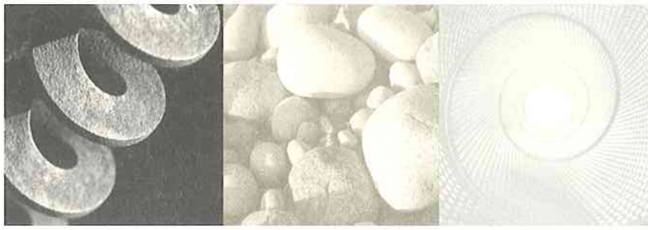

GEI Consultants

Geotechnical
Environmental
Water Resources
Ecological

Final

Remedial Investigation Report

Purdy Street Station

Bronx, New York
VCA Index 02-0003-02-08
Site ID: V00557

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Abbreviations and Acronyms

AWQS	Ambient Water Quality Standards
bgs	Below Ground Surface
CAMP	Community Air Monitoring Plan
CERCLIS	EPA Comprehensive Environmental Response, Compensation, and Liability Information System
ChemTech	ChemTech Laboratories
Con Edison	Consolidated Edison Company of New York
CORRACTS	Resource Conservation and Recovery Act Corrective Action Report
cu. ft. or CF	Cubic Foot
DRO	Diesel Range Organics
EDR	Environmental Data Resources
ERNS	EPA Emergency Response Notification System
FOIL	Freedom of Information Law Requests
FRDS	Federal Reporting Data System
IDW	Investigation-Derived Waste
META	Meta Environmental, Inc.
MGP	Manufactured Gas Plant
MSL	Mean Sea Level
NAD	North American Datum
NAPL	Nonaqueous Phase Liquid
NAVD	North American Vertical Datum
NIOSH	National Institute for Occupational Safety and Health
NPL	National Priorities (Superfund) List
NTUs	Nephelometric Turbidity Units
NYCDOH	New York City Department of Health and Mental Hygiene
NYCRR	New York Code of Rules and Regulations
NYSASP	New York State Analytical Services Protocol
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department Of Health
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QHHEA	Qualitative Human Health Exposure Assessment
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RIWP	Remedial Investigation Work Plan
RL	Reporting Limit
RSCO	Recommended Soil Clean Up Objective
SC	Site Characterization
SCOs	Soil Clean Up Objectives
SCWP	Site Characterization Work Plan

Abbreviations and Acronyms (continued)

SOP	Standard Operating Procedure
STL	Severn Trent Laboratories
SVOCs	Semivolatile Organic Compounds
TAL	Total Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOCs	Volatile Organic Compounds

Measurements:

mg/kg	milligram per kilogram
ppb	parts per billion
ppm	parts per million
ug/L	micrograms per liter
ug/m^3	micrograms per cubic meter

Executive Summary

Consolidated Edison Company of New York (Con Edison) completed a Remedial Investigation (RI) of the Purdy Street Station former manufactured gas plant (MGP) located between Purdy Street and Odell Street in the Parkchester section of the Borough and County of the Bronx, New York **(Figure 1)**. The former MGP and holder station were once owned and operated by Con Edison and its predecessor companies. The former MGP site is located on the northern half of Lot 55, Tax Block 3947 which is owned by the Roman Catholic Church of Saint Raymond and is part of the grounds of St. Raymond High School for Boys. A site characterization (SC) and RI were performed in accordance with the August 2002 Voluntary Cleanup Agreement (VCA) between Con Edison and the New York State Department of Environmental Conservation (NYSDEC). This RI Report is intended as a compilation of all investigation activities performed at the site.

The SC/RI conducted at the Purdy Street Station determined the nature, extent, and migration potential for contaminants related to the former MGP operations present on the site. The goal was to provide the necessary data to assess the potential risk posed by contaminants to human health and the environment, and to determine appropriate risk management actions.

The SC/RI conducted at the site confirmed the presence of subsurface structures related to former MGP operations and MGP-related impacts to on-site subsurface soil and groundwater. Concentrations of total volatile organic compounds (VOCs), total semivolatile organic compounds (SVOCs) and metals were detected above the Unrestricted Use and Residential Use Soil Clean Up Objectives (SCOs) in surface soil, subsurface fill deposits and native soils that underlie the fill deposits. Concentrations of total VOCs and total SVOCs were detected above the NYSDEC Ambient Water Quality Standards for GA groundwater (AWQS) in groundwater.

Six surface-soil samples were collected from the athletic field. The surface soils were placed circa 1964 during the construction of the high school, and in 1997 during school renovations. Therefore, the SVOCs and metals detected above the Unrestricted Use and Residential Use SCOs were deposited at the same time as the construction activities, and would not be associated with the former MGP operations.

The horizontal and vertical extent of MGP-related non-aqueous phase liquid (NAPL) have been delineated and are limited to subsurface soils within a defined area of the current athletic field. Identified MGP-related residues are present in subsurface fill deposits between approximately 3 and 16 feet below ground surface (bgs). Concentrations of total VOCs and total SVOCs that exceed the Residential Use SCOs were limited to on-site fill deposits between approximately 0 feet to 14 feet bgs with three exceptions. Total VOCs and total SVOCs were detected above the Residential Use SCOs at depths greater than 14 feet bgs at two on-site locations collected from areas where fill deposits directly overlie weathered bedrock (B-5 and MW-2), and from one off-site subsurface soil sample location (B20).

The concentrations of six individual metals (arsenic, copper, lead, manganese, nickel, and selenium) exceed the Residential Use SCOs. All detections were within the upper 4 feet of material in the areas once occupied by the former 50,000 and 150,000 cubic foot gas holders and the former storehouse.

Groundwater samples collected from the monitoring well MW-4 located approximately 100 feet hydraulically downgradient (southeast) of observed MGP-related impacts and downgradient of subsurface soils that contain total VOC and total SVOC concentrations above Residential Use SCOs contained only two organic compounds above the AWQS. The lack of impacts in this well may indicate that either groundwater impacts are not migrating downgradient in this area and/or natural attenuation processes are reducing dissolved organic compound concentrations prior to reaching the monitoring well. Groundwater collected from monitoring well MW-3 is likely impacted from an MGP source located within close proximity to the well. Groundwater collected from hydraulically downgradient monitoring well MW-5 is likely impacted from the former UST area associated with the former Con Edison maintenance yard.

Site groundwater containing metals at concentrations above AWQS is present in hydraulically upgradient locations and is distributed across the site. With the exception of iron, the highest concentrations of metals were detected in groundwater collected from hydraulically upgradient monitoring well MW-1. This suggests that the metals detected in on-site groundwater are not associated with former MGP operations.

Soil gas samples contained concentrations of chlorinated compounds and other VOCs that suggest more recent solvent and petroleum mixture impacts to the area around the storage building, subsequent to MGP operations. Potential sources of the compounds detected in soil gas include the wide variety of chemical products stored in the storage garage.

A qualitative human health exposure assessment was conducted to identify potential exposure pathways to media that contain constituents at concentrations greater than the Residential Use SCOs. Based on the distribution of constituents and the land use of the site, there are complete exposure pathways posed to grass playing field users/custodial worker, and construction workers at the site. The primary points of exposure are on-site topsoil in the area of the playing field and subsurface fill deposits also in the area of the playing field.

1. Introduction

On behalf of Consolidated Edison Company of New York (Con Edison), GEI Consultants, Inc. (GEI) prepared this Remedial Investigation (RI) report to addresses environmental conditions related to the Purdy Street Station former manufactured gas plant (MGP). The former MGP is located between Purdy Street and Odell Street in the Parkchester section of the Borough and County of the Bronx, New York **(Figure 1)**. The former MGP and holder station were once owned and operated by Con Edison and its predecessor companies. The former MGP site is located on the northern half of Lot 55, Tax Block 3947 which is owned by the Roman Catholic Church of Saint Raymond (herein referred to as the "owner") and is part of the grounds of St. Raymond High School for Boys.

The site characterization and remedial investigation were conducted in accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved *Site Characterization Work Plan* (GEI, 2002b) and *Remedial Investigation Work Plan* (GEI, 2005b). The results of each investigation were reported separately in the *Site Characterization Report* (GEI, 2005a) and the *Off-Site Remedial Investigation Data Submittal* (GEI, 2006). This RI Report is intended as a compilation of all investigation activities performed at the site. This report has been developed in accordance with the August 2002 Voluntary Cleanup Agreement (VCA) between Con Edison and NYSDEC the criteria set forth in Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 375 for remedial investigations, and NYSDEC *Draft DER-10 Technical Guidance for Site Investigation and Remediation*.

Field activities for the SC/RI were conducted by Con Edison from June 27, 2004 through August 27, 2004 and February 4, 2006 through February 23, 2006.

1.1 Purpose of the Remedial Investigation

The goals of the SC/RI were to collect site-specific information confirming the presence or absence of any former MGP structures, hazardous waste, or contamination, and to determine whether the site potentially poses a significant threat to public health and the environment as a result of the former MGP-related activities. These goals are consistent with those of the NYSDEC's comprehensive site characterization and remedial investigation process, as described in the NYSDEC *Draft DER-10 Technical Guidelines for Site Investigation and Remediation* (NYSDEC, 2002).

The primary objectives of the SC/RI field activities were to:

- Locate the subsurface remnants of any MGP structures or other structures that may exist on the site and that might be associated with waste source areas or serve as preferential pathways for the migration of MGP waste or other contamination;
- Characterize potential MGP or other waste impacts on the site;
- Determine the potential for off-site migration of contamination;
- Characterize geology and hydrology of the site.

1.2 Report Organization

The procedures and findings of the SC/RI activities presented in this RI report are organized into eight sections. Following this introduction, Section 2 presents the site background, including physical setting, site ownership, and operational history. The investigation methods used to collect, analyze, and present the SC/RI data are discussed in Section 3. The geologic and hydrologic characterization of the site is discussed in Section 4. Section 5 presents the nature and extent of contaminants and Section 6 provides a discussion of contaminant fate and transport. Section 7 presents a Qualitative Human Health Exposure Assessment (QHHEA). Section 8 presents the summary and conclusions. Soil boring logs and well purging records, laboratory analytical results and data usability reports, and photographic documentation are included in Appendices A through C, respectively.

2. Site Background

2.1 Site Description

The Purdy Street Station former MGP and holder site is located between Purdy Street and Odell Street on the north side of St. Raymond Avenue in the Parkchester section of the Borough and County of the Bronx, New York. The general site location is illustrated in **Figure 1**, taken from a portion of the United States Geological Survey (USGS) Topographic Map of the Flushing, New York and the Central Park, New York, New Jersey Quadrangle. The site is defined as all land occupied by former MGP operations and formerly owned by Con Edison or a Con Edison predecessor company, and is depicted in **Figure 2**.

The site is an approximately 2.5 acre parcel designated by the Bronx Assessor's Office as Tax Block 3947, Lot 55. It is owned by the Roman Catholic Church of Saint Raymond and occupied by the buildings, parking lot, and athletic field of St. Raymond High School for Boys. The area of former MGP operations are currently occupied by a running track, a grass playing field, and a one-story slab-on-grade storage building located on the northeastern portion of the site. The east-central portion of the property is occupied by an asphalt playground and parking area. The southern and west-central portions of the parcel are occupied by the school buildings. A combination of chain-link fence and wrought iron fence surround the majority of the property.

2.2 Site History

From the mid 1920s to 1960, the entire property was used as a service yard for Con Edison and Con Edison's Predecessor Company, the Bronx Gas and Electric Company. The former service yard was occupied by service buildings and storage areas. The former MGP and gas holder station were located on the northern portion of the site from sometime after 1868 to the mid 1920s. A composite map of the location of historic MGP structures is shown on **Figure 2**. By 1908 the gas manufacturing had ceased at Purdy Street. The Purdy Street site was used as a holder station up until the mid 1920s after which time it was used as a storage and service facility which included the use of underground storage tanks (USTs). Between 1870 and 1926, the two southernmost lots along St. Raymond Avenue were subdivided several times and were occupied by residential and commercial buildings. A complete site history is presented the August 7, 2002 *Manufactured Gas Plant History, Purdy Street Station, Bronx, New York*.

The Roman Catholic Church of Saint Raymond acquired the site in 1960. Bronx Building Department records indicate that the Saint Raymond Church took out a building permit application in 1961 to conduct alterations to the existing garage/service building (i.e., southernmost building constructed in 1927) to be used as a high school. Saint Raymond Church received a Certificate of Occupancy for the high school in 1964. The 1966 USGS topographic map shows the southernmost building as a school. The 1970 Sanborn Fire Insurance (Sanborn) map identifies the southernmost building (former garage/service building) as the St. Raymond High School for Boys. The two central buildings, automobile garage and store house are not shown on the 1970 Sanborn map. The long rectangular building on the northeastern portion of the site is still shown as a store house. The site has remained essentially unchanged since Saint Raymond Church began operating the high school on the site. A one-story addition and mezzanine were constructed on the northern side of the high school building circa 1997.

3. Site Characterization/Remedial Investigation Scope

The SC/RI field work was conducted from June through August 2004 and February through March 2006 in accordance with the NYSDEC-approved *Site Characterization Work Plan* (SCWP) (GEI, 2002b) and *Remedial Investigation Work Plan* (RIWP) (GEI, 2005b). Table 1 presents the dates that each phase of the field work was conducted, a summary of the field activities that occurred during each phase and the primary objectives of each phase of work. Prior to the preparation of the SCWP and the RIWP, GEI conducted a reconnaissance of the site and reviewed historic information sources such as Sanborn maps and other historic site engineering drawings and environmental assessments provided by Con Edison. The information gathered during these activities was used to determine the type of environmental sampling and the number and depth of sampling locations specified in the approved work plans. Additional borings and test pits not specified in the SCWP or RIWP were completed during the investigation. The number and location of each additional sample location was based on information collected during field activities and consultation with the NYSDEC. A summary of the number of analytical samples is provided in Table 2. A list of additional borings and test pits and location rationale is provided in Table 3.

A Qualitative Human Health Exposure Assessment (Section 7) based on all the data collected during the SC/RI and the supplemental investigation was conducted to identify the potential exposure setting, identify the potential exposure pathways, and evaluate whether human receptors might possibly be exposed to site-related contaminants.

The following sections generally describe the methods used for the sampling in accordance with the NYSDEC-approved work plans. A variety of investigatory methods were utilized to collect the data. The sample types collected during the field activities are presented in Table 2. Detailed field procedures are provided in the SCWP and RIWP.

All soil and groundwater sample analyses were completed by New York State Analytical Services Protocol (NYSASP) -certified laboratories, Severn Trent Laboratories (STL) of Shelton, Connecticut, and ChemTech Laboratories (ChemTech) of Mountainside, New Jersey. Air Toxics LTD of Folsom, California completed all soil vapor sample analysis. Samples requiring hydrocarbon fingerprint analysis were analyzed by META Environmental, Inc. (META) of Watertown, Massachusetts.

3.1 SC/RI Field Work

The SC/RI Field work was conducted over two mobilizations between June and August 2004 and between February and March 2006. The site work included:

- Excavation of 20 test pits (TP-1 through TP-10)
- Drilling of 29 soil borings using hollow stem auger or Geoprobe drilling methods (B-1 through B-24, and MW-1 through MW-5)
- Installation of 5 monitoring wells (MW-1 through MW-5). Table 4 presents a summary of monitoring well identifications and construction details.
- Installation of 3 soil vapor probes; six (SGP-1 through SGP-3) adjacent to and beneath the on-site storage building.

The following samples were collected from each of these investigation points. Table 3 presents a sample collection rationale and Table 5 presents a summary of laboratory analyses performed for each sample.

- Twenty-two (22) subsurface-soil samples (including 1 duplicate sample) were collected from 16 of the 20 test pits.
- Seven (7) surface-soil samples (including 1 duplicate sample) were collected from the 6 surface soil sample locations.
- Eighty-eight (88) subsurface-soil samples (including 3 duplicate samples) were collected from 29 boring locations and test pit locations.
- Five (5) groundwater samples were collected from 5 monitoring wells.
- Three (3) soil vapor samples were collected from 3 soil vapor probes.

During all intrusive activities, an air quality-monitoring program was conducted in accordance with the provisions of the site-specific health and safety plan provided and in accordance with the New York State Department of Health's (NYSDOH) Community Air Monitoring Plan (CAMP) requirements (NYSDEC, 2002). The air-monitoring program included the collection of real-time air quality data, time-averaged air quality data, and meteorological data to document potential migration routes of airborne volatile organic compounds (VOCs) and particulates. No exceedances of the air monitoring action levels were measured at the perimeter of the work zones during the entire SC/RI field program. No exceedance of worker health and safety action levels related to SC/RI activities were measured during the SC/RI field program.

3.2 Field Methods

This subsection describes the sampling procedures and field methods used during the SC/RI. All procedures and methods used were in accordance with the SCWP and/or RIWP.

3.2.1 Surface-Soil Sampling

Surface-soil samples were collected from within the northern portion of the Site in the area of the current grass playing field. Six surface-soil samples were collected in total. The locations, illustrated in Figure 3, were based on a systematic grid and were collected using a stainless-steel trowel from the uppermost soil horizon containing mineral soil below any sod or turf material (i.e., 0 to 2-inch interval). The sod/turf above the interval was cut and removed so that it could be replaced after sampling. Soil removed for sampling was replaced with commercially available topsoil.

Surface-soil samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), Total Analyte List (TAL) metals, polychlorinated biphenyls (PCBs), and total cyanide. The results of the analysis of the surface soils are presented in Section 5 (Nature and Extent of Detected Compounds) of this report.

3.2.2 Test Pit Excavations

Twenty test pit excavations were conducted at the site as part of the SC/RI field activities. Fourteen test pits were added to the six specified in the NYSDEC-approved SCWP in order to identify the presence or absence of shallow (less than 15 feet below ground surface [bgs]) subsurface contamination and former MGP subsurface structures. The test pit locations, shown in Figure 3, were based on historical information collected in 2002 (GEI, 2002) and conditions observed during SC/RI field activities. The rationale for the placement of the test pits is summarized in Table 3. Soil removed during test pit excavations was placed on plywood underlain with plastic sheeting in order to minimize any spread of potentially contaminated soil. Samples were collected from test pits based on physical evidence observed during the excavation. Upon completion, the test pits were backfilled, compacted, and fresh topsoil added to the surface of each test pit. Test pit logs are provided in Appendix A.

