AND ASSOCIATES, DATED DECEMBER 18, 2014 AND ON NAVD 88 DATUM.
2. SUBWAY LIMITS AND INFORMATION OBTAINED FROM NYC TRANSIT FILE NO. A5688, DRAWING NOS. A-1 AND C-1, FOR ROUTE NO.8, SECTION 6-C.
3. FOR SECTION, SEE DRAWING NO. T-2.
4. FOR BORING NOTES, SEE DRAWING NO. T-2.

LEGEND:

B-1P – PROPOSED BORING LOCATION

"P" – INDICATES PIEZOMETER INSTALLATION

TP-1 – PROPOSED TEST PIT LOCATION

– INDICATES PROJECT SITE

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT

BROOKLYN NEW YORK

RIVERSIDE DEVELOPERS USA INC.

BROOKLYN NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS

14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

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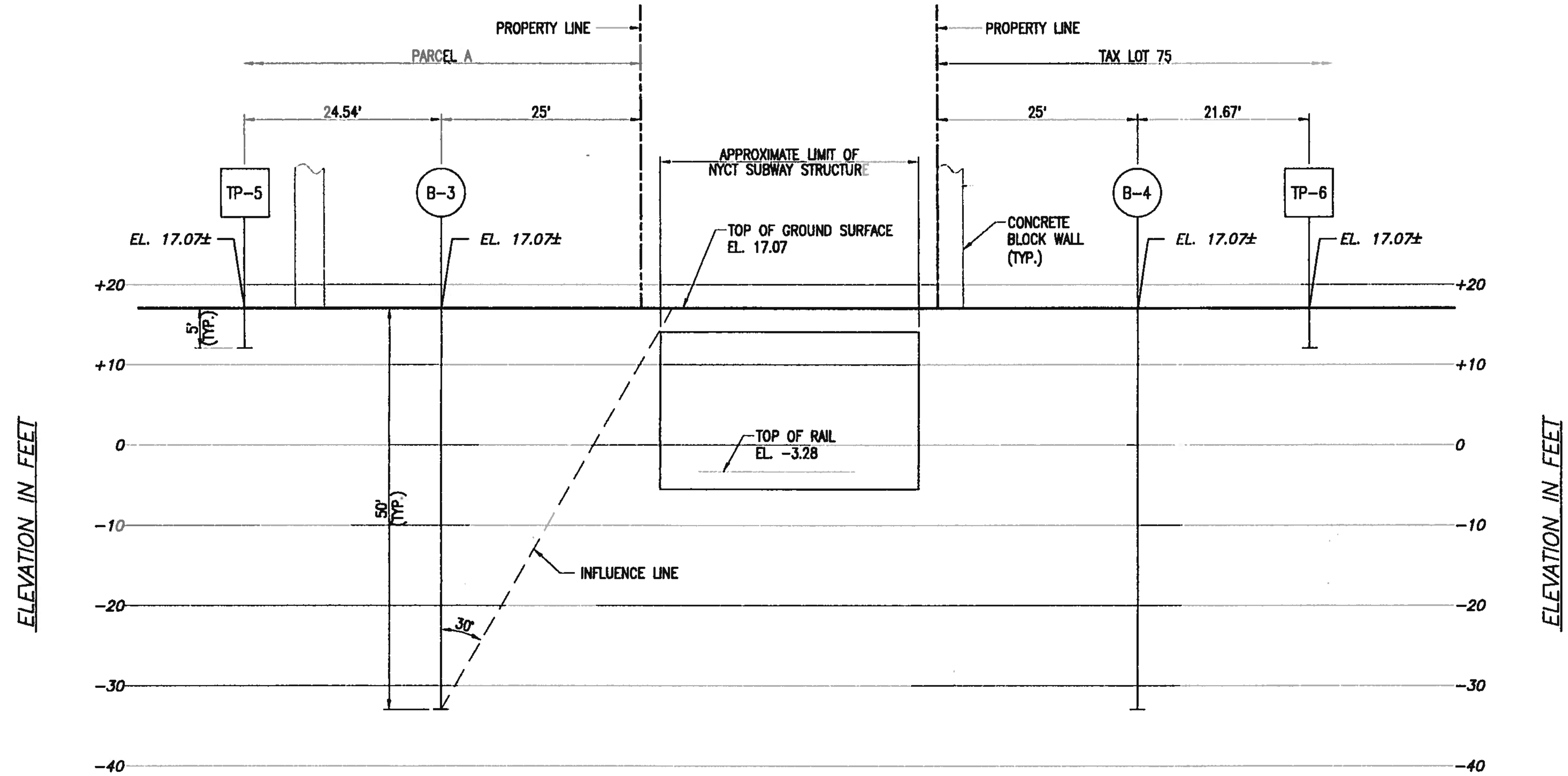
BORING LOCATION PLAN

DRAWING NUMBER T-1



SECTION A-A

GRAPHIC SCALE

10' 5' 0 10' 20'

BORING AND TEST PIT NOTES:

1. BORINGS SHALL BE LOCATED AS SHOWN ON DRAWING NO. T-1.
2. BORINGS SHALL BE MADE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SUBSURFACE BORINGS AND SAMPLING BY MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE).
3. BORINGS WILL BE MADE UNDER THE CONTINUOUS INSPECTION OF MRCE.
4. THE DRILL RODS SHALL BE PLUMBED BEFORE AND DURING THE DRILLING OF BORINGS ADJACENT TO NYCT STRUCTURES. IF A BORING IS SIGNIFICANTLY OUT OF PLUMB, AS DETERMINED BY MRCE, THE BOREHOLE SHALL BE GROUTED AND AN OFFSET BORING WILL BE DRILLED.
5. BORINGS WILL BE MADE WITH A TRUCK MOUNTED DRILL RIG USING MUD-ROTARY DRILLING METHODS EMPLOYING DRILLING FLUIDS TO MAINTAIN A STABLE BOREHOLE. CASING WILL BE USED ON AN AS-NEEDED BASIS TO SUPPLEMENT DRILLING FLUIDS.
6. BORINGS B-3 AND B-4 WILL BE CASED TO THE BOTTOM OF THE SUBWAY STRUCTURE.
7. A POSITIVE HEAD USING HEAVY DRILLING FLUID SHALL BE MAINTAINED AT ALL TIMES.
8. IF LOSS OF DRILLING FLUID IS OBSERVED, CASING SHALL BE ADVANCED TO THE DEPTH WHERE LOSS OCCURRED.
9. BORINGS WILL BE MINIMUM 3$\frac{1}{4}$ INCH DIAMETER AND ARE TO EXTEND 50 FEET.
10. BOREHOLES WITHOUT PIEZOMETERS SHALL BE GROUTED UPON COMPLETION.
11. PIEZOMETERS WILL BE INSTALLED IN TWO OF THE COMPLETED BOREHOLES.
12. THE BORING CONTRACTOR SHALL COMPLY WITH NEW YORK CITY TRANSIT REQUIREMENTS AND INSURANCE CLAUSES SHOWN ON DRAWING NO. T-3.
13. TEST PITS SHALL BE ADVANCED BY EXCAVATOR AND/OR HAND DIGGING TO DEPTH SUFFICIENT TO OBSERVE EXISTING BUILDING FOUNDATIONS.
14. TEST PIT SIDES SHALL BE SAFELY SLOPED OR SUPPORTED BY SHEETING AND BRACING TO ENABLE PERSONNEL TO ENTER THE PIT.
15. UPON COMPLETION TEST PITS SHALL BE BACKFILLED WITH EXCAVATED MATERIAL AND THE SURFACE RESTORED.

SECTION NOTES:

1. FOR SECTION LOCATION, SEE DRAWING NO T-1.
2. ELEVATIONS SHOWN REFER TO NAVD 88 DATUM, AND EQUAL TO EL. 98.45 REFERENCED TO NYC TRANSIT DATUM.

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT

BROOKLYN NEW YORK

RIVERSIDE DEVELOPERS USA INC.

BROOKLYN NEW YORK

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14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

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SECTION A-A

DRAWING NUMBER T-2

NEW YORK CITY TRANSIT GENERAL NOTES:

NOTE: THE APPROPRIATE NOTES ARE TO BE MADE PART OF THE PROJECT'S CONTRACT DRAWINGS.