Samples collected from select test pits were analyzed for VOCs, SVOCs, TAL metals, PCBs, and Total cyanide. In test pits where potential MGP source material was encountered, a sample was collected for hydrocarbon fingerprint characterization by META.

3.2.3 Subsurface-Soil Borings

Twenty-nine subsurface-soil borings were drilled at the site. This number includes the 11 borings specified in the SCWP, 13 additional borings conducted during the 2004 SC investigations, and the five borings identified in the RIWP. Five of the 29 borings were finished as groundwater monitoring wells. The rationale for the placement of the soil borings is summarized in Table 3.

Twenty-three borings, including the five monitoring wells, were advanced through overburden soils to the competent bedrock surface. Borings B-1, B-11, B-12, B-21, B-23, and B-24 were terminated above bedrock due to obstructions. Borings B-2, B-13 and B-17 were drilled into the competent bedrock.

The five monitoring wells were advanced to depths ranging from 13 to 17 feet (bgs). Boring B-1 encountered refusal due to material inside the footprint of the former 150,000 cu. ft. gas holder. Borings B-11 and B-12 were drilled using a Geoprobe™ drill rig and were advanced to the limit of the rig. Borings (B-2, B-13, and B-17) were drilled with 4 ¼" steel casing using a drive and wash drill method in order to obtain bedrock core samples. All remaining soil borings and monitoring wells were drilled using continuous-flight, hollow stem augers. Continuous soil samples were collected from each boring during drilling using a 2-inch split-spoon sampler.

The competent bedrock surface was identified by auger and split-spoon refusal. Competent bedrock was also verified by examination of the bedrock core samples collected. The borings not completed as monitoring wells were backfilled with cement-bentonite grout using a tremie pipe to the ground surface. Some were finished with leveled concrete pads and others were finished with commercially available topsoil if the boring was located within the playing field. Soil boring and monitoring well logs are provided as Appendix A.

Sub-surface soil samples were collected for laboratory analysis from the uppermost portion of the site soils (i.e., between 2 and 5 feet bgs), the water table interface, the most heavily impacted soil interval (based on visual, olfactory, and PID observations), and from a non-impacted interval underlying the most impacted interval. If no impacted soils were detected in a boring, one sample was collected at the water table interface and one from or near the bedrock surface. Subsurface soils were analyzed for VOCs, SVOCs, TAL metals, PCBs, and Total cyanide. In borings where potential MGP source material was encountered, a sample was collected for hydrocarbon fingerprint characterization by META.

3.2.4 Groundwater Monitoring Well Installation

Five groundwater monitoring wells were installed during the SC/RI. The well locations are illustrated in Figure 3. Table 4 presents a summary of the monitoring well construction details. The monitoring wells were placed at locations and depths to characterize site hydrology and to determine impacts to overburden groundwater. The well location rationale is summarized in Table 3. Subsequent to monitoring well sampling, all wells were developed to restore the natural permeability of the formation in the vicinity of the well and to remove silt and clay from the screened interval to provide turbidity-free groundwater samples. Well development records are provided in Appendix A.

Static water table elevations in monitoring wells were measured during SC/RI activities. These measurements were used to determine horizontal groundwater flow gradients at the site. Water level measurements collected from the wells was used to construct water table surface contour maps.

Monitoring wells were sampled approximately two weeks after their installation and development. The sampling technique used minimized stress to the aquifer by employing low flow pumping rates in order to provide representative water samples with minimal alterations to water chemistry. The analytical results were used to assess the effect of the former MGP and gas holder station operations on groundwater quality. Groundwater samples were analyzed for VOCs, SVOCs, TAL metals, Total cyanide, available cyanide and PCBs. In addition to the unfiltered samples collected from each monitoring well, one filtered groundwater sample (analyzed for TAL metals) was collected from one sample that exceeded 50 nephelometric turbidity units (NTUs). Groundwater chemical data are presented in Section 5 of this report.

3.2.5 Soil Vapor Sampling

Two soil gas samples (SGP-1 and SGP-2) were collected from the northeastern corner of the site, north of the existing storage building, in order to characterize soil gas and the potential of vapor movement toward the adjacent residential properties. The sample points were inserted 3 to 5 feet bgs and purged for five minutes prior to collecting the sample in a Summa canister. One soil gas sample, SGP-3, was collected from beneath the floor at the north end of the storage building along the eastern property line of the site in order to characterize soil gas and potential vapor entrapment. SGP-3 was also purged for five minutes prior to collection of the sample from beneath the concrete slab. The samples were analyzed for VOCs by EPA Method TO-15. Sample locations are illustrated in Figure 3. Soil gas chemical data is presented in Section 5 of this report.

3.2.6 Air Monitoring

In accordance with NYSDEC and NYSDOH requirements, a Community Air Monitoring Plan (CAMP) was implemented at the site during utility clearance and borehole drilling. The objective of the CAMP was to provide a measure of protection for the downwind community (i.e., off-site receptors, including residences and businesses and on-site workers not involved with the site activities) from potential airborne contaminant releases as a direct result of SC/RI field activities.

Real-time air monitoring stations were set up downwind and upwind of the SC/RI field work area. The downwind station was used to measure potential airborne contaminants leaving the site during the SC/RI activities. The upwind station measured background air quality data in the vicinity of the site. Wind direction was determined using the flag flying over the SC/RI work area.

VOCs in air were measured using a photoionization detector (PID) and particulate dust was measured using a DustTrak™ PM-10 particulate meter. Response levels were programmed into the meters, which were connected to a yellow strobe light to alert site workers that targeted compounds in the ambient air had exceeded the NYSDEC-approved VOC and Particulate Monitoring Response Levels.

All VOC and particulate data were recorded continuously during site activities and downloaded to the project computer at the end of the day. All monitoring data are stored electronically in spreadsheets and databases. Records of equipment maintenance and calibration records were also maintained.

3.2.7 Investigation-Derived Waste (IDW) Characterization and Disposal

IDW generated during the SC/RI activities consisted of: (1) liquids generated by the cleaning of drilling and sampling equipment; (2) groundwater generated during development, purging, and sampling of monitoring wells; and (3) soils generated during the installation of test pits, borings, and monitoring wells. All solid IDW was stored in new USDOT-approved 55-gallon drums and a 40 cubic yard roll-off container. Liquid IDW was stored in a 630 gallon liquid storage tank, as well as, USDOT-approved 55-gallon drums.

The liquid and soil wastes generated during the SC/RI were characterized to ensure proper disposal of these materials. Prior to disposal, soil cuttings were analyzed for TCLP VOCs, SVOCs, inorganics and pesticides, and diesel range organics (DRO). Wastewater was analyzed for VOCs, SVOCs, TAL metals, pH and DRO. Soil cuttings were transported off site by either Clean Harbors of Brooklyn, New York or Cycle Chem Inc. of Elizabeth, New Jersey and treated at a thermal desorption facility. Wastewater was transported off site by Clean Harbors or Cycle Chem Inc. for treatment and disposal.

3.4 Survey

At the conclusion of the SC/RI field activities, a New York State-licensed land surveyor (NY LS #050146), Douglas Bonoff, conducted a site survey to locate the boring and monitoring wells as well as other pertinent site features necessary to generate a composite base map. The survey was conducted to A-2 standards of accuracy, with an approximate horizontal and vertical precision of ±0.02 feet. The vertical datum used was North American Vertical Datum (NAVD) 88 expressed in feet above approximate MSL. The horizontal datum used was North American Datum (NAD) 83 expressed in New York State Plane Coordinate System (in feet).

3.5 Quality Assurance/Quality Control

QA/QC protocols and procedures were performed to ensure accuracy, precision, and completeness of all chemical data collected during SC/RI activities. QA/QC protocols and procedures were completed in accordance with the NYSDEC-approved Quality Assurance Plan submitted as part of the SCWP.

3.5.1 Sample Quality Assurance/Quality Control

QA/QC samples were collected during each phase of SC/RI sampling activities in order to evaluate the validity of the sampling, decontamination, and analytical methods used during the SC/RI. QA/QC samples collected during field sampling activities included trip blanks, duplicates, and field blanks (equipment rinsates). Table 5 summarizes the number and types of QA/QC samples collected for each sample media. Blind duplicates consisted of two split samples from the same source, analyzed by the laboratory as separate samples where the laboratory was not aware of duplicate samples. This is done to verify the laboratory reproducibility of analytical data. Field blanks (i.e., equipment rinsates) were used to monitor the adequacy of field equipment decontamination procedures that were used to prevent cross-contamination from one sample location to another sample location. Trip blanks were used to monitor possible sources of contamination from sample transport and storage.

Samples submitted to STL or ChemTech for analytical characterization were evaluated and reported by the laboratory according to United States Environmental Protection Agency (USEPA) Methodologies 8260B (VOCs), 8270C (SVOCs), 8082 (PCBs), 6010/7000 (metals), and 9012 (cyanide). Both laboratories provided a full data evaluation package in accordance with Category B deliverable requirements. Data validation was performed by a third party validator based on the following documents.

- USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired Using SW-846 Method 8260B, SOP No. HW-24, Revision 1, June 1999.
- USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired Using SW-846 Method 8270C, SOP No. HW-22, Revision 2, June 2001.
- USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired Using SW-846 Method 8080A/8000A, SOP No. HW-23, Revision 0, April 1995.
- USEPA Region II Standard Operating Procedure (SOP) for the Evaluation of Metals Data for the Contract Laboratory Program, SOP No. HW-2, Revision 11, January 1992.

Data usability was evaluated based on the following parameters.

- Preservation and Technical Holding Times
- Calibration Verification Results
- Blanks
- Field Duplicates
- Laboratory Fortified Blank Recovery

Copies of the data usability reports are provided in Appendix B. Data qualifiers used in the presentation of the analytical results are included with those reports.

3.6 Well Abandonment and Site Restoration

3.6.1 Well Abandonment

During SC/RI activities a temporary groundwater monitoring well was installed at the location of B-1 to evaluate the possible presence of perched groundwater within the former 150,000 cubic foot (CF) gas holder foundation. When SC/RI activities were complete, the well was no longer required and was abandoned. Well abandonment activities included over drilling the top 5 feet and tremie grouting the monitoring well from the bottom of the screened interval up to the ground surface. The grout was allowed to settle and the top 1 foot was finished with topsoil backfill to the existing ground surface.

Well abandonment activities were completed in accordance with the NYSDEC document titled *Groundwater Monitoring Well Decommissioning Procedures,* dated April 2003.

3.6.2 Site Restoration

The site's playing field was significantly disturbed by SC/RI activities. The entire playing field was restored to pre-investigation condition by removing the remaining grass, re-grading the area, placing imported topsoil, and installing sod. All site restoration activities were documented and photographed.

4. Site Geology and Hydrogeology

The geologic, hydrologic, and chemical characterization data collected during the SC/RI field activities have been used to define the site's hydrogeology, to identify the specific contaminant concentrations in site's soils and groundwater and to identify potential pathways for contaminant transport. The interpreted site-specific geology and hydrology data were compared to the broader model of regional data and are incorporated into a conceptual model that describes the physical and contaminant distribution characteristics of the site. The geologic and hydrologic interpretations developed from the SC/RI data are presented in this section. The interpretations of these data are supplemented with data tables, geologic cross-sections, contour maps and a site map. Interpretations of the chemical data are presented in Section 5.

4.1 Geographic Setting

The topographic setting of the Purdy Street Station site is illustrated in Figure 1, taken from a portion of the USGS topographic map for the area. As depicted in Figure 1, the land surface topography is relatively flat.

4.2 Regional Soils

The natural surficial material in Bronx County is predominantly glacial till that consists of a mixture of clay, silt, sand, gravel, and boulders. These glacial deposits are often highly stratified, having been reworked by fluvial processes. Freshwater and tidal marsh deposits, consisting of organic silt and clay, commonly overlie the glacial till. The glacial till is underlain by bedrock. Artificial fill deposits in the Bronx overlie much of the natural surficial material. These deposits include mixtures of glacial soil, building-demolition rubble (e.g., glass, wood, brick, and concrete) and cinders.

4.3 Regional Geology

The Purdy Street Station site is underlain by metamorphic bedrock of the Hartland Formation. The Hartland Formation is Middle Ordovician to Middle Cambrian in age and consists predominantly of muscovite-biotite quartz schist that includes some gneiss, pegmatite, and hornblende amphibolite members. Figure 4 is a geologic map of a portion of the Bronx in New York City.

The landscape in southeastern New York was subjected to glaciations several times during the Pleistocene Epoch (approximately 1.8 million to 8,000 years ago). Glacial overburden deposits in the area of the site were derived almost entirely from the Late Wisconsinan glaciation that incorporated and transported large quantities of rock and soil. The Wisconsinan glacier retreated from New York State about 12,000 years ago. Post-glacial processes have reshaped the landforms of New York only moderately, mainly along floodplains and streams. Many of the original drainages and stream/shore configurations no longer exist due to artificial filling.

4.4 Site-Specific Geology

The overburden deposits and bedrock of the Purdy Street Station Site are classified into four main stratigraphic units, starting from ground surface: (1) fill; (2) glacial deposits; (3) weathered bedrock of the muscovite-biotite quartz schist; and (4) competent bedrock of the muscovite-biotite quartz schist. The fill is capped with a layer of asphalt pavement along the southern and eastern portions of the site. The northern portion of the site, currently used as a running track and playing field, is capped with topsoil. Important characteristics of each stratigraphic unit are discussed below. The stratigraphy of the site is illustrated in Figures 5 through 8 (Geologic Cross-Sections A-A', B-B', C-C', and D-D'). The location of each cross-section is presented in Figure 3.

4.4.1 Competent Bedrock

Competent bedrock was encountered in 23 of 29 borings drilled on site. Boring B-1 did not reach competent bedrock due to an obstruction encountered within footprint of the 150,000 cu. ft. gas holder. Borings B-21, B-23, B-24 were terminated at auger refusal without encountering competent bedrock. Two other borings (B-11 and B-12) were not advanced to competent bedrock. These borings are located inside the Site's storage building with limited overhead clearance and were advanced to a depth of 15 and 16 feet, respectively. The use of the Geoprobe™ enabled the borings to be drilled inside the storage building. However, the Geoprobe™ was unable to penetrate to depths required to reach competent bedrock. Bedrock is estimated to be approximately 20 feet deep in this area. Based on the geologic literature and some limited field observations, the competent bedrock in these areas consists mainly of the muscovite-biotite quartz schist, a black and white banded schist. The black bands are comprised predominantly of quartz plagioclase and biotite minerals, while the white bands are comprised predominantly of quartz-garnet-muscovite minerals.

Depths to bedrock ranged from 12.34 to 28.00 feet bgs. Bedrock elevation data are presented in Table 6. The bedrock contours for the site are presented in Figure 9. The bedrock surface dips predominantly north-northwest towards the Bronx River.

4.4.2 Weathered Bedrock

A layer of friable weathered bedrock was encountered in many of the borings where competent bedrock was encountered.

This layer varied in thickness between a few inches and several feet thick above the competent bedrock. It consisted of very dense, black sand and clayey silt with quartz, biotite, and muscovite fragments.

4.4.3 Glacial Deposits

The glacial deposits are stratigraphically located between the overlying fill material and bedrock. These deposits consist predominantly of poorly sorted, dense silty clay to fine gravel. Evidence of reworking of these deposits (i.e., stratification) by fluvial processes was observed in some split-spoon samples. The glacial deposits are absent or very thin in the eastern portions of the site and grade up to their maximum thickness along the western boundary of the site. The glacial deposits may have been removed from the eastern portion of the site when the engine house and coal shed buildings were constructed. Based on a review of the geologic cross-sections and the available aerial photographs, it appears that the historic grade of the MGP and gas holders was approximately 2 to 3 feet below the present site ground elevation.

4.4.4 Site Topography (Present and Historic)

A review of the regional USGS topographic map (Figure 1) shows the surface elevations as relatively flat across most of the site. Presently, the surface elevation of the area of the site is approximately 25 feet above MSL. Test pit excavations (TP-2A and SP-TP-2B) uncovered the steel floor of the former 50,000 cu. ft. gas holder, 3 feet below the surface of the western portion of the playing field. At the southern end of the playing field, cobblestone driveways were discovered at approximately the same elevation as the steel holder floor. This suggests that the MGP and holder operations took place at an elevation lower than the current site elevation. The three-story building that faces St. Raymond Avenue was constructed in 1927, which is approximately the same time the MGP and gas holder structures were demolished, suggesting that the site elevation has not changed since that time.

4.4.5 Fill Material

Fill deposits overlie the glacial deposits and bedrock. Fill deposits in the vicinity of the former store house (southeastern portion of the playing field) extend down to bedrock. Fill deposits in the remaining area of the site are underlain by glacial deposits. The fill consists predominantly of fine-to-coarse sand with varying percentages of silt, gravel, rock fragments, brick pieces, wood, and other urban-fill materials. The fill deposit is laterally continuous across the site and ranges in thickness from 22 feet in the northern portion of the site to 12 feet in the southern portion of the site where the paved parking lot is located. The fill is capped by asphalt across the entire site, except the area currently being used as a playing field.

4.5 Subsurface Features

What appeared to be a buried steel floor with sidewalls was encountered during the excavation of TP-2A and TP-2B (see test pit logs Appendix A). The structure is presumed to be the bottom of the former 50,000 cu. ft. holder. The floor was encountered at an elevation of approximately 3 feet (bgs) in both test pits. Each end of the floor had a turned-up sidewall ranging from 7 to 9 inches tall. It appears that the demolition of the holder included cutting the holder's water tank near the holder floor leaving the floor and a 9-inch rim in place.

Test pit TP-3B encountered a concrete block at the northern end of the test pit. This is the approximate location of the small gas holder shown in Figure 2 and Figure 3, suggesting that the concrete may have been a footing for the structure.

Test pit TP-4B encountered a brick wall adjacent to the excavation on the east side that may be associated with the former engine house building.

Test pit TP-6B encountered a concrete surface approximately 3 feet bgs that may be associated with the floor of the former store house.

A cobblestone driveway with evidence of an asphalt layer on top was discovered in TP-5A and TP-9. These materials were found approximately 3 feet bgs, suggesting that the surface elevation of the former MGP and holder station was raised after these facilities were demolished. Test pit excavations also uncovered various abandoned pipes assumed to be associated with the MGP and holder operations.

4.6 Regional Surface Water Hydrology

Surface water in the borough of the Bronx occurs in lakes and streams. The site is located within the Westchester Creek watershed. Westchester Creek flows southward through the Bronx, three quarters of a mile east of the site. Westchester Creek is a two-mile long tributary of the East River. In addition, Westchester Creek is fed by overland runoff and diffuse flow from the overburden aquifer. The presence of large impervious areas of urbanization results in peak runoff from storms. The site-specific flow of groundwater from the overburden aquifer to Westchester Creek is discussed in more detail in subsection 4.8. Westchester Creek is classified as Class I Saline Surface Waters by the NYSDEC. Class I waters should be suitable for secondary contact recreation. Secondary contact means activities where contact with the water is minimal and where ingestion of the water is not probable. Secondary contact recreation includes boating and fishing. These waters are suitable for fish propagation and survival.

4.7 Regional Groundwater Hydrology

4.7.1 Hydrogeology

General information about the hydrogeology in the area of the site was known prior to conducting the site characterization. Hydrogeologic literature for New York City indicates that groundwater in the area moves predominantly from recharge areas to nearby valleys, where it typically discharges to the major rivers and streams. Groundwater recharge is primarily from infiltration of precipitation, but minor amounts of water enter the groundwater system through leaking water mains, sewers, and sanitary disposal systems. Groundwater occurs predominantly under unconfined conditions in overburden, and in confined and unconfined conditions in fractured bedrock.

4.7.2 Groundwater Use Survey

A groundwater use survey was conducted in 2010 to identify potential receptors and to determine if the aquifer beneath and downgradient of the site is used for public purposes. Information on public water supply wells (residential and industrial) within a 1-mile radius of the site was obtained from multiple sources. An electronic database records search from EDR, which included information from the USGS, Federal Reporting Data System (FRDS) Public Water Supply System, and the New York State Municipal Well Database, was completed. The New York City Department of Health and Mental Hygiene (NYCDOH) Bureau of Public Health Engineering, who issues non-potable well permits for New York City, do not have any permits on record issued for the Bronx. Additionally, the NYSDEC Division of Water did not have any records of non-potable wells within 1 mile of the site.

Groundwater in the Borough of the Bronx is used only for industrial applications and has not been withdrawn for public water supply since 1905 (Perlmutter and Arnow, 1953). Potable water used in the Bronx is obtained entirely from the New York City water supply system. No public wells were identified within 1 mile of the site. The NYSDEC groundwater classification for the site is Class GA Groundwater.

4.8 Site-Specific Hydrogeology

Hydrogeologic characterization was conducted to provide data for the site and to determine how the site's hydrology fits into the broad regional hydrogeologic model. Specifically, the hydrogeologic characterization data were used to (1) characterize the overburden aquifer; and (2) define local groundwater flow in the overburden. A detailed description of the site-specific hydrogeologic characterization is presented in this section. Table 4 presents a summary of the monitoring wells installed for site characterization, and includes well identification, depth, elevations, screened interval, and annular fills. Monitoring well locations are illustrated in Figure 3.

4.8.1 Characterization of the Overburden Aquifer

The overburden aquifer at the site is unconfined and present within the fill, glacial deposits, and weathered bedrock geologic units. The competent bedrock surface defines the base of the overburden aquifer. The spatial distribution of each of these stratigraphic units is presented in Figures 5 through 8 (Geologic Cross-Sections A-A', B-B', C-C', and D-D'). Cross-section A-A' is oriented south-north along the western portion of the site. Cross-section B-B' is oriented south-north along the center of the site. Cross-section C-C' is oriented east-west along the southern portion of the site. Cross-section D-D' is oriented west-east in the central portion of the site. As illustrated in the cross-sections, the fill, glacial deposits, and weathered bedrock stratigraphic units characterize the overburden aquifer. The fill is laterally continuous across the site. The glacial unit is absent towards the southeastern portion of the site in the area of the former engine house.

4.8.2 Groundwater Flow Within the Overburden Aquifer

Two rounds of groundwater measurements were collected during the SC/RI field activities. The depth to groundwater and the groundwater elevation measurements for the overburden aquifer are listed in Table 7. On August 25, 2004, the depth to groundwater within the overburden aquifer ranged from approximately 6.6 to 9 feet bgs. Figure 10 illustrates the water table surface contours and groundwater flow direction for August 25, 2004. The depth to groundwater within the overburden aquifer ranged from approximately 7.3 to 9.9 feet bgs on October 20, 2004, slightly deeper than two months earlier. Figure 11 illustrates the water table surface contours and groundwater flow direction for October 20, 2004. Groundwater measurements collected from wells screened in similar stratigraphic horizons and similar depths were used to determine the groundwater flow directions. The predominant groundwater flow is southeast in the direction of Westchester Creek.

5. Nature and Extent of Detected Compounds

This section of the RI report discusses the nature and extent of compounds identified during the SC/RI field activities. Analytical results for each of the compounds detected for each of the media of concern were compared to the appropriate New York State standards. Sample locations and sampling objectives are presented in Section 3 of this report.

The distribution of compounds that exceed the Unrestricted Use individual compound Soil Cleanup Objectives (SCOs) listed in 6 NYCRR Subpart 375-6, Table 375-6.8(a) (herein referred to as "Unrestricted Use SCOs") and the Residential Use individual compound SCOs listed in Table 375-6.8(b) (herein referred to as "Residential Use SCOs") or the NYSDEC ambient water quality standards for groundwater are discussed separately in this section. Volatile organic compounds detected in soil gas samples are also discussed. The interpretations of these data are supplemented with data tables, figures, and maps. Complete analytical results are presented as electronic files in Appendix B. All analytical data were validated. Validation reports are also included in the electronic files of Appendix B.

5.1 Identification of Environmental Impacts

Physical evidence collected during SC/RI field activities indicates that MGP-related residues (i.e., nonaqueous phase liquid (NAPL) and NAPL tar staining and/or sheen) are present in subsurface fill or the native overburden on the northern portion of the site where the playing field is located. Physical evidence collected during SC/RI field activities also indicates that potential petroleum-related residue is present in the subsurface overburden on the southern portion of the parking area adjacent to the St. Raymond High School building. The source(s) of this petroleum-related residue is most likely the oil and/or gasoline underground storage tanks (USTs) formerly located in this area of the site. These USTs were in use subsequent to MGP operations and are not associated with the former MGP.

5.1.1 Identification of MGP-Related Residues

NAPL, NAPL tar staining and/or sheen, and naphthalene and/or MGP-like odors were observed during SC/RI field activities. These observations were made primarily in the borings and test pits located on the northern portion of the site within the playing field footprint. NAPL was observed in TP-3B, TP-8, TP-9, B-2, B-5, B-6, B-10, B-16, and B-19. NAPL was observed at depths ranging from 6 to 16 feet deep. The deepest NAPL was observed in boring B-5 where heavy sheens and product saturation were encountered from 14 to 16 feet deep. NAPL tar staining and/or sheen were observed in TP-2A, TP-2B, TP-7, B-3, B-4, B-20, MW-2, and MW-3. In boring B-5, a thin lens of residual product was encountered at 18.5 feet deep within weathered bedrock.

This was the only location where MGP impacts were encountered within bedrock. These observations suggest that MGP residues exist in the area defined by the above sample points. Naphthalene and/or MGP-like odors were detected in TP-1, TP-1A, TP-2, TP-5C, TP-6A, TP-6B, TP-7, TP-10, MW-3, B-7, B-11, B-12, B-13, B-14, B-17, and B-22.

The borings and test pits that exhibit the MGP-related residues are shown on Figure 12. The test pits and borings located within this area of the site are illustrated on geologic cross-sections (Figures 5 through 8). Analytical samples were collected from each location exhibiting staining, sheens, and/or odors and analyzed for VOCs, SVOCs, TAL metals, PCBs, and cyanide.

5.1.2 Identification of Petroleum-Related Residues

Petroleum-related impacts include staining, hydrocarbon sheen, and/or hydrocarbon odor. Petroleum-related impacts were identified at five locations, B-8, B-14, B-18, B-24 and MW-5. Borings B-8, B14, B-18 and B-24 exhibited only fuel oil-like odors. Subsurface soil collected from sample location MW-5 exhibited discrete intervals of petroleum staining and/or hydrocarbon odors. Analytical samples were collected from each location exhibiting staining, sheens, and/or odors and analyzed for VOCs, SVOCs, TAL metals, PCBs, and cyanide.

Physical evidence collected during SC/RI field activities indicates that potential petroleum-related residue is present in the subsurface overburden in the southern portion of the parking area, adjacent to the northeastern corner of the high school building potentially related to use of former underground storage tanks (USTs). Petroleum-related impacts were identified in this area at locations B-8, B-18, and MW-5. This is the area where underground gasoline and oil storage tanks associated with the former Con Edison garage/service building were historically located. These tanks were installed prior to 1978, and therefore, not registered under the UST program. The USTs were removed by the Saint Raymond Church during construction activities in 1996 and 1997. Con Edison has no record of any spill reporting, UST registration, or NYSDEC involvement with the removal of these tanks.

In addition, petroleum related impacts were observed in borings B-14 and B-24 beneath Odell Street adjacent to and upgradient of the former garage building. It is unlikely that these impacts are related to Con Edison’s use of USTs at the site.

5.2 Distribution of Compounds Detected in Soil

Surface and subsurface soils at the site were compared to both the Unrestricted Use SCOs listed in and the Residential Use SCOs listed in 6 NYCRR Subpart 375-6. Unrestricted use is the land use category which allows use of the site without imposed restrictions, such as environmental easements or other land use controls.

Residential use is the restricted land use category which allows a site to be used for any use other than raising live stock or producing animal products for human consumption. Restrictions on the use of groundwater are allowed, but no other institutional or engineering controls are allowed relative to the residential use soil cleanup objectives (6 NYCRR 375-1.8(g)(2)(i))

Soil analytical results were compared to Unrestricted Use SCOs and Residential Use SCOs in two subsets: surface soil (0 to approximately 2 inches bgs) and subsurface soil (below 2 inches bgs). The laboratory analytical results of each of these soil subsets are presented in summary Tables 8 and 9. The tables present the sample identification, sample depth, analytical result and any applicable data qualifier for the compounds detected in a sample. The organic and inorganic compounds listed on the tables are the compounds detected in soils at concentrations above the laboratory reporting limit (RL). Compounds detected in a sample are bolded.

Analytical results that exceed the Unrestricted Use SCOs or Residential Use SCOs are highlighted in grey and yellow, respectively. All positive results reported below the RL were estimated and identified with a “J” qualifier. Surface soil and subsurface soil analytical summary statistics are presented in Tables 10 and 11, respectively.

Table 12 includes background concentrations for PAHs and metals. These values are included to provide a basis of comparison to urban background values and are not SCOs.

5.2.1 Surface-Soil Analytical Results

Table 8 presents a comparison of the surface-soil analytical results to the Unrestricted Use SCOs and Residential Use SCOs. Table 10 lists the compounds that are present in surface soil, the number of surface-soil samples analyzed, the maximum detected concentration, and the number of samples that exhibit a concentration that exceed either the Unrestricted Use SCOs or Residential Use SCOs.

VOCs were not detected at concentrations above either the Unrestricted Use SCOs or Residential Use SCOs. VOCs were detected in five surface-soil samples. Total xylenes were detected at a concentration of 0.002 ppm in surface-soil sample PS-SS-2, well below the Unrestricted Use SCOs of 0.26 milligrams per kilogram (mg/kg).

Numerous SVOCs were detected in surface-soil samples collected at the site. Concentrations of individual SVOCs in surface-soil samples ranged from non-detect to 15 mg/kg. One surface-soil sample, PS-SS-6, exhibited concentrations of individual SVOCs that exceed the Unrestricted Use SCOs and Residential Use SCOs. This sample exceeds the Residential Use SCOs for benzo(a)pyrene, benz(a)anthracene, chrysene, indeno[1,2,3-cd]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, and dibenz[a,h]anthracene.

This sample had the highest concentration for total SVOCs of 88.67 mg/kg and it was located in the playing field on the north end of the site. The concentrations of SVOCs in surface soils do not exceed the background concentration range of polycyclic aromatic hydrocarbons (PAHs) published by Bradley, B.H., et al., and listed in Table 12. The published background concentrations provide a basis of comparison to urban background values and are not SCOs.

The surface-soil SVOC data were evaluated using benzo(a)pyrene equivalents for the group of PAHs suspected to have potential carcinogenic effects. These compounds include benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The results are presented in Table 13. The benzo(a)pyrene equivalent concentration ranged from 0.36286 mg/kg to 0.58548 mg/kg in samples PS-SS-1 through PS-SS-5. The highest concentration of benzo(a)pyrene equivalents was detected in surface-soil sample PS-SS-6 (10.2025 mg/kg).

PCBs were detected in five of the six surface-soil samples collected at the site. There is no SCO for the individual PCBs detected in these samples. However, none of these detections were above the Unrestricted Use SCOs for polychlorinated biphenyls (CAS #1336-36-3) of 0.1 mg/kg. The highest concentration of a PCB (Aroclor) was detected in surface-soil sample PS-SS-2 (0.075 mg/kg).

Metals were detected in one or more surface-soil samples at concentrations that exceed the Unrestricted Use SCOs for arsenic, copper, lead, and zinc. The concentration of arsenic in one sample, PS-SS-6, also exceeds the Residential Use SCO. The concentrations and distribution of individual metals are similar for all samples. The concentrations of metals in surface soils do not exceed the background concentrations published by Shacklette and Boerngen and listed in Table 12. The published background concentrations provide a basis of comparison to urban background values and are not SCOs. Cyanide was detected in five of the six surface-soil samples; however, it was detected at concentrations below the Unrestricted Use SCO for total cyanide.

Information collected from the Sanborn maps and conditions observed during the investigation indicate that the surface soils were placed on site circa 1964 during the reconstruction of the site for use as a high school. The surface-soil samples typically consisted of fine-to-medium sand with varying percentages of silt and coarse sand. Bronx Building Department Records indicate that the surface soils were further re-graded in 1997 when an addition was constructed for the high school gymnasium.

5.2.2 Subsurface-Soil Analytical Results

Table 9 presents a comparison of the subsurface-soil analytical results to the Unrestricted Use SCOs and Residential Use SCOs. Table 11 lists the compounds that are present in subsurface soil, the number of subsurface-soil samples analyzed, the maximum detected concentration, and the number of samples that exhibit a concentration that exceed either the Unrestricted Use SCOs or Residential Use SCOs.

Seven individual VOCs were detected at concentrations that exceed the Unrestricted Use SCOs in 28 samples out of the 110 subsurface-soil samples collected during the SC/RI. Three of these individual VOCs were detected at concentrations that exceed the Residential Use SCOs in 7 samples out of the 110 subsurface-soil samples collected during the SC/RI. The two most prevalent VOCs detected in subsurface-soil samples were total xylenes and ethylbenzene. Total xylenes were detected at concentrations that exceed the Unrestricted Use SCOs of 0.26 mg/kg in 22 out of 110 samples analyzed and exceed the Residential Use of 100 mg/kg in 4 of 110 samples analyzed. Ethylbenzene exceedances were detected at concentrations that exceed the Unrestricted Use SCOs of 1 mg/kg in 15 out of 110 samples analyzed and exceed the Residential Use of 30 mg/kg in 6 of 110 samples analyzed. The concentrations of total xylenes and ethylbenzene that exceed the SCOs are located within the area of former MGP operations predominantly in the areas of the three former gas holders. The only samples with exceedances of the Unrestricted Use SCOs for ethylbenzene and total xylenes that are outside of the former MGP operation area are from borings B-8, B-10, B-20, and B-22. Boring B-8 is in the area of former underground gasoline and oil storage tanks at the southern end of the property adjacent to the current high school and borings B-10, B-20 and B-22 are located on the western side of the site or in Odell Street. All the subsurface soil samples showing VOCs in exceedance of SCOs were collected from depths between 2.5 and 21 feet (bgs). The highest total xylene and ethylbenzene concentrations were detected in sample PS-TP-2A (total xylene at 1,200 mg/kg, ethylbenzene at 720 mg/kg), collected at a depth of 2.5-3 feet bgs, directly on top of the remnant steel floor of the former 50,000 cu. ft. gas holder.

SVOCs were detected at concentrations that exceed the Unrestricted Use SCOs and Residential Use SCOs in 38 out of 110 of the subsurface-soil samples. The most prevalent SVOCs detected above Unrestricted Use SCOs and Residential Use SCOs were benz(a)anthracene (38 samples), chrysene (38 samples), benzo(a)pyrene (35 samples), indeno(1,2,3-cd)pyrene (29 samples), benzo(b)fluoranthene (27 samples), benzo(k)fluoranthene (21 samples). Those SVOCs, detected at concentrations that exceed the Unrestricted Use SCOs and Residential Use SCOs, are distributed throughout subsurface soils at the site. None of the samples collected from the native glacial till contained SVOCs above the Unrestricted Use SCOs and Residential Use SCOs. The samples exhibiting the highest SVOC concentrations and the greatest number of SVOCs that exceed standards were collected from test pits located around the floor of the former 50,000 cu. ft. gas holder. Soil sample PS-TP2A(2.5-3) contained a total SVOC concentration of 35,940 mg/kg, the largest total SVOC concentration of all subsurface soil samples collected during the RI.

PCBs were detected in 4 of the 110 subsurface-soil samples analyzed. There is no SCO for the individual PCB Aroclors detected in these samples. However, none of these detections were above the Unrestricted Use SCOs for polychlorinated biphenyls (CAS #1336-36-3) of 0.1 mg/kg.