1. THE NYC TRANSIT (NYCT) RESERVES THE RIGHT TO PLACE INSPECTORS, FLAGMEN OR OTHER PERSONNEL IN THE SUBWAY STRUCTURES DURING CONSTRUCTION OF THE PROJECT LINKED BY A TELEPHONE SYSTEM, IF DEEMED NECESSARY, TO OBSERVE THE EFFECTS OF THE CONSTRUCTION ON THE TRANSIT FACILITIES. NYCT FURTHER RESERVES THE RIGHT TO PLACE SUCH PERSONNEL WHENEVER, IN ITS OPINION, THE PROJECT CONDITIONS WARRANT SUCH PLACEMENT, REGARDLESS OF DISTANCE. THE COST OF SUCH PERSONNEL, TELEPHONE INSTALLATION AND ANY RE-ROUTES, DIVERSIONS OF SERVICE, WORK TRAINS, ETC., MADE NECESSARY BY THE PROJECT, MUST BE BORNE BY THE PROJECT OR THE RESPONSIBLE NEW YORK CITY/STATE AGENCY.

2. ALL ROCK EXCAVATION ADJACENT TO THE TRANSIT STRUCTURE IS TO BE CHANNEL DRILLED TWO FEET BELOW SUBGRADE.

3. IF TOP OF ROCK IS FOUND BELOW SUBWAY STRUCTURE, THE SUBWAY STRUCTURE MUST BE UNDERPINNED IN ACCORDANCE WITH DRAWINGS TO BE SUBMITTED TO NYCT FOR APPROVAL.

4. IF ROCK IS SOFT OR SEAMY, LATERAL SUPPORTS MUST BE PROVIDED BELOW THE SUBWAY STRUCTURE IN ACCORDANCE WITH DRAWINGS TO BE SUBMITTED TO NYCT FOR APPROVAL.

5. BLASTING WILL BE PERMITTED ONLY WITH LIGHT CHARGES SUBJECT TO THE APPROVAL OF NYCT'S ENGINEER AND IN ACCORDANCE WITH THE REGULATIONS OF THE FIRE DEPARTMENT. THE CONTRACTOR SHALL PROVIDE A DETAILED MONITORING PLAN, PROVIDING FOR MEASUREMENTS OF BOTH PARTICLE VELOCITY AND DISPLACEMENTS AT CRITICAL LOCATIONS OF THE NYCT STRUCTURE.
THE MONITORING PLAN SHALL INCLUDE THRESHOLD AND UPSET LEVELS OF BOTH PARTICLE VELOCITY AND SETTLEMENT TOGETHER WITH AN ACTION PLAN FOR THEIR IMPLEMENTATION. THE CONTRACTOR SHALL SECURE AN APPROVED SEISMOLOGIST TO INSTALL AND OPERATE SUITABLE VELOCITY GAUGES TO CONTINUOUSLY MONITOR PARTICLE VELOCITY AND AN INDEPENDENT LICENSED SURVEYOR TO MONITOR DISPLACEMENTS. THE PRESENCE OF A QUALIFIED TECHNICIAN FROM MONITORING COMPANY IS NECESSARY TO PROVIDE THE VIBRATION READING UPON REQUEST OF NYCT ENGINEER. THE THRESHOLD MAXIMUM PARTICLE VELOCITY ABOVE AMBIENT CAUSED BY THE BLASTING WILL BE 0.5 INCH PER SECOND. VALUES EXCEEDING THIS LEVEL WILL BE REVIEWED AND EVALUATED BY NYCT'S ENGINEER.
IN NO CASE WILL PARTICLE VELOCITIES EXCEED THE UPSET LEVEL OF 2.0 INCHES PER SECOND.

6. BEFORE PLACING CONCRETE, THE SUBGRADE OF THE FOUNDATIONS IN THE VICINITY OF THE SUBWAY STRUCTURE IS TO BE INSPECTED AND APPROVED BY NYCT'S ENGINEER.

7. IF ANY PORTION OF THE SUBWAY STRUCTURE OR FINISH IS DAMAGED, IT SHALL BE REPAIRED OR REPLACED WITH THE SAME MATERIALS IN PLACE, SUBJECT TO THE APPROVAL OF NYCT'S ENGINEER AND AT THE EXPENSE OF THE PROJECT.

8. EXCAVATION EMBANKMENTS ARE TO BE SHORED AND BRACED. DRAWINGS INDICATING A SUGGESTED METHOD OF CONSTRUCTION ARE TO BE SUBMITTED TO NYCT FOR APPROVAL IN CONJUNCTION WITH THE PROJECT'S CONTRACT DRAWINGS. IN CASE OF EXCAVATION UNDERMINING THE SUBWAY STRUCTURE, UNDERPINNING MAY BE REQUIRED. DRAWINGS FOR UNDERPINNING ARE TO BE SUBMITTED TO NYCT FOR APPROVAL.

9. TEMPORARY SHORING MAY BE PLACED IN DIRECT CONTACT WITH NYCT STRUCTURES ONLY IF THE NYCT STRUCTURE IS SHOWN TO BE ABLE TO SUPPORT ALL ANTICIPATED LOADS THAT CAN BE TRANSFERRED THROUGH THE TEMPORARY STRUCTURES WITHOUT DAMAGING THE EXISTING STRUCTURE. AT THE COMPLETION OF THE PROJECT, THESE TEMPORARY SHORING AND BRACING SYSTEMS ARE TO BE REMOVED OR CUT-OFF AS APPROVED BY NYCT.

10. WHEN PILES ARE TO BE DRIVEN ADJACENT TO THE SUBWAY STRUCTURE, BORING DATA, PILE LAYOUTS, SPECIFICATIONS AND INSTALLATION PROCEDURES ARE TO BE SUBMITTED TO NYCT FOR APPROVAL. VELOCITY METERS ARE TO BE INSTALLED IN THE SUBWAY TUNNEL AT CRITICAL LOCATIONS TO MONITOR INDUCED VIBRATIONS. INDUCED DISPLACEMENTS ALONG THE TUNNEL STRUCTURE AND TRACK INVERT ARE TO BE MONITORED DURING DRIVING OR DRILLING. THE THRESHOLD MAXIMUM PARTICLE VELOCITY ABOVE AMBIENT CAUSED BY THE DRIVING OR DRILLING WILL BE 0.5 INCH PER SECOND. VALUES EXCEEDING THIS LEVEL WILL BE REVIEWED AND EVALUATED BY NYCT'S ENGINEER. IN NO CASE WILL PARTICLE VELOCITIES EXCEED THE UPSET LEVEL OF 2.0 INCHES PER SECOND.

11. NO PILES ARE PERMITTED TO BE INSTALLED BY ANY METHOD WITHIN THREE FEET OF SUBWAY STRUCTURE, MEASURED FROM THE EDGE OF THE PILE OR CASING TO THE WALL. CLOSED-END PILES WILL NOT BE PERMITTED TO BE DRIVEN WITHIN TEN FEET OF THE SUBWAY STRUCTURE.

12. ALL PILES ARE TO BE PLACED WITHIN A PREAUGERED CASED HOLE TO THE INFLUENCE LINE. THE CASING SHALL BE CLEANED WITHOUT DISTURBING THE SOIL OUTSIDE THE CASING AND THE PILE TO BE PLACED WITHIN THE CASING FOR INSTALLATION. THE PILES MAY THEN BE DRIVEN BEYOND THE INFLUENCE LINE WITHIN THE CASING.

13. THE INFLUENCE LINE SHALL START AT THE BOTTOM OF THE SUBWAY STRUCTURE AND EXTEND FROM 1H:1V TO 2H:1V SLOPE DEPENDING ON THE SOIL PROPERTIES AND GROUND WATER TABLE. FOR PILES INSTALLED WITHIN TEN FEET OF THE SUBWAY STRUCTURE, THE CASING SHALL BE EXTENDED UP TO THE BOTTOM OF THE SUBWAY STRUCTURE.

14. ALL PILES ARE TO BE DRIVEN OR DRILLED A MINIMUM OF TEN FEET BELOW THE INTERSECTION OF THE PILE CENTERLINE AND THE INFLUENCE LINE OF THE SUBWAY STRUCTURE.

15. THE USE OF "DOWN-THE-HOLE-HAMMERS" FOR INSTALLATION OF PILES THROUGH OVERBURDEN AND FILL WILL BE PERMITTED ONLY TO REMOVE BOULDERS. IT WILL NOT BE PERMITTED AS A MATTER OF COURSE TO ADVANCE THE HOLE. THEIR USE TO CONSTRUCT ROCK SOCKETS WILL NOT BE ALLOWED WITHIN 5 FEET OF THE NYCT STRUCTURE. THE USE OF MACHINE UTILIZING AIR FOR SOIL REMOVAL WILL NOT BE ALLOWED.

16. VIBRATORY HAMMERS WILL NOT BE PERMITTED WITHIN 75 FEET OF SUBWAY STRUCTURES. HOERAMS WILL NOT BE PERMITTED WITHIN 25 FEET OF SUBWAY STRUCTURES.

17. DYNAMIC COMPACTION METHODS USING DROPPED HEAVY WEIGHTS CANNOT BE CONDUCTED WITHIN 1000 FEET OF ANY NYCT STRUCTURE UNLESS IT IS SHOWN THAT INDUCED SETTLEMENTS AND VIBRATIONS WILL NOT DAMAGE THESE STRUCTURES. A SUITABLE MONITORING PLAN INCLUDING SETTLEMENT AND VIBRATION MEASUREMENTS MUST BE APPROVED BY NYCT'S ENGINEER FOR ALL SUCH OPERATIONS WITHIN THESE DISTANCES.

18. THERE SHALL BE NO MACHINE EXCAVATION WITHIN 3 FEET OF NYCT STRUCTURES, POWER DUCT LINES, OR ANY OTHER FACILITIES UNTIL THEY HAVE BEEN CAREFULLY EXPOSED BY HAND EXCAVATION.

19. ALL DEWATERING OPERATIONS CONDUCTED WITHIN 500 FEET OF THE NYCT STRUCTURE MUST BE PERFORMED IN ACCORDANCE WITH DRAWINGS AND PROCEDURES SUBMITTED TO NYCT FOR APPROVAL. THE DISTANCE FROM THE STRUCTURE TO THE DEWATERING OPERATION CAN BE REDUCED PROVIDED THAT SOIL CONDITIONS AT THE SITE INDICATE THAT THE RADIUS OF INFLUENCE OF THE DEWATERING IS LESS THAN 500 FEET. FOR DEWATERING WITHIN THE RADIUS OF INFLUENCE, THE DEWATERING PROGRAM MUST BE SHOWN TO HAVE NEGLIGIBLE INFLUENCE ON SETTLEMENTS OF THE NYCT STRUCTURE.

20. SUBWAY ENTRANCES (VENTILATORS, ETC.) ARE TO BE UNDERPINNED OR SHORED AND BRACED IF DIRECTED BY NYCT'S ENGINEER.

21. NYCT, AT ITS DISCRETION, RESERVES THE RIGHT TO REQUIRE THE PROJECT TO CLOSE OR MAINTAIN AND PROTECT EXISTING SUBWAY ENTRANCES, VENTILATORS, ETC. ADJACENT TO THE PROJECT DURING CONSTRUCTION. SUCH CONSTRUCTION MAY INCLUDE UNDERPINNING, SHORING, BRACING AND ERECTION OF SUITABLE BARRICADES AND/OR CANOPIES AND SHIELDS. SUCH PROTECTION SHALL BE IN ACCORDANCE WITH DRAWINGS SUBMITTED TO NYCT FOR APPROVAL.

22. IF SHIELDS ARE TO BE INSTALLED TO PROTECT NYCT FACILITIES AND/OR THE PUBLIC, PLANS SHOWING THE LOCATION, TYPE AND METHOD OF ATTACHMENT TO THE TRANSIT STRUCTURE MUST BE SUBMITTED TO NYCT FOR APPROVAL.

23. ALL LUMBER AND PLYWOOD USED FOR PROTECTION OF SUBWAY FACILITIES MUST BE FIRE RETARDANT.

24. SUBWAY EMERGENCY EXITS MUST BE KEPT CLEAR AT ALL TIMES.

25. IN EXCAVATING OVER OR NEAR THE SUBWAY ROOF, SPECIAL CARE SHALL BE EXERCISED SO THAT THE THIN CONCRETE PROTECTION OF THE SUBWAY WATERPROOFING IS NOT DAMAGED.

26. BURNING OF, WELDING TO OR DRILLING THROUGH EXISTING STEEL STRUCTURES WILL NOT BE PERMITTED EXCEPT AS SHOWN ON DRAWINGS APPROVED BY NYCT.

27. HORIZONTAL AND VERTICAL CONTROL SURVEY DATA OF THE EXISTING NYCT STRUCTURE IS TO BE TAKEN BY A LICENSED LAND SURVEYOR TO MONITOR ANY MOVEMENTS THAT OCCUR DURING CONSTRUCTION AND TO SHOW THAT THE INDUCED MOVEMENTS ARE WITHIN ALLOWABLES NOTED BELOW. IF ANY MOVEMENTS EXCEED ALLOWABLES, REMEDIATION AS APPROVED BY NYCT SHALL BE PERFORMED.

STRUCTURE	NOTIFY NYCT ENGINEED	STOP WORK
ELEVATED	1/8 INCH	1/4 INCH
SUBWAY	1/4 INCH	1/2 INCH

28. BUS ROUTES AFFECTED BY THE PROJECT WILL OR MAY REQUIRE BUS DIVERSIONS. THESE ARRANGEMENTS SHALL BE MADE THROUGH:

MS. SARAH WYSS
ACTING DIRECTOR, OPERATIONS PLANNING
NEW YORK CITY TRANSIT
2 BROADWAY, ROOM A17.82
NEW YORK, NEW YORK 10004
TELEPHONE NUMBER 646/252-5517

WHEN IMPACTING ANY BUS STOP, SPECIAL OPERATIONS MUST BE NOTIFIED TWO WEEKS IN ADVANCE.

29. DUCT LINES MUST BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. ANY INTERFERENCE WITH DUCT LINES SHOULD BE REPORTED TO NYCT INSPECTOR. WHEN A DUCT LINE CONTAINING CABLES IS TO BE REMOVED, OR WHEN MASONRY ADJACENT THERETO IS TO BE REMOVED, PENETRATED, OR DRILLED, THE WORK SHALL BE DONE WITH HAND LABOR ENTIRELY, USING HAMMER AND CHISEL. JACKHAMMERS, BULL POINTS OR OTHER POWER EQUIPMENT SHALL NOT BE USED.

30. WHERE MANHOLES ARE ENCOUNTERED:

A) THEY SHALL BE PROTECTED AND RAISED OR LOWERED AS REQUIRED, TO MATCH THE NEW STREET GRADE.

B) IF MANHOLE COVERS ARE RAISED OR LOWERED, PROTECT CABLES IN MANHOLE BY WOOD SHEETING OF 2" NOMINAL THICKNESS.

C) PRIOR TO THE START OF CONSTRUCTION OPERATIONS AFFECTING MANHOLES AND DUCT LINES, SEVEN DAYS NOTICE MUST BE GIVEN TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE OF WAY, AT 718/694-1358.

31. CONSTRUCTION WORK DONE NEAR VENT GRATINGS AND HATCHES SHALL BE AS FOLLOWS:

A) UNLESS APPROVED BY THE NYCT'S ENGINEER, ALL VENT GRATINGS AND HATCHES SHOULD REMAIN OUTSIDE THE CONSTRUCTION SITE, SEPARATED BY A CONSTRUCTION FENCE. PROTECTIVE SHIELDS MUST BE PROVIDED OVER VENT GRATINGS AS REQUIRED BY NYCT'S ENGINEER.

B) NO BUILDING MATERIAL, VEHICLES OR CONSTRUCTION EQUIPMENT IS TO BE STORED OR RUN OVER VENT, GRATINGS, HATCHES OR EMERGENCY EXITS.

C) DETAILS OF SIDEWALK RECONSTRUCTION AROUND VENT GRATINGS, HATCHES AND EMERGENCY EXITS ARE TO BE SUBMITTED TO NYCT FOR APPROVAL.

32. TRACTORS, CRANES, EXCAVATORS, ETC. USED IN THE VICINITY OF THE ELEVATED STRUCTURES SHALL BE ISOLATED FROM THE GROUND. SINCE THE ELEVATED STRUCTURE IS USED AS A NEGATIVE RETURN PATH, WITH A CONSEQUENT POTENTIAL BETWEEN IT AND THE GROUND, ANY CONTACT BETWEEN THE STRUCTURE AND GROUNDED EQUIPMENT COULD RESULT IN BURNING OF THE STEEL.