Eight metals were detected in soils at concentrations that exceed the Unrestricted Use SCOs. Six of these metals were detected in soils at concentrations that exceed the Residential Use SCOs (arsenic, copper, lead, manganese, nickel, and selenium). With the exception of iron, lead, and selenium, the concentrations of the detected metals in subsurface soils do not exceed the background concentrations for eastern United States urban soil (see Table 12). The published background concentrations provide a basis of comparison to urban background values and are not SCOs.

Iron was detected in samples throughout the site at levels within accepted background concentration ranges with the exception of two samples, PS-TP-2A(2.5-3) and PS-TP-2B(3), located within the footprint of the former 50,000 cu. ft. gas holder. These samples were collected from the surface of the existing steel floor of the holder, containing MGP associated piping, which could be the source of the elevated iron levels.

Lead was also detected throughout the site at levels within the range of background concentrations. Three samples, however, did show lead concentrations that exceed background levels. These samples (PS-TP2A [2.5-3], PS-TP2B [3], and PS-TP3A [2.5-3.5]) are located within or adjacent to the location of the former gas holders. The lead concentrations may be associated with materials used in the MGP holder structures (i.e., lead paint or piping construction).

Selenium was only detected in two subsurface-soil samples at concentrations that exceed the Unrestricted Use SCO of 3.9 mg/kg and in one subsurface-soil samples at a concentration that exceeds the Residential Use SCO of 36 mg/kg. The samples containing selenium (PS-TP-2A (2.5-3), PS-TP-2B (3)) were collected from material that exhibited NAPL tar staining, sheen, and/or NAPL. Selenium is not identified as a compound specifically associated with MGP operations; however, its known presence in various coals and oils, and limited on-site distribution, suggest it is derived from former MGP operations.

Total cyanide was detected at concentrations exceeding the Residential Use SCOs in 4 of the 110 subsurface-soil samples. All four samples were collected from test pits in the vicinity of the 50,000 CF gas holder (PS-TP2A [2.5-3]) or at the southern end of the former MGP property (PS-TP5C [3.4-4.5], PS-TP6A [3-4], PS-TP7 [3-4]). However, all detections of total cyanide in subsurface-soil samples were below the EPA generic soil screening level of 1,600 mg/kg.

5.2.3 Source Material Fingerprint Analytical Results

Six subsurface samples collected from areas of potential residual source material (e.g., residual tar and residual fuel oil) were analyzed for determination of hydrocarbon fingerprint using EPA SW846 Method 8100 Modified. These samples were compared to the hydrocarbon fingerprints of numerous fuels and oils, including gasoline, diesel fuel, #2 fuel oil, #4 fuel oil, #6 fuel oil, jet fuel, and coal tar. These analyses were performed by META Environmental, Inc. of Watertown, Massachusetts.

The hydrocarbon fingerprints of five of the samples most closely resemble the hydrocarbon fingerprint for MGP by-products. Three samples (PS-TP-1A(6-7), PS-B-2(4-6), and PS-B-16(8-10) closely resemble the hydrocarbon fingerprint of coal tar. Sample TP-8(7-8) appears to be severely weathered coal tar. Sample PS-TP-7(3-4) appears to be a mixture of weathered coal tar and weathered fuel oil-like substance. This material is possibly weathered MGP wash oil. Sample PS-MW-5(9-10) closely resembles the fingerprint for a fuel oil, possibly kerosene or diesel fuel. Historic site records indicate that several fuel oil tanks were removed from this area of the site. The sample chromatograms and several reference chromatograms are presented in Appendix B.

5.2.4 Soil-Vapor Analytical Results

Soil vapor samples PS-SGP-1 through PS-SPG-3 (see Figure 3) were collected to characterize soil vapor in the northeastern portion of the site and to evaluate potential effects of soil vapor on indoor and outdoor air. Table 14 presents the soil gas analytical results.
The VOCs listed on the table are the compounds identified in soil gas at the site. Thirteen compounds were detected in all samples. Total VOC concentrations ranged from approximately 171 micrograms per cubic meter (µg/m^3) to 19 µg/m^3.

There are no officially promulgated standards for soil vapor. However, the concentrations were compared to the NYSDOH 95th percentile for indoor air for comparison purposes only. Benzene, chloroform, carbon tetrachloride, and tetrachloroethene were detected at levels above the NYSDOH 95th percentile for indoor air; however, only benzene is the only non-chlorinated compound within this group. It is unlikely that the chlorinated hydrocarbon compounds originated from MGP-impacted soils or groundwater present on the site. It is more likely that the use of solvents and petroleum mixtures on or off of the site contributed to the presence of such contaminants as carbon tetrachloride, chloroform and trichlorofluoromethane. The presence of hexane and heptane in the soil vapor suggests strongly that petroleum mixtures (i.e., gasoline) have contributed to soil vapor contamination. During SC/RI activities, the storage garage contained a wide variety of chemical products that are a potential source of VOCs, including paints, solvents, cleaners, sealers, gasoline, oils, used engine parts, automobiles, a motorcycle, and a power boat.

5.2.5 Extent of Surface- and Subsurface-Soil Impacts

Figure 13 illustrates the distribution of total VOCs and SVOCs and the individual organic compounds that exceed the Unrestricted Use SCOs and Residential Use SCOs in surface soils. Individual VOCs were not detected at concentrations that exceed the Unrestricted Use SCOs in surface soils. Individual SVOCs were detected at concentrations that exceed the Unrestricted Use SCOs and Residential Use SCOs in only one surface soil sample (SS-6). Analytical results for surface-soil samples collected at the site exceed the Unrestricted Use SCOs or Residential Use SCOs for individual metals.

Analytical results indicate that several subsurface-soil samples exceed the Unrestricted Use SCOs and Residential Use SCOs. Figure 14 illustrates the subsurface soils that exceed the Unrestricted Use SCOs and Residential Use SCOs for individual VOCs and/or SVOCs. The total concentrations of VOCs and total SVOCs for each subsurface-soil location and the corresponding sample depth are presented in a box adjacent to each sample location. The totals are highlighted where one or more individual VOC or SVOC exceed either the Unrestricted Use SCOs or Residential Use SCOs. The limits of subsurface soils exceeding the Residential Use SCOs within 14 feet of grade and deeper than 14 feet are presented in Figure 14. In general, these limits correspond to the exceedances of the Unrestricted Use SCOs with one exception. Two samples collected from boring B-8 in the vicinity of the former location of underground gasoline and oil storage tanks exceed the Unrestricted Use SCOs for individual VOCs.

As previously mentioned, three USTs and impacted subsurface soils were removed in 1997 in the area of boring B-8. Visual and olfactory impacts were not observed in soils excavated for construction of the high school building addition to the east of boring B-88. To the north (borings B-7 and MW-4) and to the west (B-18) of boring B-8, there were no visual or chemical indications of petroleum or MGP impacts. Therefore, there is a separation between the petroleum impacts delineated in on-site subsurface soils to the south and MGP-delineated impacts in subsurface soils in the area of the playing field.

Samples collected from borings B-12, B-15, and MW-4 located along the eastern site boundary with Purdy Street exhibited no individual VOC or SVOC exceedances of the Unrestricted Use SCOs. Similarly, the samples collected from borings B-1, MW-1, and TP-1 located along the northern boundary of the site exhibited no individual VOC or SVOC exceedances of the Unrestricted Use SCOs. Metal exceedances detected are consistent with other samples on site and are within typical background concentrations. Samples collected along the eastern boundary exhibit concentrations of individual VOCs or SVOCs which exceed the Unrestricted Use SCOs and Residential Use SCOs. Although the chemical impacts extend into and under Odell Street and a portion of the former Protectory Avenue, the visual evidence indicates that the source of these impacts may be related to the operations in the vicinity of the former garage or upgradient sources.

The subsurface fill unit at the site has a number of impacts (i.e., naphthalene and/or MGP-like odors, fuel oil-like odors, NAPL tar staining and/or sheen, petroleum staining, and NAPL). Thirty-one of 44 subsurface-soil sample locations (borings or test pits) exhibited some degree of physical MGP or petroleum hydrocarbon impact. The highest concentrations of total VOCs and total SVOCs were collected from sample location PS-TP-2A(2.5-3), which exhibited visible and olfactory evidence of hydrocarbon impacts. This sample was collected from just above the surface of the existing steel floor of the 50,000 cu. ft. gas holder. Based on the results of the SC/RI sampling, the limits of NAPL impacted soils, or NAPL source area, is presented in Figure 15.

5.3 Distribution of Compounds Detected in Groundwater

One round of groundwater samples was collected for laboratory analysis from five monitoring wells to characterize groundwater quality. The collection of groundwater samples from each well allowed for the characterization of the groundwater chemistry for the overburden aquifer on the site. The locations of the monitoring wells are illustrated in Figure 15. Monitoring well MW-1 is located along the hydraulically upgradient site boundary. Monitoring well MW-2 was installed on site in an area between the former gas holders. Monitoring well MW-3 was installed adjacent to the high school building along the western property boundary. Monitoring wells MW-4 and MW-5 are located along the hydraulically downgradient site property boundary. MW-5 was also intended to characterize groundwater impacts from former USTs.

5.3.1 Groundwater Analytical Results

The groundwater analytical results are compared to the NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values for Class GA Water in Table 15. Table 15 presents the sample identification, analytical result, and applicable data qualifiers for any detection of VOCs, SVOCs, PCBs, TAL metals and cyanide. Groundwater summary statistics are presented in Table 16. Figure 15 illustrates the distribution of VOCs and SVOCs detected above the applicable NYSDEC AWQS in groundwater. The concentration of each organic compound that exceeds the AWQS is presented in a box adjacent to each sample location.

Two or more organic compounds were detected at concentrations that exceed AWQS for GA water in samples collected from four of the five wells (PS-MW-2, PS-MW-3, PS-MW-4, and PS-MW-5). Groundwater collected from MW-2 and MW-3 exhibited the highest concentrations of VOCs and SVOCs and the greatest number of detected compounds above AWQS. These compounds include benzene, ethylbenzene, styrene, toluene, total xylenes and naphthalene. MW-4 exhibited concentrations of ethylbenzene (15 ug/L) and acenaphthalene (37 ug/L) above the AWQS. Monitoring well MW-5, located adjacent to the high school in the area of the former gasoline and oil storage tanks, exhibited AWQS

exceedances of chloroform, ethylbenzene, total xylenes, and naphthalene. PCBs were not detected in any of the groundwater samples collected at the site.
During the SC/RI, groundwater samples were analyzed for TAL metals. An additional sample (that exceeded 50 NTUs) collected from monitoring well MW-2 was field filtered and analyzed for dissolved metals. The analytical results for the field filter sample were similar (within the same order of magnitude) to the unfiltered samples. Metals results are presented in Table 15. Several metals were detected in all monitoring wells at concentrations above the AWQS, including aluminum, cobalt, iron, magnesium, manganese, and sodium. Total cyanide was detected at concentrations above AWQS in MW-3 (255 ug/L). Total cyanide was detected at concentrations below the AWQS in monitoring wells MW-1 and MW-2.

5.3.2 Extent of Groundwater Impacts in Overburden Aquifer

This subsection presents the lateral extent of compounds detected in groundwater at concentrations exceeding the AWQS. As discussed in subsection 5.3.1, VOCs and SVOCs were detected in four of the five groundwater samples collected at the site.

Upgradient monitoring well, MW-1, did not exhibit organic compound detections. Monitoring wells MW-2 and MW-3, located within the area where MGP residues were observed, contained concentrations of organic compounds that exceed AWQS. These data are consistent with conditions and analytical data found in subsurface soils in the area of the monitoring wells. On the site's eastern property boundary, MW-4 represents a hydraulically downgradient monitoring well. Only two organic compounds (15 ug/L of ethylbenzene and 37 ug/L of acenaphthalene) were detected above AWQS limits at this location. Monitoring well MW-5, located near the former UST area and considered hydraulically downgradient from MGP operations, contained three organic compounds above the AWQS. These compounds are chloroform (23 ug/L), ethylbenzene (500 ug/L), and naphthalene (300 ug/L). Historically, USTs containing gasoline and oil were located in the area where MW-5 is located. Subsurface soils in this area contained petroleum staining, odors, and organic compounds exceeding the Unrestricted Use SCOs and Residential Use SCOs. Groundwater at this location is most likely impacted due to the former USTs.

PCBs were not detected above the AWQS in any of the monitoring wells at the site.

Six metals at concentrations above the AWQS were detected in groundwater samples at the Site. Iron and manganese exceeded the AWQS in all five monitoring wells. Iron concentrations ranged from 0.8 mg/L in PS-MW-1 to 85.9 mg/L in PS-MW-2. Manganese concentrations ranged from 0.55 mg/L in PS-MW-4 to 8.75 mg/L in PS-MW-3. Sodium exceeded the AWQS in groundwater collected from three of the five monitoring wells. Sodium concentrations ranged from 17.7 mg/L in PS-MW-4 to 802 mg/L in PS-MW-1. Aluminum exceeded the AWQS in groundwater collected from two of the five monitoring wells. Aluminum concentrations ranged from non-detect to 0.475 mg/L in PS-MW-1.

Magnesium exceeded the AWQS in groundwater collected from PS-MW-1. Magnesium concentrations ranged from 8.1 mg/L in PS-MW-4 to 47.5 mg/L in PS-MW-1. Cobalt was detected above the AWQS in PS-MW-1. Cobalt concentrations ranged from non-detect in PS-MW-3 and PS-MW-4 to 0.009 mg/L in PS-MW-1. Site groundwater containing metals at concentrations above the AWQS is present in the hydraulically upgradient location and appears to be distributed randomly across the entire site.

Total cyanide was detected at a concentration that exceeds the AWQS in the groundwater sample collected from MW-3 (255 ug/L). Available cyanide was not detected in the groundwater sample collected from MW-3. Subsurface soils in this area were found to contain MGP residues; however, cyanide was not detected in samples collected from surrounding subsurface soils.

6. Contaminant Fate and Transport

This section provides a discussion of the physical and chemical characteristics of compounds present at the site at concentrations above the Unrestricted Use SCOs and Residential Use SCOs, and a discussion of the potential sources, migration pathways, and receptors for those contaminants that are present within each media at concentrations exceeding the applicable screening standards, which generally include VOCs, PAHs, and metals. The environmental media that may serve as pathways for contaminant migration are surface soil, subsurface soil, soil gas and groundwater. An understanding of sources, migration pathways, and potential receptors is used to evaluate the need for remedial actions to protect human health and the environment.

6.1 Surface Soil

Individual PAHs and metals were identified as contaminants that are present at concentrations exceeding the applicable screening standards in surface soil in the playing field portion of the site. No other surface soils are exposed since the remainder of the site is covered by asphalt or buildings. The surface-soil samples collected in the playing field are composed of topsoil from the uppermost portion of the soil below the playing field turf (i.e., 0 to 2-inch interval). The analytical data indicate that the surface soil contains concentrations of metals and PAHs within the range of typical background concentration for eastern United States urban soils (see Table 12). Subsequent to the collection of surface soils, the surface of the playing field was regraded, topsoil was added, and new sod was installed.

Migration of contaminants from the surface soil is possible at the site if soils are disturbed by recreation, maintenance, and/or construction activities, but primarily through transport via dust or wind erosion. The nature of these contaminants is such that they are relatively stable in soils and would likely remain attached to soil particles.

6.2 Subsurface Soil

VOCs, PAHs, and metals were identified as contaminants that are present at concentrations exceeding the applicable screening standards in subsurface soil. As discussed in Section 5, except for one sample collected from boring B-8, subsurface-soil PAH concentrations above individual Unrestricted Use SCOs and Residential Use SCOs are limited to the fill deposit at the site. The samples exhibiting the greatest number of PAHs that exceed Unrestricted Use SCOs and Residential Use SCOs were collected from on-site subsurface soil that is visibly impacted with hydrocarbon residues (MGP or petroleum). The organic contaminants could potentially migrate through the subsurface soil by volatilization, sorption and solubility.

Each migration pathway, as it relates to the contaminants identified in subsurface soil at the site, is discussed below.

- **Volatilization**. Volatilization is a process in which contaminants move from the surface of a liquid matrix to a gas or vapor phase. VOC constituents are highly volatile and, therefore, may be transported from subsurface soils and groundwater to soil gas in the vadose zone and into indoor and outdoor air. Most PAHs and inorganic compounds do not readily volatilize; therefore, volatilization is not a likely pathway. Volatilization may be a pathway for VOC migration at the site and into the outdoor air within close proximity to VOC-contaminated subsurface soils and into indoor air in areas of VOC-contaminated groundwater. However, VOC constituents in soil gas near the building foundation and beneath the building slab were detected at relatively low concentration levels such that re-concentration in indoor air would not be expected. Therefore, it is unlikely that volatilization could affect outdoor or indoor air quality.

- **Sorption**. Sorption is usually defined as the reversible binding of a chemical to a solid matrix. However, there is evidence in the published literature that there is an irreversible component related to the time that the compound has been sorbed. Sorption of these compounds limits the fraction available for other fate processes such as volatilization and/or solubility. PAHs exhibit varying degrees of binding affinity to organic matter and soil particles; this affinity is dependent upon their individual molecular structures. In general, the higher molecular weights PAHs (e.g., benzo(a)pyrene) are strongly sorbed, whereas the lighter PAHs (e.g., naphthalene) are less strongly sorbed (EPA, 1979; EPA, 1986). Therefore, the higher molecular weights PAHs are expected to remain sorbed to soils and are not prone to volatilization. The sorption of metals to the subsurface soils is dependent upon subsurface pH and oxidation-reduction conditions and the availability of anions. Metals that do not remain sorbed to subsurface soils could be available for transport through the groundwater system in solution (see below).