33. TEMPORARY CONSTRUCTION SHEDS, BARRICADES OR PLYWOOD PARTITIONS MUST BE A MINIMUM OF 5'-0" FROM EDGE OF FINISHED PLATFORM.

34. THE GENERAL REQUIREMENTS FOR STATION AREAS OR STAIRWAY/CLOSINGS ARE AS FOLLOWS:

A) ONLY ONE STAIRWAY AT EACH STATION WILL BE PERMITTED TO BE CLOSED AT THE SAME TIME. APPROVALS FOR CLOSING ANY STAIRWAY MUST BE OBTAINED FROM THE DIVISION OF STATION OPERATIONS AT LEAST THREE WEEKS IN ADVANCE.

B) MR. ASHOK PATEL, DIRECTOR, OFFICE OF STATION PROGRAMS; TELEPHONE 718/694-1695 OF THE DIVISION OF STATIONS MUST BE NOTIFIED ONE WEEK PRIOR TO THE ACTUAL CLOSING AND REOPENING OF THE ENTRANCE.

C) SIGNAGE MUST BE SUPPLIED AND POSTED AT LEAST ONE WEEK IN ADVANCE, ADVISING THE PUBLIC OF THE PROPOSED SUBWAY STAIR CLOSING. HOWEVER, IF IT IS AN ENTIRE ENTRANCE CLOSING, SIGNAGE MUST BE POSTED TWO WEEKS IN ADVANCE.

D) THE STREET ENTRANCE STAIRWAY SHOULD NOT BE CLOSED UNLESS MANPOWER AND MATERIALS ARE AVAILABLE TO COMMENCE WORK ON DATES PERMITTED.

E) ONCE THE CLOSING IS EFFECTED, CONSTRUCTION SIGNS MUST BE PLACED AT APPROPRIATE LOCATIONS ON THE BARRICADES AT THE STREET AND MEZZANINE LEVELS, STATING THE CONTRACTOR'S NAME, 24 HOUR EMERGENCY TELEPHONE NUMBER, CONTRACT NUMBER, THE DURATION OF THE CLOSING, DIRECTION TO AN ALTERNATE ENTRANCE/EXIT, AND AN APOLOGY FOR THE INCONVENIENCE TO OUR CUSTOMERS.

F) EXISTING STATION SIGNAGE MUST BE ADJUSTED TO REFLECT ANY CHANGES IN ACCESS/EGRESS.

G) BARRICADES ARE TO BE PAINTED AND KEPT GRAFFITI FREE AT ALL TIMES. THE CONTRACTOR MUST MAINTAIN THE BARRICADED AREA CLEAN OF ALL DEBRIS.

H) ALL MATERIALS ARE TO BE PROPERLY STORED AND SECURED AWAY FROM PASSENGER TRAFFIC.

I) THE CONTRACTOR MUST REMOVE ALL WASTE MATERIAL AND BARRICADES FROM ALL STATION AREAS WHEN CONSTRUCTION IS COMPLETED.

J) INSPECTION OF THE AREA UNDER CONSTRUCTION BY AUTHORIZED STATION DEPARTMENT EMPLOYEES SHALL NOT BE INHIBITED.

K) IF STREETLIGHTS ON THE SIDEWALKS ARE AFFECTED, TEMPORARY LIGHTS SHALL BE PROVIDED.

35. IF NEW CONCRETE CONSTRUCTION IS JOINED TO EXISTING CONCRETE, DOWELS AND KEYWAYS ARE TO BE USED IN ACCORDANCE WITH NYCT STANDARDS.

36. IF THE PROJECT INVOLVES CONSTRUCTION OR ALTERATION OF A SUBWAY FACILITY ON PRIVATE PROPERTY, THE PROPERTY OWNERS WILL BE REQUIRED TO ENTER INTO AN AGREEMENT WITH NYCT PERTAINING TO ALL WORK AFFECTING THE TRANSIT FACILITIES AND CLEARLY DEFINING LIMITS AND RESPONSIBILITY FOR MAINTENANCE AND LIABILITY.

37. WHEREVER A NEW SIDEWALK IS BEING PLACED ADJACENT TO NYCT STRUCTURES THE FOLLOWING WILL BE REQUIRED:

A) THE TOP OF THE NEW SIDEWALK SHALL BE FLUSH WITH THE SUBWAY VENT GRATINGS, HATCHES AND EMERGENCY EXITS.

B) THE SLOPE OF THE NEW SIDEWALK SHALL BE SUCH THAT THE DRAINAGE BE AWAY FROM THESE STRUCTURES.

C) A 1/2" PREMOLDED FILLER SHALL BE INSTALLED BETWEEN THE NEW SIDEWALK AND NYCT STRUCTURE.

D) WHERE SIDEWALK ELEVATIONS ARE BEING CHANGED DETAILS OF PROPOSED WORK AROUND NYCT STRUCTURES ARE TO BE SUBMITTED FOR APPROVAL.

38. BEFORE ENTERING NYCT PROPERTY, CONTRACTOR OR SUBCONTRACTOR'S PERSONNEL SHALL HAVE ATTENDED NYCT TRACT SAFETY TRAINING AND EXPECT TO FOLLOW NYCT RULES AND REQULATIONS AS PER TRAINING AND ENGINEER INSTRUCTIONS.

39. BEFORE THE START OF ANY WORK, THE CONTRACTOR SHALL MAKE AN EXAMINATION, IN THE PRESENCE OF NYCT'S ENGINEER, OF THE INTERIOR AND EXTERIOR OF NYCT SUBWAY OR OTHER STRUCTURE ADJACENT TO THE PROPOSED WORK. THE PERSON OR PERSONS AUTHORIZED BY THE CONTRACTOR TO MAKE THESE EXAMINATIONS SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL TAKE ALL PHOTOGRAPHS AS MAY BE NECESSARY OR ORDERED TO INDICATE THE EXISTING CONDITION OF NYCT STRUCTURE. ONE COPY OF EACH PHOTOGRAPH, EIGHT INCHES BY TEN INCHES IN SIZE, AND THE NEGATIVE IS TO BE SUBMITTED TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE-OF-WAY, 130 LIVINGSTON STREET, ROOM 8044O, BROOKLYN, NEW YORK 11201, TELEPHONE 718/694-1358 BEFORE THE START OF CONSTRUCTION.

40. ALL ARCHITECTURAL DETAILS (TOKEN BOOTHS, RAILINGS, DOORS, ETC.) ARE TO CONFORM TO THE LATEST NYCT STANDARDS. THESE STANDARDS ARE AVAILABLE AT NYCT.

41. STANDARD NYCT INSURANCE CLAUSES ARE TO BE MADE PART OF THE PROJECT'S CONTRACT DRAWINGS. PROOF THAT THE NECESSARY INSURANCE IS IN EFFECT WILL BE REQUIRED BEFORE WORK CAN COMMENCE.

42. AT THE CLOSE OF ANY PROJECT INVOLVING CONSTRUCTION OR ALTERATIONS TO TRANSIT FACILITIES, ONE SET OF VELLUMS OR MYLARS, FIVE SETS OF 35MM MICROFILM, AND ELECTRONIC COPIES COMPLYING TO MICROSTATION.DGN FORMAT OF "APPROVED AS-BUILTS" MUST BE PROVIDED TO NYCT FOR ITS RECORDS. FOR DETAILS OF SPECIFIC REQUIREMENTS CONTACT NYCT OUTSIDE PROJECTS.

43. AT LEAST SEVEN WORKING DAYS PRIOR TO THE START OF CONSTRUCTION OPERATIONS, NOTIFICATION MUST BE GIVEN TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE-OF-WAY, AT 718/694-1358. THE CONTRACTOR TO PROVIDE TEMPORARY QUARTERS NEAR THE JOB SITE FOR NYCT INSPECTORS CONTAINING A DESK AND TELEPHONE.

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT
BROOKLYN NEW YORK

RIVERSIDE DEVELOPERS USA INC.
BROOKLYN NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

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NO SCALE	CH'KD BY: T.S.	DATE: 03-18-2015	12403.

NEW YORK CITY TRANSIT GENERAL NOTES

DRAWING NUMBER T-3

NTCT "NOT FOR BENEFIT" INSURANCE REQUIREMENTS

SECTION A: INSURANCE REQUIREMENTS

THE PERMITTEE AT ITS SOLE COST AND EXPENSE SHALL CARRY AND MAINTAIN POLICIES OF INSURANCE AT ALL TIMES DURING THE PERIOD OF PERFORMANCE UNDER THIS AGREEMENT AS HEREIN SET FORTH BELOW:

1. **WORKERS' COMPENSATION:** INCLUDING EMPLOYER'S LIABILITY INSURANCE WITH LIMITS OF LIABILITY NOT LESS THAN $2,000,000 WHICH MAY BE MET BY A COMBINATION OF PRIMARY AND EXCESS INSURANCE MEETING THE STATUTORY LIMITS OF NEW YORK STATE.

2. **COMMERCIAL GENERAL LIABILITY:** (ISO 2001 FORM OR EQUIVALENT) APPROVED BY PERMITTOR IN THE PERMITTEE'S NAME WITH LIMITS OF LIABILITY IN THE AMOUNT OF NOT LESS THAN $3,000,000 FOR EACH OCCURRENCE ON A COMBINED SINGLE LIMIT BASIS FOR INJURIES TO PERSONS (INCLUDING DEATH) AND DAMAGE TO PROPERTY, $3,000,000 GENERAL AGGREGATE AND $3,000,000 IN THE AGGREGATE WITH RESPECT TO PRODUCTS/COMPLETED OPERATIONS. THE LIMITS MAY BE PROVIDED IN THE FORM OF A PRIMARY POLICY OR COMBINATION OF PRIMARY AND UMBRELLA/EXCESS POLICY. WHEN THE MINIMUM CONTRACT AMOUNTS CAN ONLY BE MET WHEN APPLYING THE UMBRELLA/EXCESS POLICY, THE UMBRELLA/EXCESS POLICY MUST FOLLOW FORM OF THE UNDERLYING POLICY AND BE EXTENDED TO "DROP DOWN" TO BECOME PRIMARY IN THE EVENT PRIMARY LIMITS ARE REDUCED OR AGGREGATE LIMITS ARE EXHAUSTED. SUCH INSURANCE SHALL BE PRIMARY AND NON-CONTRIBUTORY TO ANY OTHER VALID AND COLLECTIBLE INSURANCE AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE.

   SUCH POLICY SHOULD BE WRITTEN ON AN OCCURRENCE FORM, AND SHALL INCLUDE THE FOLLOWING COVERAGES:

- ADDITIONAL INSURED ENDORSEMENT (I.S.O. FORM CG 20 26 07/04) VERSION OR EQUIVALENT APPROVED BY THE PERMITTOR, SHALL NAME THE INDEMNITEES AS REFERENCED UNDER SECTION B OF THIS AGREEMENT AS ADDITIONAL INSUREDS.
- CONTRACTUAL LIABILITY ASSUMED BY THE PERMITTEE UNDER THIS AGREEMENT;
- PERSONAL AND ADVERTISING INJURY;
- PRODUCTS-COMPLETED OPERATIONS;
- INDEPENDENT CONTRACTORS;
- "XCU" (EXPLOSION, COLLAPSE, AND UNDERGROUND HAZARDS) WHERE NECESSARY;
- CONTRACTUAL LIABILITY EXCLUSION, APPLICABLE TO CONSTRUCTION OR DEMOLITION OPERATIONS TO BE PERFORMED WITHIN 50 FEET OF RAILROAD TRACKS, MUST BE REMOVED, WHERE NECESSARY;

3. BUSINESS AUTOMOBILE LIABILITY: (ISO FORM CA 00 01 10 01 OR EQUIVALENT) APPROVED BY THE PERMITTOR IS REQUIRED IF PERMITTEE'S VEHICLE ENTERS PERMITTOR'S PROPERTY. THE INSURANCE MUST BE IN THE NAME OF THE PERMITTEE OR ITS CONTRACTOR ENTERING THE PERMITTOR PROPERTY WITH LIMITS OF LIABILITY IN THE AMOUNT OF NOT LESS THAN $2,000,000 EACH ACCIDENT FOR CLAIMS FOR BODILY INJURIES (INCLUDING DEATH) TO PERSONS AND FOR DAMAGE TO PROPERTY ARISING OUT OF THE OWNERSHIP, MAINTENANCE OR USE OF ANY OWNED, HIRED OR NON-OWNED MOTOR VEHICLE.

4. RAILROAD PROTECTIVE LIABILITY: (ISO-RIMA OR EQUIVALENT FORM) APPROVED BY PERMITTOR COVERING THE WORK TO BE PERFORMED AT THE DESIGNATED JOB SITE AND AFFORDING PROTECTION FOR DAMAGES ARISING OUT OF BODILY INJURY OR DEATH, PHYSICAL DAMAGE TO OR DESTRUCTION OF PROPERTY, INCLUDING DAMAGE TO THE INSURED'S OWN PROPERTY AND CONFORMING TO THE FOLLOWING:

- THE POLICY SHALL BE ISSUED TO THE "NAMED INSUREDS" LISTED UNDER SECTION B.
- THE LIMIT OF LIABILITY SHALL BE NOT LESS THAN $2,000,000 PER OCCURRENCE, SUBJECT TO A $6,000,000 ANNUAL AGGREGATE;
- POLICY MUST BE ENDORSED TO PROVIDE COVERAGE FOR CLAIMS ARISING FROM INJURY TO EMPLOYEES COVERED BY FEDERAL EMPLOYER'S LIABILITY ACT (FELA).
- INDICATE THE NAME AND ADDRESS OF THE DESIGNATED CONTRACTOR, PROJECT LOCATION AND DESCRIPTION OF WORK, AND PERMIT NUMBER IF APPLICABLE.
- EVIDENCE OF RAILROAD PROTECTIVE LIABILITY INSURANCE, MUST BE PROVIDED IN THE FORM OF A POLICY. A DETAILED INSURANCE BINDER (ACORD OR MANUSCRIPT FORM) WILL BE ACCEPTED PENDING ISSUANCE OF THE POLICY, WHICH MUST BE PROVIDED WITHIN 30 DAYS FROM THE EFFECTIVE DATE.

5. ENVIRONMENTAL INSURANCE: IN THE EVENT ENVIRONMENTAL OR POLLUTION EXPOSURES EXIST, THE PERMITTEE SHALL REQUIRE THE ENVIRONMENTAL CONTRACTOR OR SUB-CONTRACTOR TO PROVIDE THE APPLICABLE INSURANCE COVERING SUCH EXPOSURE. THE LIMITS AND TYPES OF INSURANCE PROVIDED MUST BE SATISFACTORY TO THE PERMITTOR AND APPROVED PRIOR TO THE START OF THE WORK.

SECTION B: INDEMNITEES (ADDITIONAL INSUREDS / NAMED INSUREDS)

NEW YORK CITY TRANSIT AUTHORITY ("NYCT"), THE MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY ("MABSTOA"), THE STATEN ISLAND RAPID TRANSIT OPERATING AUTHORITY ("SIRTOA"), THE METROPOLITAN TRANSPORTATION AUTHORITY ("MTA") INCLUDING ITS SUBSIDIARIES AND AFFILIATES, MTA CAPITAL CONSTRUCTION ("MTACC"), MTA BUS COMPANY ("MTA BUS"), AND THE CITY OF NEW YORK ("CITY" AS OWNER) AND THE RESPECTIVE AFFILIATES AND SUBSIDIARIES EXISTING CURRENTLY OR IN THE FUTURE OF AND SUCCESSORS TO EACH INDEMNIFIED PARTIES LISTED HEREIN.

SECTION C: GENERAL INSURANCE REQUIREMENTS

1. **INSURANCE COMPANIES:** ALL OF THE INSURANCE REQUIRED BY THIS ARTICLE SHALL BE WITH COMPANIES LICENSED OR AUTHORIZED TO DO BUSINESS IN THE STATE OF NEW YORK WITH AN A.M. BEST COMPANY RATING OF NOT LESS THAN A-/VII OR BETTER AND REASONABLY APPROVED BY THE PERMITTOR/MTA.