- **Solubility**. VOCs have a relatively high solubility. PAHs have varying degrees of solubility. The lighter-end PAHs are more soluble while the heavier-end PAHs are less soluble and typically do not dissolve into groundwater. Since NAPL tar staining and/or sheens were observed below the water table and VOCs and lighter-end PAHs are compounds present in subsurface soil at concentrations that exceed Recommended Soil Clean Up Objectives (RSCOs), dissolution of these contaminants from soil to groundwater is expected to be a principal migration pathway. Groundwater movement of the overburden aquifer is southeast toward Westchester Creek. Analytical results for the groundwater samples collected from all five monitoring wells at the site indicate that VOCs and PAHs are present at the site at concentrations above the analytical method detection limit. Samples collected from monitoring wells located within the areas containing MGP residue (MW-2 and MW-3) contain higher levels and a greater number of compounds that exceed the AWQS than the samples collected from downgradient areas (MW-4). This provides evidence that the contaminants are not moving with the groundwater, or a rapid rate of natural attenuation is occurring over the distance between sample locations. However, if the groundwater impacted with these compounds were to discharge to the surface water system, volatilization, biodegradation, and dilution processes would most likely result in rapid dissipation of the concentrations.

Metals in the subsurface soils could dissolve and leach to the groundwater system. However, the solubility of metals is highly dependent upon the pH and oxidation-reduction conditions of the aquifer, the valance state of the specific metal, and the availability of anions that the metals could bind with to become immobile. Dissolution of metals in the subsurface soils and transport in the dissolved state through the groundwater system is not considered to be a major transport mechanism.

In summary, the presence of MGP and petroleum residues in subsurface soils at the site will likely result in the persistent presence of VOCs and lighter-end PAHs in groundwater in the area of the residue and immediately downgradient of the residue. VOCs in subsurface soils are not persistent outside the areas of MGP or petroleum residue impacts due to their high volatility, low adsorption to soils, and high water solubility. PAHs detected throughout the subsurface soils on site will be relatively persistent in the soil matrix, primarily due to their generally low water solubility and high sorption to soils. Metals in soil are also anticipated to be relatively immobile.

6.3 Groundwater

Organic compounds have been detected at concentrations that exceed AWQS in groundwater samples collected from four of the five monitoring wells. Groundwater impacts (VOCs and light-end PAHs) are present within the immediate areas where MGP or petroleum residues were observed (i.e., MW-2, MW-3, and MW-5). Groundwater collected from monitoring well MW-3 exhibited the highest concentration of VOCs and PAHs, and the greatest number of compounds at concentrations that exceed AWQS. Monitoring well MW-3 is located hydraulically upgradient of monitoring well MW-5 on the western side of the property in an area of MGP residue and subsurface soils that exhibited concentrations of VOCs and PAHs above the Unrestricted Use SCOs or Residential Use SCOs. Groundwater sampled from monitoring well MW-4 exhibited only two organic compounds (i.e., ethylbenzene and acenaphthene) at concentrations that exceeded AWQS. Monitoring well MW-4 is located approximately 75 feet hydraulically downgradient from an area that contained MGP residues and subsurface soils that exhibited concentrations of VOCs and PAHs that exceed the Unrestricted Use SCOs or Residential Use SCOs. The MGP residue may act as a continuing source of groundwater contamination.

As the groundwater and/or surface water infiltration flows through an area of MGP residue, it will continue to dissolve and diffuse VOC and light-end PAH compounds into the surrounding matrix, creating a groundwater plume that would migrate in the direction of groundwater flow. The absences of dissolved-phase VOCs and PAH components that exceed AWQS in groundwater samples collected from MW-1 suggests that the plume is limited to the areas of MGP residue impacts and that dissolved-phase groundwater contaminants are migrating southeast (within the glacial deposits of the overburden aquifer) towards Westchester Creek. As discussed in subsection 6.2, levels of VOCs and PAHs decrease significantly from the areas of MGP residue (MW-2) to the downgradient area along the site property limits (MW-4). It is not clear whether lower concentrations of organic compounds detected in the groundwater sample collected from downgradient well (MW-5) are due to attenuation or localized impacts. It is likely that the dissolved phase organic compounds from MW-3 have attenuated before reaching MW-5 and that the groundwater impacts at MW-5 are from the soils impacted from the USTs.

Volatilization of VOCs compounds in groundwater may be a pathway for VOC migration at the site and into indoor air. However, soil gas samples collected as part of the site characterization do not contain VOCs at concentrations that potentially would be a concern for indoor air.

7. Qualitative Exposure Assessment

In this section, potential exposure pathways and receptors are identified and evaluated for each of the contaminants above the applicable screening criteria identified for each media of concern. Exposure pathways are evaluated to determine the qualitative risk to a receptor from all contaminants above the applicable screening criteria along a transport pathway. Potential transport pathways are defined as any mechanism by which site contaminants are carried from the environment to a receptor. A complete exposure pathway exists when the following elements are documented: (1) a contaminant source; (2) a contaminant release and transport mechanism; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. Sections 5 and 6 of this report document the source of the contaminants above the applicable screening criteria, the nature of the contaminants, and the potential transport mechanisms that account for the distribution of contaminants. This information is used in this section to present a summary of complete exposure pathways.

7.1 Potential Exposure Points and Screening Criteria

Tables 8, 9, and 15 identify the contaminants for each media and identify whether the screening criteria are exceeded. A potential point of exposure exists if one or more contaminant(s) exceed the screening criteria for a media. It is important to note that these criteria are used to make a preliminary assessment of the risk posed by compounds to human health and the environment and do not necessarily represent the final concentrations that must be achieved through remediation. A site-specific evaluation procedure must be employed to quantify the level of risk, establish the need for remediation, and determine necessary and appropriate risk management actions. The following media contain contaminants above applicable screening levels within the study area and are considered media of concern.

- **Surface Soil** results were compared against Unrestricted Use individual compound Soil Cleanup Objectives (SCOs) listed in Table 375-6.8(a) and the Residential Use individual compound SCOs listed in Table 375-6.8(b) of 6 NYCRR.

- **Subsurface Soil** results were compared against Unrestricted Use individual compound Soil Cleanup Objectives (SCOs) listed in Table 375-6.8(a) and the Residential Use individual compound SCOs listed in Table 375-6.8(b) of 6 NYCRR.

- **Groundwate**r results were compared against NYS AWQS per PART 703

Soil vapor concentrations above the NYSDOH 95th percentile for indoor air, consist mainly of chlorinated compounds. Analytes were detected at levels where re-concentration within indoor air would not be expected. Soil vapor is not identified as a media of concern.

7.2 Potential Receptors and Routes of Exposure

The potential human receptors for each contaminant above the applicable screening level in each media were determined based on current land use and foreseeable potential future land uses. The former MGP/holder site, and service buildings and storage yard is currently owned by The Roman Catholic Church of Saint Raymond. The site is currently occupied by the buildings and grounds of St. Raymond High School for Boys. The former MGP and holder station operations were located on the northern portion of the property, in the area currently occupied by the running track and grass playing field. The one-story slab-on-grade storage building is located on the northeastern portion of the site. The east-central portion of the site is occupied by an asphalt playground and parking area. The southern and west-central portions of the site are occupied by the high school building. A chain-link fence, wrought-iron fence and buildings surround the site. There are no known contemplated or planned future uses of the site for purpose other than use as a school. The current and future land uses for the site indicate that the primary potential human receptors for soil and groundwater include school staff, students, visitors, custodial workers and construction workers. Specifically, the following potential human receptors were identified and evaluated for each media of concern as part of the qualitative exposure assessment.

- **Staff, Students and Visitors Using Buildings and Asphalt Parking Lot/Playground –** includes school workers, students and visitors who regularly work in the school buildings, park their vehicle in the parking lot, and periodically use the asphalt playground (e.g., basketball courts). No exposure pathway presently exists.

- **Grass Playing Field User/Custodial Workers:** includes students, school staff and visitors who use the grass playing field and track and school custodial workers who periodically maintain the grass playing field and other school grounds. These individuals may be exposed to contaminants in surface soils through incidental ingestion, dermal contact, and inhalation of fugitive dust.

- **Construction Worker** – includes individuals who would install sewers, build foundations, or perform other school improvements or redevelopment construction activities. These individuals may be exposed to contaminants in shallow subsurface soils during excavation activities through incidental ingestion, dermal contact, and inhalation of volatilized compounds and fugitive dust. These workers may be exposed to contaminants in groundwater through dermal contact and incidental ingestion.

These workers may also be exposed to contaminants in surface soils through incidental ingestion, dermal contact, and inhalation of fugitive dust. No known redevelopment or construction excavation work is scheduled for the property.

7.3 Assessment of Exposure Pathways

Using the data collected during the SC/RI sampling program, each potential exposure pathway identified above is assessed in the following section. A complete exposure pathway exists when a contaminant is present in a media of concern above the screening criteria (potential exposure point) and a potential receptor can be exposed to that contaminant through one or more of the exposure routes identified in subsection 7.2. For purposes of this qualitative exposure assessment, a potential exposure point was identified if the analytical results for at least one contaminant exceeded the screening criteria identified in subsection 7.1. A human exposure pathway, therefore, exists if there is a potential for a receptor to be exposed through one or more exposure routes to the specific exposure point based on the specific land use and impacted media.

An example of a complete exposure pathway would be an on-site construction worker excavating an 8-foot-deep pit to install a sewer drainpipe. If the soils contain contaminants (VOCs, PAH, or metals) at concentrations greater than the Unrestricted Use SCOs, then a complete exposure pathway exists for the construction worker potentially contacting those soils, or potentially inhaling particulates from the excavation (route of exposure).

Table 17 is a matrix for each medium in the study area where contaminants are known to exist. The matrices identify the sample media that contain concentrations of contaminants that exceed screening criteria, and indicate if a complete exposure pathway exists for the potential receptors.

7.4 Exposure Summary

Con Edison and Con Edison's predecessor companies owned the land at Purdy Street Station prior to selling it to The Roman Catholic Church of Saint Raymond. After the MGP and gas holder structures were dismantled, approximately 2 to 3 feet of fill cover was apparently placed over the area occupied by the MGP and gas holder station. The fill present under the grass playing field is soil that potential receptors could potentially contact.

- Surface soils contain PAH and metal concentrations above Unrestricted Use SCOs and represented a potential complete exposure pathway. The PAH and metal concentrations are within typical background levels and are present in the uppermost soils (i.e., soil below grass sod) placed on top of the MGP surface subsequent to the dismantling of the MGP. In 2004, the surface of this playing field was regraded; additional topsoil was added to the surface, and the field was resodded.

Additional surface soil sampling was not conducted following this activity to confirm the PAH concentrations in the soils below the new surface.

- Subsurface soils that underlie the site contain VOC, PAH, and metal concentrations above Unrestricted Use SCOs, and represent a potential complete exposure pathway to construction workers.

- Groundwater located on site in areas of former MGP operations and the area of former fuel oil and gasoline USTs contains VOC, SVOC, and metal concentrations above NYS AWQS and represents a potential complete exposure pathway to construction workers.

8. Summary and Conclusions

The site characterization and remedial investigation conducted at the Purdy Street Station determined the nature, extent, and migration potential for contaminants present on the site. The goal of the investigations was to provide the necessary data to assess the potential risk posed by contaminants to human health and the environment, and to determine appropriate risk management actions. The results of the investigations are summarized below.

8.1 Surface Soils

Surface-soil samples were collected from urban fill that was placed at the site circa 1964 during the construction of the high school (approximately 35 years after the MGP holders were dismantled and approximately 20 years after many plant buildings were demolished). Surface soils were further regraded in 1997 when the school gymnasium was built.

- Volatile Organic Compounds (VOCs) were not detected above the Unrestricted Use SCOs.
- Semivolatile Organic Compounds (SVOCs), arsenic, copper, lead, and zinc were detected above the Unrestricted Use SCOs in four of the six surface-soil samples collected at the site. Only SVOCs and arsenic were detected above the Residential Use SCOs in one of the six surface-soil samples collected at the site (PS-SS-6).
- The highest total SVOC concentration detected in surface soils was 88.67 milligrams per kilogram (mg/kg).

8.2 Subsurface Soils

Subsurface-soil samples were collected from fill that was placed at the site circa 1895 (prior to holder station operations), and post MGP and gas holder operations (after circa 1927). Subsurface-soil samples were also collected from native soils that underlie the fill deposits.

- VOCs, SVOCs and metals were detected at concentrations above the Unrestricted and Residential Use SCOs.
- Individual VOCs were detected at concentrations that exceed the Unrestricted Use SCOs in 28 of the 110 subsurface soil samples collected at the site. The two most prevalent VOCs detected in subsurface soil samples were total xylenes and ethylbenzene. The concentrations of total xylenes and ethylbenzene that exceed the Unrestricted Use SCOs are located predominately in discrete subsurface-soil zones in the area of the three former gas holders that contained observed MGP-

related impacts. The highest total xylene and ethylbenzene concentrations (1,200 mg/kg and 720 mg/kg, respectively) were detected at a depth of 2.5-3 feet below ground surface (bgs), directly on top of and within the turned-up sidewall of the 50,000 cubic foot holder's remnant steel floor.

- Only one subsurface soil sample collected outside the area of former MGP operations (PS-B20 [19-21]) detected concentrations of individual VOCs that exceed the Residential Use SCOs. Only six subsurface soil samples inside the area of former MGP operations contained concentrations that exceed the Residential Use SCOs for VOCs.
- SVOCs were detected at concentrations that exceed the both the Unrestricted Use SCOs and the Residential Use SCOs in 38 of the 110 samples collected at the site and are distributed throughout subsurface fill deposits. The most prevalent contaminants include phenanthrene, pyrene, benz(a)anthracene, fluoranthene, chrysene, benzo(a)pyrene, and acenaphthylene. The samples with the highest concentrations and greatest number of polycyclic aromatic hydrocarbons (PAHs) that exceed the Unrestricted and Residential Use SCOs were collected from subsurface soils on top of and within the turned-up sidewall of the former 50,000 cubic foot holder's remnant steel floor.
- Metals were detected at concentrations that exceed the Unrestricted Use SCOs in 38 of the 110 samples and Residential Use SCOs in 9 of the 110 samples collected from subsurface fill and natural glacial till deposits. With the exception of one location, PS-B14 (10-12 ft bgs), all samples that exceeded the Residential SCOs were collected from within 4 ft of the surface. The concentrations of iron, lead, and selenium in subsurface soils also exceed the background concentration for the eastern United States.
- Fingerprint analysis indicates that non-aqueous phase liquid (NAPL) observed in subsurface-soils samples collected in the area of the playing field appear to be MGP tar. Petroleum staining observed in subsurface soils in the area of the former gasoline and oil underground storage tanks (USTs) appears to be fuel oil.

8.3 Groundwater

Groundwater samples were collected from five monitoring wells screened in the overburden aquifer.

- Two or more VOCs or SVOCs were detected at concentrations that exceed ambient water quality standards (AWQS) for class GA groundwater from four of the five wells. No VOCs or SVOCs were detected in the hydraulically upgradient monitoring well, MW-1.
- Monitoring wells MW-2 and MW-3, located within the area where MGP-related impacts were observed, contained concentrations of VOCs or SVOCs that exceed AWQS.

- Monitoring well MW-4, located on the eastern property boundary, is a hydraulically downgradient monitoring well. Only one VOC and one SVOC (15 micrograms per liter [ug/L] of ethylbenzene and 37 ug/L of acenaphthalene) were detected above AWQS limits in a groundwater sample collected from monitoring well MW-4.
- Monitoring well MW-5, located near the former UST area and hydraulically downgradient from former MGP operations, contained three organic compounds above the AWQS. These compounds are chloroform (23 ug/L), ethylbenzene (500 ug/L), and naphthalene (300 ug/L). Subsurface soils in this area contained petroleum staining, odors, and organic compounds exceeding Residential Use SCOs.
- Metals were detected at concentrations above AWQS in groundwater collected from all five monitoring wells, including the hydraulically upgradient location (MW-1).
- Total cyanide was detected above the AWQS in groundwater samples collected from monitoring well MW-3. Available cyanide (a measure of free cyanide and those cyanide species that can dissociate under specific environmental conditions to release free cyanide) was not detected in the groundwater sample collected from MW-3.

8.4 Soil Gas

Three soil gas samples were collected inside and north of the existing storage building.

- VOCs detected in soil gas samples ranged from 19 to 171 $\mu g/m^3$.
- Chlorinated hydrocarbon compounds detected in soil gas did not originate from MGP-impacted soils or groundwater.
- The presence of hexane and heptane in soil gas suggest that petroleum mixtures (e.g., gasoline) have impacted soil gas.

8.5 Qualitative Exposure Assessment

A qualitative human health exposure assessment was conducted to identify potential exposure pathways to media that contain constituents at concentrations greater than the Residential Use SCOs. Based on the distribution of constituents and the land use of the site, there are complete exposure pathways posed to grass playing field users/custodial worker, and construction workers at the site. The primary points of exposure are on-site topsoil in the area of the playing field and subsurface fill deposits also in the area of the playing field.

8.6 Conclusions

The SC/RI conducted at the site confirmed the presence of subsurface structures related to former MGP operations and MGP-related impacts to on-site subsurface soil and groundwater. Concentrations of total VOCs, total SVOCs and metals were detected above the Unrestricted Use and Residential Use SCOs in surface soil, subsurface fill deposits and native soils that underlie the fill deposits. Concentrations of total VOCs and total SVOCs were detected above the AWQS in groundwater. **Figure 14** illustrates the soil and groundwater sample locations, as well as the total VOC and total SVOC laboratory results for subsurface soils. Six surface-soil samples were collected from the athletic field. The surface soils were placed circa 1964 during the construction of the high school, and in 1997 during school renovations. Therefore, the SVOCs and metals detected above the Unrestricted Use and Residential Use SCOs were deposited at the same time as the construction activities, and would not be associated with the former MGP operations.

The horizontal and vertical extent of MGP-related NAPL has been delineated and is limited to subsurface soils within a defined area of the current athletic field. **Figures 5** through **8** (Geologic Cross-Sections A-A’, B-B’, C-C’, and D-D’) illustrate the depths of impacts across the site. Identified MGP-related residues are present in subsurface fill deposits between approximately 3 and 16 feet bgs. Concentrations of total VOCs and total SVOCs that exceed the Residential Use SCOs were limited to on-site fill deposits between approximately 0 feet to 14 feet bgs with three exceptions. Total VOCs and total SVOCs were detected above the Residential Use SCOs at depths greater than 14 feet bgs at two on-site locations collected from areas where fill deposits directly overlie weathered bedrock (B-5 and MW-2), and from one off-site subsurface soil sample location (B20).