2. **FORMS:** ALL FORMS SHALL COMPLY WITH THE INSURANCE SERVICES OFFICE, INC. ("ISO") OR ITS EQUIVALENT APPROVED BY THE INSURANCE DEPARTMENT OF THE STATE OF NEW YORK

3. **POLICY DEDUCTIBLE / SELF INSURED RETENTION:** INSURANCE MAY CONTAIN A DEDUCTIBLE AND OR SELF-INSURED RETENTION AND SHALL NOT EXCEED $100,000. THE PERMITTEE SHALL BE RESPONSIBLE FOR ALL CLAIM EXPENSES AND LOSS PAYMENTS WITHIN THE DEDUCTIBLE OR SELF-INSURED RETENTION.

4. **POLICY TERMS: THESE POLICIES MUST:** (I) BE WRITTEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE PARAGRAPHS ABOVE, AS APPLICABLE; (II) BE ENDORSED IN FORM ACCEPTABLE TO INCLUDE A PROVISION THAT SHOULD THE POLICY BE CANCELED, MATERIALLY CHANGED, OR NOT RENEWED, NOTICE SHALL BE DELIVERED IN ACCORDANCE WITH THE INSURANCE POLICY PROVISIONS TO THE PERMITTOR, AND (III) STATE OR BE ENDORSED TO PROVIDE THAT THE COVERAGE AFFORDED UNDER THE PERMITTEE'S POLICIES SHALL APPLY ON A PRIMARY AND NOT ON AN EXCESS OR CONTRIBUTING BASIS WITH ANY POLICIES WHICH MAY BE AVAILABLE TO THE PERMITTOR/MTA, AND ALSO THAT THE PERMITTEE'S POLICIES, PRIMARY AND EXCESS, MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE. (IV) IN ADDITION, PERMITTEE'S POLICIES SHALL STATE OR BE ENDORSED TO PROVIDE THAT, IF A SUBCONTRACTOR'S POLICY CONTAINS ANY PROVISION THAT MAY ADVERSELY AFFECT WHETHER PERMITTEE'S POLICIES ARE PRIMARY AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE, PERMITTEE'S AND SUBCONTRACTOR'S POLICIES SHALL NEVERTHELESS BE PRIMARY AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE. AT LEAST TWO (2) WEEKS PRIOR TO THE EXPIRATION OF THE POLICIES, THE PERMITTEE SHALL ENDEAVOR TO PROVIDE EVIDENCE OF RENEWAL OR REPLACEMENT POLICIES OF INSURANCE, WITH TERMS AND LIMITS NO LESS FAVORABLE THAN THE EXPIRING POLICIES.

SECTION D: SUBMISSION OF INSURANCE

CERTIFICATES OF INSURANCE MAY BE SUPPLIED AS EVIDENCE OF POLICIES EXCEPT FOR RAILROAD PROTECTIVE LIABILITY. HOWEVER, IF REQUESTED BY THE PERMITTOR, THE PERMITTEE SHALL DELIVER TO THE PERMITTOR WITHIN FORTY-FIVE (45) DAYS A COPY OF SUCH POLICIES, CERTIFIED BY THE INSURANCE CARRIER AS BEING TRUE AND COMPLETE. IF A CERTIFICATE OF INSURANCE IS SUBMITTED, IT MUST: (1) BE PROVIDED ON THE PERMITTOR CERTIFICATE OF INSURANCE; (2) BE SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE CARRIER OR PRODUCER AND NOTARIZED; (3) DISCLOSE ANY DEDUCTIBLE, SELF-INSURED RETENTION, SUB-LIMIT, AGGREGATE LIMIT OR ANY EXCLUSIONS TO THE POLICY THAT MATERIALLY CHANGE THE COVERAGE; (4) INDICATE THE ADDITIONAL INSUREDS AS REQUIRED HEREIN UNDER SECTION B; THE PERMITTEE MUST PROVIDE A COPY OF THE ADDITIONAL INSURED ENDORSEMENT (ISO) FORM CG 20 26 07/04 OR ITS EQUIVALENT AND MUST REFERENCE THE POLICY INFORMATION; (5) INDICATE PROJECT NAME AND LOCATION ON THE CERTIFICATE; AND (6) EXPRESSLY REFERENCE THE INCLUSION OF ALL REQUIRED ENDORSEMENTS.

THE PERMITTEE OR ITS CONTRACTOR/SUBCONTRACTOR PERFORMING THE WORK SHALL FURNISH EVIDENCE OF ALL POLICIES BEFORE ANY WORK IS STARTED TO THE APPROPRIATE DEPARTMENT:

NEW AGREEMENTS:	RENEWAL INSURANCE:
MTA/NYCT MOW ENGINEERING MANAGEMENT	MTA RISK INSURANCE
ATTENTION: MR. JOHN MALVASIO	ATTENTION: RUTH APOSTOL
130 LIVINGSTON STREET	2 BROADWAY - 21ST FLOOR
BROOKLYN, NY 11201	NEW YORK, NY 10004

SECTION E: NO LIMIT OF LIABILITY

THE MINIMUM AMOUNTS OF INSURANCE REQUIRED IN THE DETAIL DESCRIPTION OF POLICIES ABOVE SHALL NOT BE CONSTRUED TO LIMIT THE EXTENT OF THE PERMITTEE'S LIABILITY UNDER THIS AGREEMENT.

SECTION F: RIGHT TO REQUEST ADDITIONAL INSURANCE

PERMITTEE FURTHER AGREES TO PROVIDE, AT PERMITTEE'S SOLE COST AND EXPENSE, SUCH INCREASED OR EXPANDED INSURANCE COVERAGE AS PERMITTOR MAY FROM TIME TO TIME AS DEEM APPROPRIATE.

SECTION G: EVENT OF DEFAULT

IF, AT ANY TIME DURING THE PERIOD OF THIS AGREEMENT, INSURANCE AS REQUIRED IS NOT IN EFFECT, OR PROOF THER OF IS NOT PROVIDED TO THE PERMITTOR, THE PERMITTOR SHALL HAVE THE OPTIONS TO: () DIRECT THE PERMITTEE TO SUSPEND WORK OR OPERATION WITH NO ADDITIONAL COST OR EXTENSION OF TIME DUE ON ACCOUNT THEREOF OR (II) TREAT SUCH FAILURE AS AN EVENT OF DEFAULT.

SECTION H: NOTICE OF CLAIM

THE PERMITTEE SHALL IMMEDIATELY FILE WITH NYCT/MTA'S TORT DIVISION (WITH A COPY TO THE PROJECT MANAGER), 130 LIVINGSTON STREET, 11TH FLOOR, BROOKLYN, NEW YORK 11201, A NOTICE OF ANY OCCURRENCE LIKELY TO RESULT IN A CLAIM AGAINST NYCT/MTA AND SHALL ALSO FILE WITH THE TORTS DIVISION DETAILED SWORN PROOF OF INTEREST AND LOSS WITH THE CLAIM. THIS PARAGRAPH SHALL SURVIVE THE EXPIRATION OR EARLIER TERMINATION OF THE CONTRACT.

MTA RIM
08-15-13

REV.	DATE	BY	DESCRIPTION

FLUSHING STEWART PROJECT
BROOKLYN — NEW YORK

RIVERSIDE DEVELOPERS USA INC.
BROOKLYN — NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

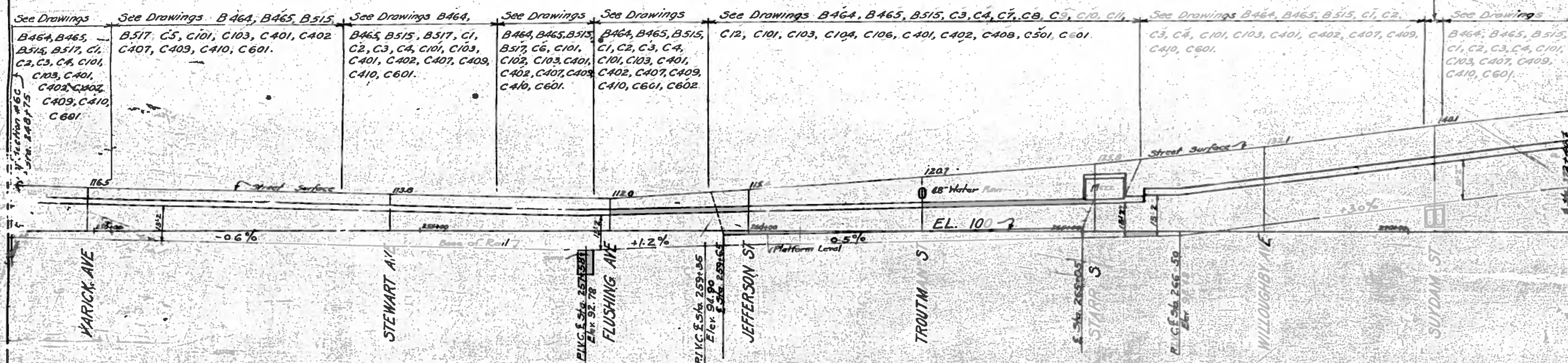
SCALE	MADE BY: K.O.	DATE: 03-18-2015	FILE NUMBER
NO SCALE	CH'KD BY: T.S.	DATE: 03-18-2015	12403

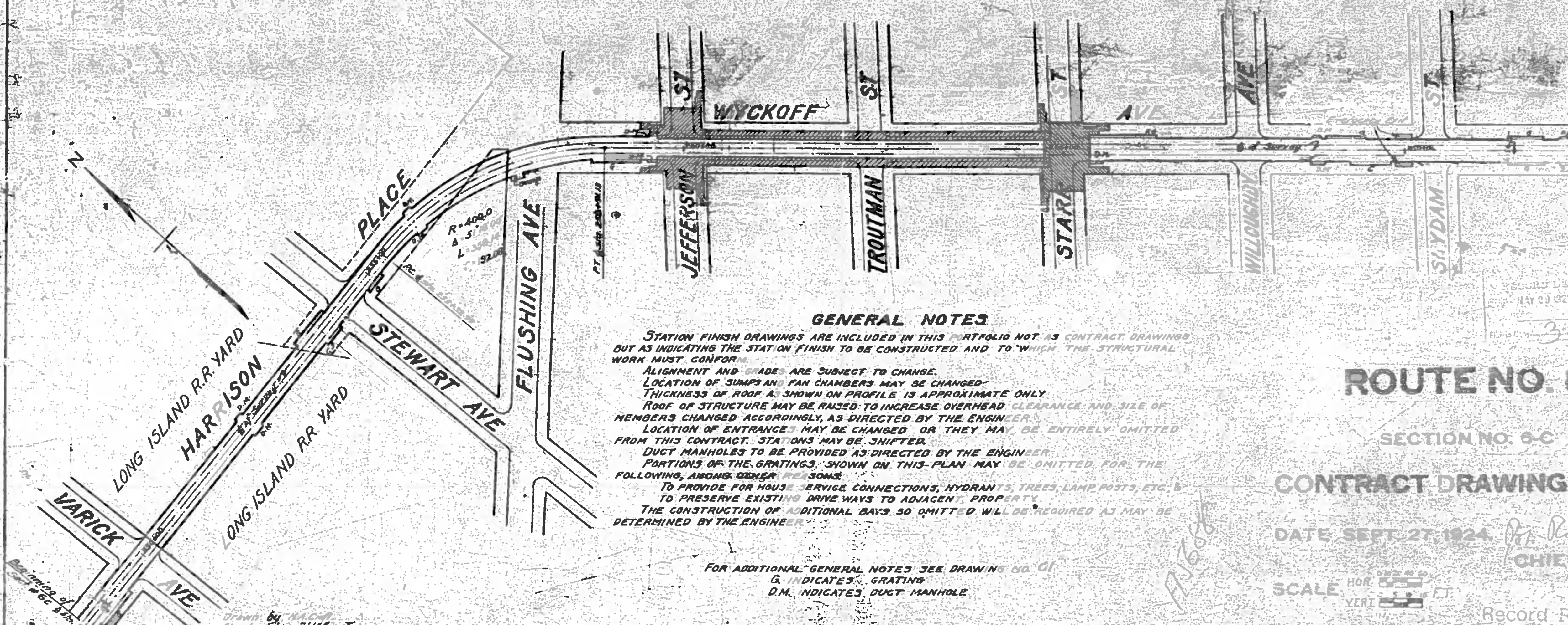
NEW YORK CITY TRANSIT INSURANCE REQUIREMENTS

DRAWING NUMBER: T-4

NYCT Drawings

Route 8, Section 6-C





GENERAL NOTES

STATION FINISH DRAWINGS ARE INCLUDED IN THIS PORTFOLIO NOT AS CONTRACT DRAWINGS BUT AS INDICATING THE STATION FINISH TO BE CONSTRUCTED AND TO WHICH THE STRUCTURAL WORK MUST CONFORM.

ALIGNMENT AND GRADES ARE SUBJECT TO CHANGE.

LOCATION OF SUMPS AND FAN CHAMBERS MAY BE CHANGED.

THICKNESS OF ROOF AS SHOWN ON PROFILE IS APPROXIMATE ONLY

ROOF OF STRUCTURE MAY BE RAISED TO INCREASE OVERHEAD CLEARANCE AND SIZE OF MEMBERS CHANGED ACCORDINGLY, AS DIRECTED BY THE ENGINEER.

LOCATION OF ENTRANCES MAY BE CHANGED OR THEY MAY BE ENTIRELY OMITTED FROM THIS CONTRACT. STATIONS MAY BE SHIFTED.

DUCT MANHOLES TO BE PROVIDED AS DIRECTED BY THE ENGINEER.

PORTIONS OF THE GRATINGS, SHOWN ON THIS PLAN MAY BE OMITTED FOR THE FOLLOWING, AMONG OTHER REASONS:

TO PROVIDE FOR HOUSE SERVICE CONNECTIONS, HYDRANTS, TREES, LAMP POSTS, ETC. & TO PRESERVE EXISTING DRIVE WAYS TO ADJACENT PROPERTY.

THE CONSTRUCTION OF ADDITIONAL BAYS SO OMITTED WILL BE REQUIRED AS MAY BE DETERMINED BY THE ENGINEER.

FOR ADDITIONAL GENERAL NOTES SEE DRAWING NO. G1
G. INDICATES GRATING
D.M. INDICATES DUCT MANHOLE

3-113

ROUTE NO. 8

SECTION NO. 6-C

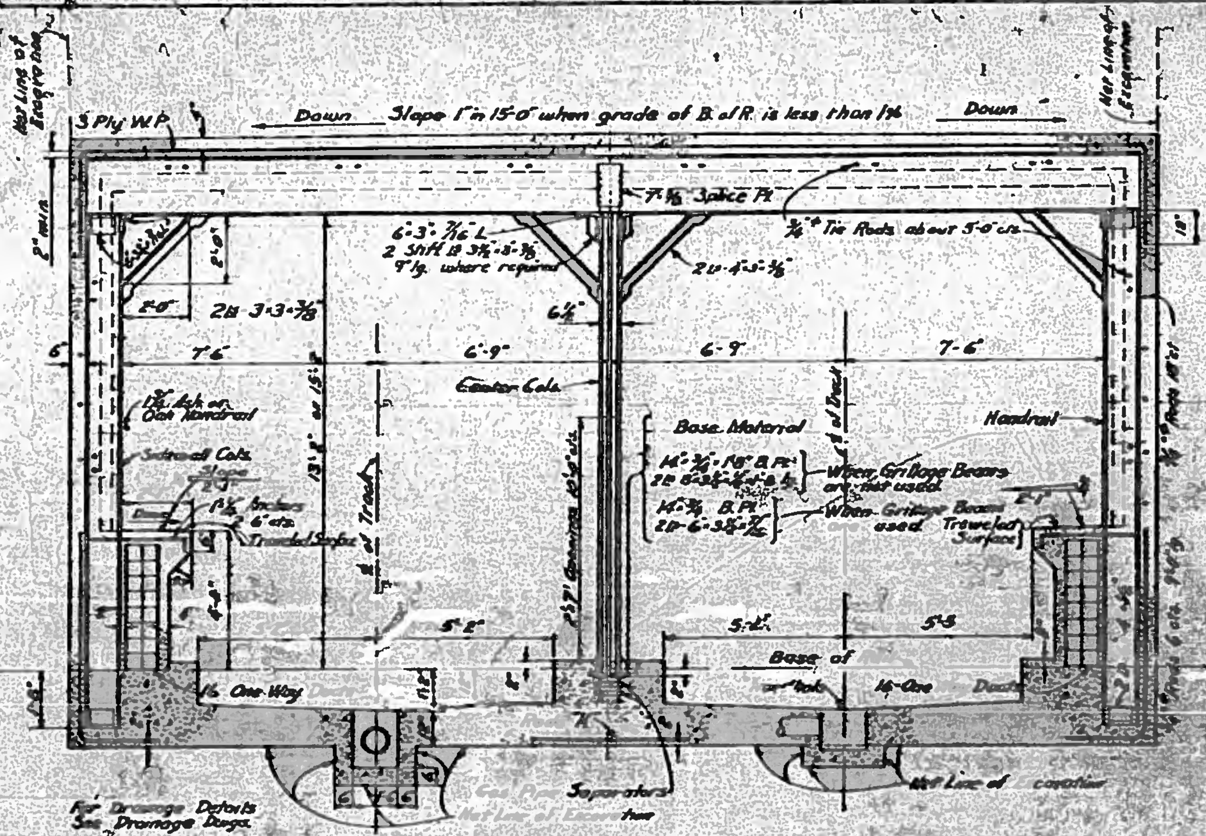
CONTRACT DRAWING NO. A-1

DATE SEPT. 27, 1924.