The concentrations of six individual metals (arsenic, copper, lead, manganese, nickel, and selenium) exceed the Residential Use SCOs in soils. All detections were within the upper 4 feet of material in the areas of the former 50,000 and 150,000 cubic foot gas holders and the former storehouse.

Groundwater samples collected from the monitoring well MW-4 located approximately 75 feet hydraulically downgradient of observed MGP-related impacts and downgradient of subsurface soils that contain total VOC and total SVOC concentrations above Residential Use SCOs contained only two organic compounds above the AWQS. The lack of impacts in this well may indicate that either groundwater impacts are not migrating downgradient in this area and/or natural attenuation processes are reducing dissolved organic compound concentrations prior to reaching the monitoring well. Groundwater collected from monitoring well MW-3 is likely impacted from an MGP source located within close proximity to the well.

Groundwater collected from hydraulically downgradient monitoring well MW-5 is likely impacted from the former UST area associated with the former maintenance yard.

Site groundwater containing metals at concentrations above AWQS is present in hydraulically upgradient locations and is distributed across the site. With the exception of iron, the highest concentrations of metals were detected in groundwater collected from hydraulically upgradient monitoring well MW-1. This suggests that the metals detected in on-site groundwater are not associated with former MGP operations.

Soil gas samples contained concentrations of chlorinated compounds and other VOCs that suggest more recent solvent and petroleum mixture impacts to the area around the storage building, subsequent to MGP operations. Potential sources of the compounds detected in soil gas include the wide variety of chemical products stored in the storage garage.

References

Baskerville, C.A., 1992. *Geologic Maps of Bronx County and Parts of New York and Queens Counties, New York*. U.S. Geologic Survey, Miscellaneous Investigations Series Map I-2003, 2 sheets.

Bradley, B.H., et al. 1994. "Background Levels of Polycyclic Aromatic Hydrocarbons (PAH) and Selected Metals in New England Urban Soils," *Journal of Soil Contamination*, 3(4), p. 349-361.

Consolidated Edison Company of New York, Inc. Service Building & Storage Yard. Borough of the Bronx, NY City, NY. 1955 Purdy St. & St. Raymond Ave, Scale: 1"=50'; October 1945.

GEI Consultants, Inc., 2002a. *Manufactured Gas Plant History, Purdy Street Station, Bronx, New York*. August 7, 2002.

GEI Consultants, Inc., 2002b. *Site Characterization Work Plan, Purdy Street Station, Former Manufactured Gas Plant Site*. October 1, 2002.

GEI Consultants, Inc., 2005a. *Site Characterization Report, Purdy Street Station, Bronx, New York, VCA Index No. 02-0003-02-08, Site ID: V00557*. May 17, 2005.

GEI Consultants, Inc., 2005b. *Remedial Investigation Work Plan, Purdy Street Station Site, Bronx, New York, VCA Index No. 02-0003-02-08, Site ID No. V00557*. July 15, 2005.

GEI Consultants, Inc., 2006. *Off-Site Remedial Investigation Data Submittal, Purdy Street Station, VCA Site ID No. V00557*. June 5, 2006.

Globeexplorer, Airphoto USA. Aerial Photograph, 2002.

Hall, L.M., 1968, *Times of Origin and Deformation of Bedrock in the Manhattan Prong, in Studies of Appalachian Geology – Northern and Maritime.* New York, Interscience Publishers, p. 117-127.

Lazaro, T.R., 1979. *Urban Hydrology – A Multidisciplinary Perspective*: Ann Arbor, Michigan, Ann Arbor Science Publishers, p. 249.

New York State Codes, Rules and Regulations, Title 6, Part 703, 1967. *Surface Water and Groundwater Water Quality Standards and Groundwater Effluent Limitations*, Amended August 4, 1999. 6NYCRR, Part 703. Albany, New York.

NYSDEC *Draft DER-10 Technical Guidelines for Site Investigation and Remediation* (December 2002).

New York State Department of Environmental Conservation, 1994. *Division Technical and Administrative Guidance Memorandum [TAGM 4046]: Determination of Soil Cleanup Objectives and Cleanup Levels.* Division of Hazardous Waste Remediation. Albany, New York.

New York State Department of Environmental Conservation, 1994. *Revised TAGM – Determination of Soil Cleanup Objectives and Cleanup Levels*, memoranda from Michael J. O'Toole, HWR-94-4046, January.

New York State Department of Environmental Conservation, *Groundwater Monitoring Well Decommissioning Procedures*, dated April 2003.

New York State Department of Heath, *Summary of Indoor and Outdoor Levels of Volatile Organic Compounds from Fuel Oil Heated Homes in NYS, 1997-2003*, Revised October 2006.

Perlmutter and Arnow, 1953. *Groundwater in Bronx, New York and Richmond Counties with Summary Data on Kings and Queens Counties, New York City, New York:* New York Water Power and Control Commission, Bulletin GW-32, p. 86.

Rodgers, J., 1967. *Chronology of Tectonic Movements in the Appalachian Region of Eastern North America, in Symposium of the Chronology of Tectonic Movement in the United States: American Journal of Science*, V. 265, W.S., p. 408-427.

The Sanborn Library, LLC. Sanborn Fire Insurance Maps Dated 1898, 1908, 1919, and 1929.

Shacklette, H.T., and J.G. Boerngan, 1984. *Elements Concentrations in Soils and Other Surficial Materials of the Conterminous United States:* USGS Professional Paper. 1270, p. 10.

United States Environmental Protection Agency, 1979. *Status Assessment of Toxic Chemicals*, USEPA-600/2-89-2106.

United States Environmental Protection Agency, 1986. *Superfund Public Health Evaluation Manual*, Office of Emergency and Remedial Response, Washington, D.C., EPA 54011-186-060.

USEPA Contract Laboratory Program for Inorganic Data Review, EPA 540/R-94-013 (February 1994).

USEPA Contract Laboratory Program for Organic Data Review, EPA 540/R-99-008 (October 1999).

USEPA Superfund Program CERCLIS — Region I. May 23, 2000.

Tables

Table 1
Field Activities Summary
Purdy Street Station Former MGP Site
Bronx, New York

Date	Action Summary	Objective(s)
June 30, 2004	Surface-soil sampling from grass playing field	Site characterization to determine the presence/absence of MGP impacts to the topsoil on the playing field
June 29 to July 2, 2004 and July 9, 2004	Utility markout/clearance	Locate any underground utilities at investigation points
July 1 to August 26, 2004	Air monitoring	Protect work zone and off-site receptors from contaminants during investigation activities
July 6 to July 14, 2004	Test pit excavations	Determine presence/absence of shallow subsurface contamination and identify existing MGP subsurface structures
July 15 to August 6, 2004	Subsurface-soil sampling from soil borings	Site characterization to determine the presence/absence of MGP impacts
July 27 to August 4, 2004	Monitoring well installation	Site characterization to determine the presence/absence of MGP impacts to the groundwater
August 11 and August 12, 2004	Well development	To restore the natural permeability of the formation in the vicinity of the well and to remove silt/clay to provide a representative groundwater sample
August 12, 2004	Site survey	Document locations and elevations of former MGP structures and investigation points
August 25 and August 26, 2004	Groundwater sampling	Evaluate groundwater quality at the site
August 25 and October 20, 2004	Water level measurement	Determine groundwater flow direction at the site
August 2, 2004, August 31, 2004 and September 2, 2004	Investigation Derived Waste (IDW) removal	Remove IDW from site to appropriate disposal facility
August 19 to August 27, 2004	Site restoration	Restore site to conditions documented prior to commencing field activities.
August 27, 2004 and September 2, 2004	Soil Gas Survey	Evaluate soil gas in the northeast portion of the site.
January 26, 2006	Utility markout/clearance	Locate any underground utilities at investigation points
February 4 to February 23, 2006	Subsurface-soil sampling from soil borings	Site characterization to determine the presence/absence of MGP impacts
March 7, 2006	Site survey	Document locations and elevations of investigation points

Table 2
Sample Summary
Purdy Street Station Former MGP Site
Bronx, New York

Investigatory Method	Number of Data Points[1]
Geologic Data	
Surface-soil sample locations	6
Subsurface-soil borings	29
Hydrologic Data	
Overburden aquifer monitoring wells	5
Chemical Data	
Surface-soil samples	7
Subsurface-soil samples (test pit)	22
Subsurface-soil samples (soil boring)	88
Subsurface-soil samples (hydrocarbon fingerprint)	6
Groundwater samples	6
Soil gas samples	3
Investigation-derived waste	6

Table 3
Sampling Location Rationale
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location Identification	Location Rationale/Structure or Area of Investigation
Soil Borings	
B-4	Characterize potential impacts to soil in area of playing field and former MGP operations along western property boundary.
B-1, B-3 and B-5	Characterize potential impacts to soil in area of playing field and former MGP operations along eastern property boundary.
B-2 and B-6	Characterize potential impacts to soil in area of playing field and former MGP operations.
B-7	Characterize potential impacts to soil south of former MGP operations.
B-8	Characterize potential impacts to soil at south end of the property, including area of former underground gasoline and oil storage tanks.
B-9	Delineate vertical and lateral extent of NAPL observed in borings B-6 and staining observed in test pit TP-7.
B-10	Delineate vertical and lateral extent of NAPL observed in borings B-6 and test pit TP-9.
B-11 and **B-12**	Characterize potential impacts to soil in former engine house operations beneath existing storage building on eastern property boundary. Installed to delineate MGP-like impacts observed in boring and test pit locations in the east central portion of the playing field.
B-13	Delineate vertical and lateral extent of NAPL and MGP-like impacts observed in test pit TP-9 and TP-6A.
B-14	Characterize potential impacts to soil outside of the western property boundary. Installed to delineate NAPL impacts observed in boring B-10.
B-15	Characterize potential impacts to soil outside of the eastern property boundary. Installed to delineate naphthalene odor observed in boring B-11 and petroleum odor detected in boring B-12.
B-16	Characterize potential impacts to soil in area northwest of observed NAPL staining and sheen observed on top of the floor of the 50,000 cu. ft. gas holder.
B-17	Delineate vertical extent of NAPL impacts observed in test pit TP-4A.
B-18	Delineate vertical and lateral extent of petroleum staining observed in boring MW-5 (near the southeast property boundaries.)
B-19	Characterize potential impacts to soil in area west of observed naphthalene odor in soils from test pit TP-1A.
B-20	Delineate vertical and lateral extent of impacts along Odell Street
B-21	Delineate vertical and lateral extent of impacts along the former Protectory Avenue
B-22	Delineate vertical and lateral extent of impacts along Odell Street
B-23	Delineate vertical and lateral extent of impacts along the former Protectory Avenue
B-24	Delineate vertical and lateral extent of impacts along Odell Street

Table 3
Sampling Location Rationale
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location Identification	Location Rationale/Structure or Area of Investigation
Surface Soil	
SS-01 through SS-06	Characterize existing surficial conditions for exposure assessment.
Test Pits	
TP-1 and **TP-1A** TP-3**, TP-3A,** TP-4	Identify former MGP structures (potential source areas associated with above-grade holder) and characterize shallow subsurface contamination.
TP-2, **TP-2A, TP-2B**, and **TP-3B**	Identify former MGP structures (potential source areas associated with below-grade holder) and characterize shallow subsurface contamination.
TP-4A, and **TP-4B**	Identify former MGP structures (potential source areas associated with holders, near former engine room, and store house) and characterize shallow subsurface contamination.
TP-5A, **TP-5B**, and **TP-5C**	Identify former MGP structures (near former scrap bins and store house) and characterize shallow subsurface contamination.
TP-6A, **TP-6B**, **TP-7**, **TP-8**, **TP-9**, and **TP-10**	Identify former MGP structures and characterize shallow subsurface contamination.
Monitoring Wells	
MW-1	Characterize site hydrology and potential impacts to groundwater/soil near northern site boundary (upgradient of former MGP operations).
MW-2	Characterize site hydrology and potential impacts to soil/groundwater near former holder.
MW-3	Characterize site hydrology and potential impacts to soil/groundwater near western site boundary (downgradient of former MGP operations).
MW-4	Characterize site hydrology and potential impacts to soil/groundwater near eastern site boundary (downgradient of former MGP operations).
MW-5	Characterize site hydrology and potential impacts to soil/groundwater in southern portion of site (in area of former underground gasoline and oil storage tanks).
Soil Gas	
SGP-1 and **SGP-2**	Characterize soil gas and potential impacts to adjacent residential properties north of the site.
SGP-3	Characterize soil gas beneath the concrete slab of the storage building on the northeast portion of the site.

Note:
Bold sample location identifications indicate samples collected in addition to those proposed in the Site Characterization Work Plan, dated October 1, 2002.

Table 4
Groundwater Monitoring Well Construction Details
Purdy Street Station Former MGP Site
Bronx, New York

Well ID	Well Depth (feet bgs)	Boring Depth (feet bgs)	Ground Surface Elevation (feet NAVD)	Top of Riser Elevation (feet NAVD)	Well Diameter (inches)	Screen Interval (feet bgs)	Screen Type	Annual Fill Interval (feet bgs)	Fill Type
MW-1	16.60	17.00	25.59	25.39	2.00	5-15	Slotted 0.010-in PVC	1.5-3	Bentonite Seal
								3-15	#2 Quartz Sand Filter
MW-2	15.58	17.00	25.23	24.75	2.00	4-14	Slotted 0.010-in PVC	0.5-2	Bentonite Seal
								2-14	#2 Quartz Sand Filter
MW-3	15.80	16.00	25.85	25.61	2.00	4-14	Slotted 0.010-in PVC	0.5-2	Bentonite Seal
								2-14	#2 Quartz Sand Filter
MW-4	15.48	16.00	26.63	26.41	2.00	5-15	Slotted 0.010-in PVC	1.5-3	Bentonite Seal
								3-15	#2 Quartz Sand Filter
MW-5	12.90	13.00	25.85	25.51	2.00	3-13	Slotted 0.010-in PVC	0.7-1.2	Bentonite Seal
								1.2-13	#2 Quartz Sand Filter

Note:
bgs - below ground surface
NAVD - North American Vertical Datum, 1988
PVC - Polyvinyl chloride
in - inch

Table 5
Sample Collection and Analytical Summary
Purdy Street Station Former MGP Site
Bronx, New York

Medium	Sampling Method	Analytical Parameters	Number of Samples	Number of Field Blanks	Number of Trip Blanks	Number of Field Duplicates
Surface Soil	Grab from playing field	VOCs SVOCs TAL Metals PCBs Cyanide (Total)	6	1	1	1
Subsurface Soil	Grab from test pit excavations	VOCs SVOCs TAL Metals PCBs Cyanide (Total)	21	1	1	1
Subsurface Soil	Split spoon from borings	VOCs SVOCs TAL Metals PCBs Cyanide (Total)	85	4	4	3
Subsurface Soil	Grab from split spoon sampler	Hydrocarbon Fingerprint	6	0	0	0
Groundwater	Peristaltic pump	VOCs SVOCs TAL Metals(total & dissolved) PCBs Cyanide (Total & Available)	5	1	1	1
Soil gas	Summa canister vacuum extraction	VOCs by EPA Method TO-15	3	0	0	0

Notes:
VOCs – volatile organic compounds - EPA SW846 Method 8260B
SVOCs – semivolatile organic compounds - EPA SW846 Method 8270C
TAL – Target Analyte List - EPA 6000/7000 Series
Cyanide - EPA SW846 Method 9012
PCBs - polychlorinated biphenyls EPA SW846 Method 8081

Table 6
Bedrock Elevation Data
Purdy Street Station Former MGP Site
Bronx, New York

Location	Surveyed Surface Elevation (feet NAVD)	Depth to Bedrock (feet from surface)	Bedrock Elevation (feet NAVD)
B-1	25.19	NA	NA
B-2	25.93	22.00	3.93
B-3	25.15	26.34	-1.19
B-4	25.21	20.00	5.21
B-5	25.69	24.67	1.02
B-6	25.85	20.00	5.85
B-7	25.57	18.67	6.90
B-8	25.73	13.60	12.13
B-9	25.09	20.34	4.75
B-10	25.37	24.08	1.29
B-11	25.16	NA	NA
B-12	25.16	NA	NA
B-13	25.93	13.75	12.18
B-14	29.29	27.34	1.95
B-15	27.62	19.83	7.79
B-16	25.17	23.25	1.92
B-17	24.95	26.75	-1.80
B-18	26.23	12.34	13.89
B-19	25.35	26.00	-0.65
B-20	29.30	28.00	1.30
B-21	28.26	NA	NA
B-22	28.82	22.50	6.32
B-23	27.59	NA	NA
B-24	29.55	NA	NA
MW-1	25.59	26.83	-1.24
MW-2	25.23	26.00	-0.77
MW-3	25.85	24.34	1.51
MW-4	26.63	17.00	9.63
MW-5	25.85	12.50	13.35

Notes:
NA - Not Applicable (Bedrock Not Encountered)
NAVD - North American Vertical Datum, 1988

Table 7
Groundwater Elevation Data
Purdy Street Station Former MGP Site
Bronx, New York

Location	Top of Riser Elevation (feet NAVD)	August 25, 2004 Depth to Groundwater (feet from TOR)	August 25, 2004 Groundwater Elevation (feet NAVD)	October 20, 2004 Depth to Groundwater (feet from TOR)	October 20, 2004 Groundwater Elevation (feet NAVD)
MW-1	25.39	7.31	18.08	7.93	17.46
MW-2	24.75	6.56	18.19	7.29	17.46
MW-3	25.61	7.50	18.11	8.50	17.11
MW-4	26.41	8.99	17.42	9.86	16.55
MW-5	25.51	8.56	16.95	9.28	16.23