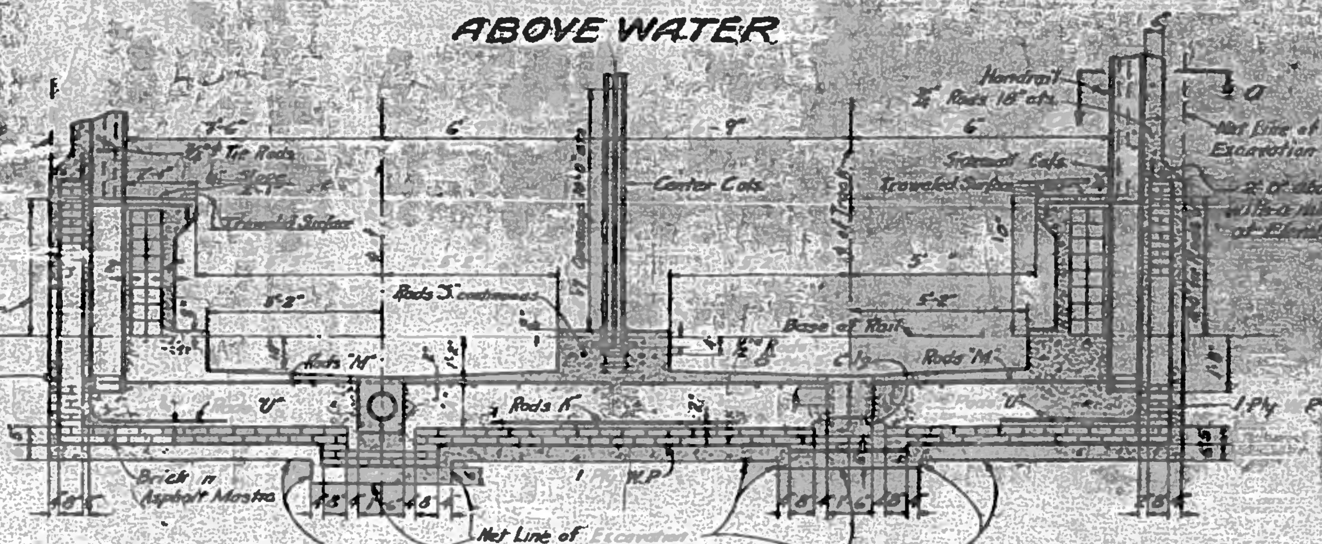
CHIEF ENGINEER

SCALE HOR. VERT. FT.

Record Room

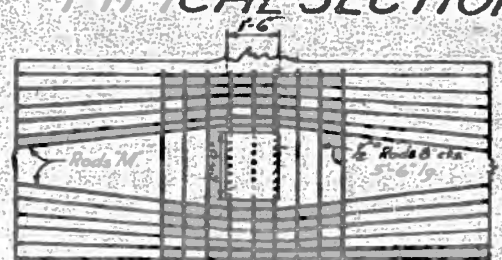


ABOVE WATER

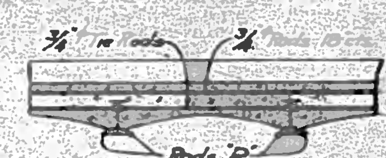


BELOW WATER

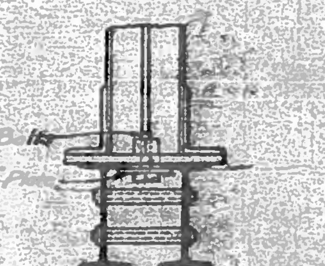
TYPICAL SECTIONS BETWEEN STATIONS



TYPICAL PLAN OF RODS AT HANDHOLES



Section a-a



Typical Grillage Detail for Center Cols.

SCALE FT.

GENERAL NOTES

Size and spacing of rods may be changed if directed by the Engineer.

Splicing of rods for long spans may be permitted as directed by the Engineer.

Beams of the same depth and greater resistance placed further apart may be substituted for beams and girders shown provided the same strength of construction is maintained. Deeper beams may be used if space permits.

Structural steel shall be used in invert instead of reinforced concrete slab, if ordered by the Engineer.

In order to insure a dry tunnel waterproofing may be required where not shown on drawings as determined by the Engineer.

Six (6) ply waterproofing shall be substituted for brick in asphalt mastic where directed by the Engineer.

Where soil at subgrade below water is found to be very firm the depth and reinforcement of invert may be reduced as directed by the Engineer.

Reinforced concrete slabs and platforms and track bench walls are to be monolithic between columns, from top of each to the bottom of invert. No construction joints will be allowed in such concrete unless a satisfactory bond is provided as directed by the Engineer.

Depressed bays in roof and sidewalls instead of standard arches, are to be provided as directed by the Engineer.

Grout holes are to be provided in webs of roof members where webs are in horizontal position, and in bottom flange of longitudinal girders imbedded in walls as directed by the Engineer.

Where base of rail is less than 4' below "Plane A", use 2½" of brick in asphalt mastic in invert, and 4" in sidewalls up to "Plane A". Where base of rail is more than 4' below Plane A use 5" of brick in asphalt mastic in invert, and 8" in sidewalls up to Plane A.

Between Stations use 2½" of brick in asphalt mastic on top of roof when it is between "Plane A" and 4' below "Plane A", and 5" of brick in asphalt mastic when top of roof is more than 4' below "Plane A".

Anchor bolts at column footings to be used as and where directed by the Engineer.

"Cover" in schedules of materials denotes distance from street or ground surface to underside of transverse roof members.

At curves the width of subway structure will be greater than that shown on the typical cross sections to allow for proper train clearance, and the design modified accordingly as directed by the Engineer.

To resist pressure due to ground water the following vertical reinforcing rods marked "P" (see section a-a) are to be provided in conjunction with sidewall columns:

where base of rail is not more than 4' below Elev. 100.0 use -
2-¾" rods when ground water is from 4' to 8' above base of rail
2-1" rods " " " " " 8' to 12' " " " "
where base of rail is more than 4' below Elev. 100.0 use -
2-¾" rods when ground water is from 0' to 4' above Elevation 100.0
2-1" " " " " " " 4' to 8' " " "

For greater heads of ground water additional vertical reinforcement may be called for, and flat slabs may be used instead of side and arches.

Plane A is to be taken as El. 102 or as 2' above ground water when same is higher than El. 100.

Between Stations the 3-ply waterproofing from roof shall extend down and overlap the brick in asphalt mastic of sidewall if the distance from top of sidewall brick in mastic to subway ceiling is less than 4'.

If the Engineer elects, one-ply waterproofing and brick in asphalt mastic shall be substituted for ply waterproofing at any point. The number of layers of brick shall be determined by the Engineer.

Drip pans to be drained to sewers or track drainage, as directed by the Engineer.

REFERENCE NOTES

For Alignment and Grades See Drg. A1, A2
Schedule of Material C-2
Standard Arches C-3
Depressed Bays C-4
Additional General Note See A-1

Drawn by Zentner
Checked by

ROUTE NO. 8

SECTION NO. 8-C

CONTRACT DRAWING NO. C-1

DATE SEPT. 27, 1924. CHIEF ENGINEER

SCALE FT.
AND AS SHOWN

A-668