Notes:
NAVD - North American Vertical Datum, 1988
TOR - Top of Riser

Table 8
Surface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: / Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-SS1 0- 2 6/30/2004	Duplicate of: PS-SS1 0- 2 6/30/2004	PS-SS2 0- 2 6/30/2004	PS-SS3 0- 2 6/30/2004	PS-SS4 0- 2 6/30/2004	PS-SS5 0- 2 6/30/2004	PS-SS6 0- 2 6/30/2004
VOCs (mg/kg)									
Benzene	0.06	2.9	0.006 U	0.006 U	0.006 U	0.006 U	0.005 U	0.007 U	0.006 U
Toluene	0.7	100	0.006 U	0.006 U	**0.0007 J**	0.006 U	0.005 U	0.007 U	0.006 U
Ethylbenzene	1	30	0.006 U	0.006 U	0.006 U	0.006 U	0.005 U	0.007 U	0.006 U
Xylene, total	0.26	100	0.006 U	0.006 U	**0.002 J**	0.006 U	0.005 U	0.007 U	0.006 U
Tetrachloroethene	1.3	5.5	**0.002 J**	**0.003 J**	**0.006 J**	**0.002 J**	0.005 U	**0.005 J**	**0.003 J**
Total VOCs	NE	NE	**0.002**	**0.003**	**0.0087**	**0.002**	**ND**	**0.005**	**0.003**
SVOCs (mg/kg)									
Acenaphthene	20	100	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	**1.3 J**
Acenaphthylene	100	100	0.83 U	**0.085 J**	0.8 U	0.72 U	0.34 U	**0.23 J**	3.1 U
Anthracene	100	100	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	**1.1 J**
Benzo[g,h,i]perylene	100	100	**0.28 J**	**0.15 J**	**0.37 J**	0.72 U	0.34 U	**0.31 J**	**5.1**
Fluoranthene	100	100	**0.42 J**	**0.26 J**	**0.99**	**0.096 J**	0.34 U	**0.56 J**	**15**
Fluorene	30	100	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	**0.67 J**
Methylnaphthalene,2-	NE	NE	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	3.1 U
Naphthalene	12	100	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	3.1 U
Phenanthrene	100	100	0.83 U	**0.13 J**	**0.59 J**	0.72 U	0.34 U	**0.29 J**	**9.7**
Pyrene	100	100	**0.51 J**	**0.36 J**	**1.1**	**0.14 J**	0.34 U	**0.63 J**	**15**
Benz[a]anthracene	1	1	**0.26 J**	**0.15 J**	**0.45 J**	0.72 U	0.34 U	**0.31 J**	**5.9 J**
Benzo[a]pyrene	1	1	**0.28 J**	**0.18 J**	**0.46 J**	0.72 U	0.34 U	**0.35 J**	**6.6**
Benzo[b]fluoranthene	1	1	**0.29 J**	**0.15 J**	**0.4 J**	0.72 U	0.34 U	**0.32 J**	**4.9**
Benzo[k]fluoranthene	0.8	1	**0.25 J**	**0.18 J**	**0.49 J**	0.72 U	0.34 U	**0.38 J**	**7.4**
Chrysene	1	1	**0.36 J**	**0.22 J**	**0.58 J**	0.72 U	0.34 U	**0.42 J**	**8.5**
Dibenz[a,h]anthracene	0.33	0.33	0.83 U	0.4 U	0.8 U	0.72 U	0.34 U	0.87 U	**2 J**
Indeno[1,2,3-cd]pyrene	0.5	0.5	**0.25 J**	**0.13 J**	**0.35 J**	0.72 U	0.34 U	**0.28 J**	**4.4**
Bis(2-ethylhexyl)phthalate	NE	NE	**0.12 J**	**0.056 J**	**0.12 J**	0.72 U	0.34 U	**0.2 J**	3.1 U
Total SVOCs	NE	NE	**3.02**	**2.051**	**5.9**	**0.236**	**ND**	**4.28**	**88.67**
PCBs (mg/kg)									
Aroclor 1254	NE	NE	**0.047 JN**	**0.036**	0.021 U	0.019 U	0.018 U	0.023 U	0.02 U
Aroclor 1260	NE	NE	**0.059**	**0.046**	**0.075**	**0.023 J**	0.018 U	**0.045 JN**	**0.032 J**
Metals (mg/kg)									
Aluminum	NE	NE	**11000**	**10300**	**9820**	**4600**	**4260**	**11400**	**12600**
Antimony	NE	NE	1.1 UJ	1.2 UJ	1.8 UJ	1.4 UJ	1 UJ	1.6 UJ	1.4 UJ
Arsenic	13	16	**11.8 J**	**11.3 J**	**8.7 J**	**5.2 J**	**2.8 J**	**10.8 J**	**20.7 J**
Barium	350	350	**70.8**	**63.9**	**62.7**	**24.2**	**18.5**	**93.8**	**173**
Beryllium	7.2	14	0.5 U	0.55 U	0.78 U	0.62 U	0.46 U	0.69 U	**0.81**
Cadmium	2.5	2.5	0.99 U	1.1 U	1.6 U	1.2 U	0.92 U	1.4 U	1.2 U
Calcium	NE	NE	**2510 J**	**2880 J**	**2310 J**	**575 J**	**361 J**	**2550 J**	**33700 J**
Chromium	NE	NE	**22.4 J**	**20 J**	**21.6 J**	**10.2 J**	**8.4 J**	**25.4 J**	**29.5 J**
Cobalt	NE	NE	**5.9 J**	**5.3 J**	**5.7**	**4.7**	**8.1 J**	**6.6 J**	**5.3 J**
Copper	50	270	**40.4**	**35.2**	**25.8**	**11.4**	**8.4**	**52**	**55.8**
Iron	NE	NE	**17600**	**16100**	**15000**	**12700**	**10800**	**18100**	**38500**
Lead	63	400	**106**	**92.5**	**91.9**	**15.9**	**6.5**	**244**	**184**
Magnesium	NE	NE	**2440 J**	**2620 J**	**2570 J**	**631 J**	**545 J**	**2500 J**	**19200 J**
Manganese	1600	2000	**305**	**262**	**253**	**154**	**184**	**314**	**168**
Mercury	NE	NE	**0.19**	**0.17**	**0.36**	**0.027**	0.01 U	**0.28**	**0.35**
Nickel	30	140	**17.9**	**16.3**	**16**	6.3 U	5.2 U	**21.8**	**18.1**
Potassium	NE	NE	**782 J**	**707 J**	**864 J**	**472 J**	**393 J**	**895 J**	**1930 J**
Selenium	3.9	36	1.6 UJ	1.8 UJ	2.5 UJ	2 UJ	1.5 UJ	2.2 UJ	1.9 UJ
Silver	2	36	0.32 U	0.35 U	0.5 U	0.4 U	0.29 U	0.44 U	0.38 U
Sodium	NE	NE	**68.4**	**63**	**52.5**	**31.6**	**39.5**	**79.6**	**476**
Thallium	NE	NE	2 U	2.2 U	3.1 U	2.5 U	1.8 U	2.7 U	2.4 U
Vanadium	NE	NE	**28.8**	**26.8**	**29.6**	**21.1**	**18.2**	**35.3**	**41.6**
Zinc	109	2200	**105**	**96.9**	**69.9**	**28.3**	**25.8**	**118**	**85.3**
Cyanide (mg/kg)									
Cyanide, Total	27	27	**0.308 J**	**0.731 J**	**0.994 J**	**0.397 J**	0.527 U	**3.85 J**	**2.71 J**

Table 8
Surface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Notes:

mg/kg - milligrams/kilogram or parts per million (ppm)
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
PCBs - Polychlorinated Biphenyls
Total VOCs, and Total SVOCs are calculated using detects only.

UNRESTRICTED USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
RESIDENTIAL USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives

Bolding indicates a detected result value
Grey Shading - Detection exceeds Unrestricted Use SCOs
Yellow Shading - Detection exceeds Residential Use SCOs

NE - not established
ND - not detected; total concentration is listed as ND because no compounds were detected in the group
NA - not analyzed

J - estimated value
JN - analyte is presumptively present at an approximated quantity
R - Rejected
U - indicates not detected to the reporting limit for organic analysis and the method detection limit for inorganic analysis

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B1 (8-10) 7/22/2004	PS-B2 (2-4) 8/3/2004	PS-B2 (8-10) 8/3/2004	PS-B2 (16-18) 8/3/2004	PS-B3 (6-8) 7/24/2004	PS-B3 (10-12) 7/24/2004	PS-B3 (14-16) 7/24/2004	PS-B3 (22-24) 7/24/2004	PS-B4 (4-5) 7/21/2004	Duplicate of: PS-B4 (4-5) 7/21/2004	PS-B4 (8-10) 7/21/2004	PS-B4 (16-18) 7/21/2004	PS-B4 (18-20) 7/21/2004	PS-B5 (14-16) 7/23/2004	PS-B5 (18-19) 7/23/2004	PS-B5 (20-22) 7/23/2004	PS-B6 (0-2) 7/1/2004	PS-B6 (3-5) 7/1/2004
VOCs (mg/kg)																				
Benzene	0.06	2.9	0.005 U	0.006 U	**0.091**	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	**0.001 J**	0.031 U	0.007 U	0.006 U	**4.7 J**	24 U	0.028 U	0.006 U	**0.005 J**
Toluene	0.7	100	0.005 U	0.006 U	**0.075**	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	**0.0009 J**	**0.001 J**	0.031 U	0.007 U	0.006 U	**15 J**	**64**	0.028 UJ	**0.0007 J**	**0.087**
Ethylbenzene	1	30	0.005 U	**0.004 J**	**0.024**	0.006 U	**1.1**	**0.004 J**	0.006 U	0.006 U	**0.02**	**0.025**	**0.006 J**	0.007 U	0.006 U	**480**	**120**	0.028 U	0.006 U	**0.52**
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	0.005 U	0.006 U	**0.067**	0.006 U	**0.82**	0.006 U	0.006 U	0.006 U	**0.047**	**0.059**	**0.026 J**	0.007 U	0.006 U	**490**	**130**	0.028 U	0.006 U	**0.76**
Acetone	0.05	100	0.011 UJ	0.032 U	0.015 UJ	0.015 UJ	1.5 U	0.014 UJ	0.012 UJ	0.011 UJ	0.022 UJ	0.029 UJ	0.062 UJ	0.014 UJ	0.012 UJ	57 U	60 U	0.056 UJ	0.011 UJ	0.06 UJ
Butanone,2-	0.12	100	0.011 UJ	0.012 UJ	0.011 UJ	0.011 UJ	0.6 U	0.012 UJ	0.012 UJ	0.011 UJ	0.012 UJ	0.013 UJ	0.062 U	0.014 UJ	0.012 UJ	23 U	24 U	0.056 UJ	0.011 U	0.06 U
Carbon disulfide	NE	NE	0.005 U	**0.002 J**	0.006 U	0.006 U	0.6 U	**0.001 J**	0.006 U	0.006 U	0.006 UJ	0.007 U	0.031 UJ	0.007 U	**0.0007 J**	23 UJ	24 UJ	0.028 UJ	0.006 U	**0.004 J**
Chloroform	0.37	10	0.005 U	0.006 U	0.006 U	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.031 U	0.007 U	0.006 U	23 U	24 U	0.028 U	0.006 U	0.03 U
Dichloroethane,1,2-	0.02	2.3	0.005 UJ	0.006 U	0.006 U	0.006 U	0.6 U	0.006 UJ	0.006 UJ	0.006 UJ	0.006 U	0.007 UJ	0.031 U	0.007 UJ	0.006 UJ	23 U	24 U	0.028 U	0.006 U	0.03 U
Dichloroethene, cis-1,2-	0.25	59	0.005 U	0.006 U	0.006 U	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.031 U	0.007 U	0.006 U	23 U	24 U	0.028 U	0.006 U	0.03 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	0.005 U	0.006 U	0.006 U	0.007 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.031 U	0.007 U	0.006 U	23 U	24 U	0.028 U	0.006 U	0.03 U
Styrene	NE	NE	0.005 U	0.006 U	**0.045**	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	**0.002 J**	**0.002 J**	**0.004 J**	0.007 U	0.006 U	23 U	24 U	0.028 U	0.006 U	**0.006 J**
Tetrachloroethene	1.3	5.5	0.005 U	0.006 U	0.006 U	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.031 U	0.007 U	0.006 U	23 U	24 U	0.028 U	0.006 U	0.03 U
Trichloroethene	0.47	10	0.005 U	0.006 U	0.006 U	0.006 U	0.6 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.031 U	0.007 U	0.006 U	23 U	24 U	0.028 UJ	0.006 U	0.03 U
Total VOCs	NE	NE	**ND**	**0.006**	**0.302**	**ND**	**1.92**	**0.005**	**ND**	**ND**	**0.0699**	**0.088**	**0.036**	**ND**	**0.0007**	**989.7**	**314**	**ND**	**0.0007**	**1.382**
SVOCs (mg/kg)																				
Acenaphthene	20	100	0.35 U	**6.2 J**	0.36 UJ	**0.11 J**	**51**	**0.16 J**	0.39 U	0.37 U	**6.9 J**	**8.8 J**	**1.5 J**	**0.079 J**	0.37 U	**94**	**16 J**	**0.35 J**	0.73 U	**4.6**
Acenaphthylene	100	100	0.35 U	**21 J**	0.36 UJ	0.37 UJ	**10 J**	**0.073 J**	0.39 U	0.37 U	**9.9 J**	**12 J**	**3.5 J**	**0.26 J**	0.37 U	**15 J**	**53**	**0.24 J**	**0.2 J**	**3.7**
Anthracene	100	100	0.35 U	**19**	0.36 U	**0.1 J**	**33**	**0.12 J**	0.39 U	0.37 U	**34**	**40**	**13**	**0.4 J**	**0.074 J**	**49 J**	**27 J**	**0.31 J**	**0.17 J**	**5.6**
Benzo[g,h,i]perylene	100	100	0.35 U	**2.2 J**	0.36 U	0.37 U	**6 J**	**0.076 J**	0.39 U	0.37 U	**7.8 J**	**9.7 J**	**2.9 J**	**0.11 J**	0.37 U	**10 J**	**6.4 J**	**0.065 J**	**0.52 J**	**2.2 J**
Fluoranthene	100	100	0.35 U	**38**	0.36 U	**0.14 J**	**40**	**0.15 J**	0.39 U	0.37 U	**51**	**58**	**13**	**0.51**	**0.11 J**	**52 J**	**32 J**	**0.39**	**0.72 J**	**8.2**
Fluorene	30	100	0.35 U	**18**	0.36 U	**0.09 J**	**34**	**0.1 J**	0.39 U	0.37 U	**27**	**33**	**12**	**0.36 J**	**0.074 J**	**51 J**	**33 J**	**0.32 J**	0.73 U	**5.4**
Methylnaphthalene,2-	NE	NE	0.35 U	**4.4 J**	0.36 UJ	**0.066 J**	**19 J**	**0.065 J**	0.39 U	0.37 U	**25**	**33**	**8.2**	**0.43 J**	0.37 U	**190**	**110**	**0.61**	0.73 U	**11**
Naphthalene	12	100	0.35 U	**4.4 J**	**0.16 J**	**0.16 J**	**20 J**	**0.16 J**	0.39 U	0.37 U	15 U	22 U	**1.7 J**	**0.18 J**	0.37 U	**530**	**280**	**0.93**	0.73 U	**22**
Phenanthrene	100	100	0.35 U	**32**	**0.075 J**	**0.37**	**120**	**0.41**	**0.11 J**	0.37 U	**100**	**120**	**44**	**1.4**	**0.28 J**	**170**	**100**	**1.1**	**0.42 J**	**19**
Pyrene	100	100	0.35 U	**58**	**0.054 J**	**0.23 J**	**69**	**0.25 J**	**0.074 J**	0.37 U	**93**	**100**	**24**	**0.85**	**0.18 J**	**80**	**53**	**0.62**	**0.83**	**13**
Benz[a]anthracene	1	1	0.35 U	**25**	0.36 U	**0.076 J**	**23 J**	**0.077 J**	0.39 U	0.37 U	**30**	**35**	**8.4**	**0.35 J**	**0.073 J**	**28 J**	**17 J**	**0.23 J**	**0.41 J**	**4.9**
Benzo[a]pyrene	1	1	0.35 U	**13**	0.36 U	**0.048 J**	**15 J**	**0.068 J**	0.39 U	0.37 U	**23**	**26**	**7 J**	**0.28 J**	0.37 U	**26 J**	**16 J**	**0.2 J**	**0.42 J**	**3.8**
Benzo[b]fluoranthene	1	1	0.35 U	**19 J**	0.36 UJ	0.37 UJ	**14 J**	0.37 U	0.39 U	0.37 U	**12 J**	**14 J**	**3 J**	**0.16 J**	0.37 U	75 U	**14 J**	**0.21 J**	**0.49 J**	**2.1 J**
Benzo[k]fluoranthene	0.8	1	0.35 U	7.8 UJ	0.36 UJ	0.37 UJ	31 UJ	0.37 U	0.39 U	0.37 U	**14 J**	**16 J**	**3.2 J**	**0.18 J**	**0.045 J**	**14 J**	38 UJ	0.36 UJ	**0.37 J**	**3.3**
Chrysene	1	1	0.35 U	**27**	0.36 U	**0.07 J**	**21 J**	**0.081 J**	0.39 U	0.37 U	**32**	**38**	**8.5**	**0.32 J**	**0.067 J**	**28 J**	**17 J**	**0.19 J**	**0.51 J**	**5.5**
Dibenz[a,h]anthracene	0.33	0.33	0.35 U	**1.4 J**	0.36 UJ	0.37 UJ	31 U	0.37 U	0.39 U	0.37 U	15 U	22 U	8 U	0.46 U	0.37 U	75 U	38 U	0.36 U	**0.14 J**	**0.58 J**
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.35 U	**2.4 J**	0.36 UJ	0.37 UJ	**3.9 J**	**0.041 J**	0.39 U	0.37 U	**5.5 J**	**5.7 J**	**2.2 J**	**0.095 J**	0.37 U	75 U	**4.7 J**	**0.048 J**	**0.37 J**	**1.6 J**
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	0.35 U	7.8 U	0.36 U	0.37 U	31 U	**0.28 J**	**0.15 J**	**0.12 J**	15 U	22 U	8 U	**0.17 J**	**0.063 J**	75 U	38 U	**0.22 J**	0.73 U	3.1 U
Carbazole	NE	NE	0.35 U	7.8 U	0.36 U	0.37 U	31 U	0.37 U	0.39 U	0.37 U	15 U	22 U	8 U	0.46 U	0.37 U	75 U	38 U	0.36 U	0.73 U	3.1 U
Dibenzofuran	7	14	0.35 U	**2.2 J**	0.36 U	0.37 U	31 U	0.37 U	0.39 U	0.37 U	15 U	22 U	8 U	0.46 U	0.37 U	75 U	38 U	0.36 U	0.73 U	3.1 U
Di-n-octyl phthalate	NE	NE	0.35 U	7.8 U	0.36 U	0.37 U	31 U	0.37 U	0.39 U	0.37 U	15 U	22 U	8 U	0.46 U	0.37 U	75 U	38 U	0.36 U	0.73 U	3.1 U
Nitrophenol,4-	NE	NE	1.7 UJ	38 U	1.7 U	1.8 U	150 U	1.8 U	1.9 U	1.8 U	75 U	100 U	39 U	2.2 U	1.8 U	360 UJ	190 UJ	1.8 UJ	3.6 U	15 U
Phenol	0.33	100	0.35 U	7.8 UJ	0.36 UJ	0.37 UJ	31 U	0.37 U	0.39 U	0.37 U	15 U	22 U	8 U	0.46 U	0.37 U	75 U	38 U	0.36 U	0.73 U	3.1 U
Total SVOCs	NE	NE	**ND**	**293.2**	**0.289**	**1.46**	**478.9**	**2.111**	**0.334**	**0.12**	**471.1**	**549.2**	**156.1**	**6.134**	**0.966**	**1337**	**779.1**	**6.033**	**5.57**	**116.48**
PCBs (mg/kg)																				
Aroclor 1254	NE	NE	0.018 U	2 U	0.019 U	0.019 U	0.02 U	0.02 U	0.02 U	0.019 U	0.02 U	0.023 U	0.021 U	0.024 U	0.02 U	0.019 U	0.02 U	0.019 U	0.019 U	0.1 U
Aroclor 1260	NE	NE	0.018 U	2 U	0.019 UJ	0.019 U	0.02 U	0.02 U	0.02 U	0.019 U	0.02 U	0.023 U	0.021 U	0.024 U	0.02 U	0.019 U	0.02 U	0.019 U	0.019 U	0.1 U
Metals (mg/kg)																				
Aluminum	NE	NE	**6520**	**5690**	**7220**	**22800**	**5240**	**3390**	**3280**	**13800**	**8400**	**9580**	**8590**	**9450**	**7060**	**2670**	**10400**	**14900**	**8200**	**7100**
Antimony	NE	NE	0.84 UJ	**2 J**	1 UJ	1.4 UJ	1.6 UJ	1.2 UJ	0.98 UJ	1.4 UJ	1.2 UJ	1.8 UJ	0.98 UJ	2 UJ	1.1 UJ	1.6 UJ	1.4 UJ	0.96 UJ	1.5 UJ	1.2 UJ
Arsenic	13	16	0.9 UJ	**23.1**	1.1 U	1.5 U	1.7 U	1.3 U	1 U	1.5 U	**2.8 J**	**2.8 J**	**1.1 J**	2.2 UJ	**5.9 J**	1.7 UJ	1.5 UJ	1 UJ	**8.5 J**	**11.7 J**
Barium	350	350	**69.9**	**110**	**94.6**	**333**	**32**	**27.4**	**30.6**	**192**	**43.9**	**50**	**74.2**	**139**	**66.9**	**25.3**	**105**	**216**	**69.3**	**95.3**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B1 (8-10) 7/22/2004	PS-B2 (2-4) 8/3/2004	PS-B2 (8-10) 8/3/2004	PS-B2 (16-18) 8/3/2004	PS-B3 (6-8) 7/24/2004	PS-B3 (10-12) 7/24/2004	PS-B3 (14-16) 7/24/2004	PS-B3 (22-24) 7/24/2004	PS-B4 (4-5) 7/21/2004	Duplicate of: PS-B4 (4-5) 7/21/2004	PS-B4 (8-10) 7/21/2004	PS-B4 (16-18) 7/21/2004	PS-B4 (18-20) 7/21/2004	PS-B5 (14-16) 7/23/2004	PS-B5 (18-19) 7/23/2004	PS-B5 (20-22) 7/23/2004	PS-B6 (0-2) 7/1/2004	PS-B6 (3-5) 7/1/2004
Beryllium	7.2	14	0.37 U	0.68 U	0.44 U	**1.1**	0.69 U	0.52 U	0.43 U	**0.61**	**0.6**	0.78 U	0.43 U	0.88 U	0.48 U	0.68 U	**0.93**	**1.2**	0.64 U	0.53 U
Cadmium	2.5	2.5	0.74 U	1.4 U	0.88 U	1.2 U	1.4 U	1 U	0.86 U	1.2 U	1 U	1.6 U	0.86 U	1.8 U	0.97 U	1.4 U	1.2 U	0.84 U	1.3 U	1.1 U
Calcium	NE	NE	**3050 J**	**19600**	**1410**	**2790**	**1110 J**	**2280 J**	**3050 J**	**2370 J**	**525 J**	**750 J**	**3870 J**	**2880 J**	**1320 J**	**4090 J**	**2130 J**	**2320 J**	**2010 J**	**3060 J**
Chromium	NE	NE	**16.7 J**	**22.9**	**23.4**	**82.1**	**21.8 J**	**10.8 J**	**9.1 J**	**41.5 J**	**40.2 J**	**53.8 J**	**31.7 J**	**30.7 J**	**21.6 J**	**8.3 J**	**27.6 J**	**30.4 J**	**15.9 J**	**18.7 J**
Cobalt	NE	NE	**6.7**	**10.2**	**10.9**	**23.6**	**5.8**	**4.8**	**3.6**	**15.4**	**6.2 J**	**8.8 J**	**6.1**	**9.5**	**10.5**	**9.8**	**16.4**	**19**	**4.9**	**6.1**
Copper	50	270	**19.4**	**225 J**	**23.2 J**	**58.5 J**	**17.3**	**21.8**	**12.3**	**29.9**	**24.2**	**34**	**81.5**	**17.2**	**25.8**	**23.6**	**41.7**	**38.7**	**27**	**51.6**
Iron	NE	NE	**11500**	**34600**	**12600**	**40100**	**9080**	**8520**	**7350**	**26600**	**42600**	**55900**	**20700**	**17700**	**15800**	**9460**	**23400**	**28200**	**13800**	**20200**
Lead	63	400	**3.2**	**404**	**3.1**	**22.8**	**6**	**2.5**	**2.3**	**9.7**	**8.3**	**6.7**	**24.5**	**4.9**	**45.1**	**3.3**	**11**	**6.7**	**95.2**	**205**
Magnesium	NE	NE	**3670 J**	**11000**	**3070**	**14800**	**2190 J**	**2930 J**	**2350 J**	**7740 J**	**2900 J**	**2590 J**	**2900 J**	**6160 J**	**4310 J**	**2690 J**	**6450 J**	**7900 J**	**1830 J**	**2080 J**
Manganese	1600	2000	**158**	**146**	**110**	**583**	**84.4**	**68.7**	**91.1**	**323**	**221**	**437**	**137**	**195**	**184**	**132**	**277**	**330**	**309**	**220**
Mercury	NE	NE	0.016 U	**0.28**	0.012 U	0.012 U	0.017 U	0.012 U	0.014 U	0.01 U	0.018 U	**0.02 B**	0.018 U	0.022 U	0.016 U	0.014 U	0.015 U	0.014 U	**0.15**	**0.27**
Nickel	30	140	**13.5**	**28 J**	**28.3 J**	**64.8 J**	**13.7**	**20.1**	**9.2**	**39.4**	**12.3**	**14.4**	**16.2**	**22.4**	**26.9**	**24.1**	**38.3**	**33.7**	**14**	**15.5**
Potassium	NE	NE	**2820 J**	**777 J**	**2390 J**	**15100 J**	**933 J**	**1070 J**	**1030 J**	**9180 J**	**353 J**	**471 J**	**2150 J**	**6560 J**	**4390 J**	**907 J**	**6620 J**	**14700 J**	**529 J**	**579 J**
Selenium	3.9	36	1.2 UJ	**2.7**	1.4 U	2 U	2.2 UJ	1.7 UJ	1.4 UJ	1.9 UJ	1.6 UJ	2.5 UJ	1.4 UJ	2.8 UJ	1.5 UJ	2.2 UJ	1.9 UJ	1.3 UJ	2.1 UJ	1.7 UJ
Silver	2	36	0.24 U	0.44 U	0.28 U	0.4 U	0.44 U	0.34 U	0.27 U	0.39 U	0.32 U	0.5 U	0.27 U	0.57 U	0.31 U	0.44 U	0.39 U	0.27 U	0.41 U	0.34 U
Sodium	NE	NE	**221**	**95.6 J**	**188 J**	**304 J**	**95.3**	**159**	**152**	**201**	**33.7**	**45.9**	**186**	**288**	**138**	**104**	**112**	**270**	**40**	**65.9**
Thallium	NE	NE	1.5 U	2.7 U	1.7 U	**3.2 J**	2.8 U	2.1 U	1.7 U	2.4 U	2 U	3.1 U	1.7 U	3.5 U	1.9 U	2.7 U	2.4 U	**2.1**	2.5 U	2.1 U
Vanadium	NE	NE	**22.4**	**24**	**27.3**	**88.4**	**21.8**	**15.1**	**14.3**	**45.5**	**64.8**	**81.7**	**38.7**	**36.2**	**28.6**	**18.5**	**27**	**44.3**	**22.6**	**25.4**
Zinc	109	2200	**27.4**	**372 J**	**41.6 J**	**91.5 J**	**27**	**15.2**	**13.5**	**63.5**	**23.4**	**25.4**	**37.7**	**47.3**	**193**	**13**	**54.6**	**68**	**99.1**	**134**
Cyanide (mg/kg)																				
Cyanide, Total	27	27	0.513 U	**6.41**	0.557 U	0.573 U	**0.243 J**	0.579 U	0.571 U	0.573 U	**12.9 J**	**16.9 J**	**2.54 J**	0.707 U	0.574 U	0.54 U	0.579 U	0.547 U	**0.488 J**	**16.6 J**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B6 (6-8) 7/26/2004	PS-B6 (10-12) 7/26/2004	PS-B6 (16-18) 7/26/2004	PS-B7 (6-8) 7/29/2004	PS-B7 (12-14) 7/29/2004	PS-B7 (16-18) 7/29/2004	PS-B8 (8-10) 7/30/2004	PS-B8 (10-12) 7/30/2004	PS-B8 (12-13) 7/30/2004	PS-B9 (0-2) 7/2/2004	PS-B9 (4-6) 7/20/2004	PS-B9 (10-11) 7/20/2004	PS-B9 (16-18) 7/20/2004
VOCs (mg/kg)															
Benzene	0.06	2.9	**0.94 J**	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Toluene	0.7	100	**14**	**1 J**	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Ethylbenzene	1	30	**16**	**1.1 J**	0.006 U	0.006 U	**0.0007 J**	0.006 U	**10**	**0.006 J**	**0.55 J**	0.006 U	0.006 U	0.006 U	0.006 U
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	**72**	**5**	**0.002 J**	0.006 U	0.006 U	0.006 U	**8.1**	**0.008**	**0.74**	0.006 U	0.006 U	0.006 U	0.006 U
Acetone	0.05	100	2.8 U	6 U	0.011 UJ	0.013 UJ	0.012 UJ	0.012 UJ	**16 J**	0.024 UJ	0.5 UJ	0.012 UJ	0.012 UJ	0.012 UJ	0.012 UJ
Butanone,2-	0.12	100	1.1 U	2.4 U	0.011 UJ	0.011 UJ	0.012 UJ	0.012 UJ	0.56 U	0.012 U	0.61 U	0.012 U	0.012 UJ	0.012 UJ	0.012 UJ
Carbon disulfide	NE	NE	1.1 UJ	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 UJ	0.61 UJ	0.006 UJ	0.006 U	0.006 UJ	0.006 U
Chloroform	0.37	10	1.1 U	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	**0.001 J**
Dichloroethane,1,2-	0.02	2.3	1.1 U	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 UJ	0.006 U	0.006 UJ
Dichloroethene, cis-1,2-	0.25	59	1.1 U	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	1.1 U	2.4 U	0.006 U	0.006 U	0.008 U	0.008 U	0.56 U	0.006 U	0.61 U	0.029 U	0.006 U	0.006 U	0.006 U
Styrene	NE	NE	**9.6**	**0.84 J**	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Tetrachloroethene	1.3	5.5	1.1 U	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Trichloroethene	0.47	10	1.1 U	2.4 U	0.006 U	0.006 U	0.006 U	0.006 U	0.56 U	0.006 U	0.61 U	0.006 U	0.006 U	0.006 U	0.006 U
Total VOCs	NE	NE	**112.54**	**7.94**	**0.002**	**ND**	**0.0007**	**ND**	**34.1**	**0.014**	**1.29**	**ND**	**ND**	**ND**	**0.001**
SVOCs (mg/kg)															
Acenaphthene	20	100	140 U	**2.3 J**	0.36 U	0.37 U	0.39 U	0.4 U	**0.53 J**	**0.14 J**	0.78 U	0.76 U	0.75 U	0.41 U	0.38 U
Acenaphthylene	100	100	**25 J**	**7.4 J**	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**0.83**	**0.11 J**	**0.19 J**	**0.11 J**
Anthracene	100	100	**38 J**	**9.7**	0.36 U	0.37 U	0.39 U	0.4 U	**0.57 J**	**0.14 J**	0.78 U	**0.33 J**	0.75 U	0.41 U	0.38 U
Benzo[g,h,i]perylene	100	100	140 U	**1.8 J**	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**1.2**	0.75 U	**0.11 J**	0.38 U
Fluoranthene	100	100	**51 J**	**12**	**0.082 J**	0.37 U	0.39 U	0.4 U	**1.4 J**	**0.37 J**	**0.31 J**	**0.89**	0.75 U	**0.22 J**	0.38 U
Fluorene	30	100	**52 J**	**12**	0.36 U	0.37 U	0.39 U	0.4 U	**0.55 J**	**0.17 J**	**0.12 J**	0.76 U	0.75 U	0.41 U	0.38 U
Methylnaphthalene,2-	NE	NE	**200**	**7.3 J**	0.36 U	0.37 U	0.39 U	0.4 U	**13**	**3**	**2.6**	0.76 U	0.75 U	0.41 U	0.38 U
Naphthalene	12	100	**690**	**18**	0.36 U	0.37 U	0.39 U	0.4 U	**11**	**3.5**	**3.6**	**0.2 J**	0.75 U	0.41 U	0.38 U
Phenanthrene	100	100	**150**	**37**	**0.18 J**	0.37 U	0.39 U	0.4 U	**2.2 J**	**0.56 J**	**0.43 J**	**0.51 J**	0.75 U	**0.15 J**	0.38 U
Pyrene	100	100	**82 J**	**20**	**0.13 J**	0.37 U	0.39 U	0.4 U	**1.5 J**	**0.42 J**	**0.34 J**	**1.3**	0.75 U	**0.35 J**	0.38 U
Benz[a]anthracene	1	1	**30 J**	**7.2 J**	0.36 U	0.37 U	0.39 U	0.4 U	**0.5 J**	**0.13 J**	**0.12 J**	**0.66 J**	0.75 U	**0.15 J**	0.38 U
Benzo[a]pyrene	1	1	**18 J**	**5.4 J**	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	**0.1 J**	0.78 U	**0.68 J**	0.75 U	**0.15 J**	0.38 U
Benzo[b]fluoranthene	1	1	140 U	**4.9 J**	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**0.97**	0.75 U	**0.24 J**	0.38 U
Benzo[k]fluoranthene	0.8	1	140 U	7.8 UJ	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**1**	0.75 U	0.41 UJ	0.38 U
Chrysene	1	1	**31 J**	**6.9 J**	0.36 U	0.37 U	0.39 U	0.4 U	**0.41 J**	**0.13 J**	**0.11 J**	**1**	0.75 U	**0.14 J**	0.38 U
Dibenz[a,h]anthracene	0.33	0.33	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**0.42 J**	0.75 U	0.41 U	0.38 U
Indeno[1,2,3-cd]pyrene	0.5	0.5	140 U	**1.3 J**	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	**0.88**	0.75 U	**0.087 J**	0.38 U
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	0.76 U	0.75 U	**0.29 J**	**0.43**
Carbazole	NE	NE	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	0.76 U	0.75 U	0.41 U	0.38 U
Dibenzofuran	7	14	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	0.76 U	0.75 U	0.41 U	0.38 U
Di-n-octyl phthalate	NE	NE	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	0.76 U	0.75 U	0.41 U	0.38 U
Nitrophenol,4-	NE	NE	690 U	38 U	1.8 U	1.8 U	1.9 U	1.9 U	14 U	3.9 U	3.8 U	3.7 U	3.6 U	2 U	1.8 U
Phenol	0.33	100	140 U	7.8 U	0.36 U	0.37 U	0.39 U	0.4 U	2.9 U	0.8 U	0.78 U	0.76 U	0.75 U	**0.17 J**	0.38 U
Total SVOCs	NE	NE	**1367**	**153.2**	**0.392**	**ND**	**ND**	**ND**	**31.66**	**8.66**	**7.63**	**10.87**	**0.11**	**2.247**	**0.54**
PCBs (mg/kg)															
Aroclor 1254	NE	NE	0.019 U	0.02 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U	0.02 U	0.2 U	0.02 U	0.021 U	0.02 U
Aroclor 1260	NE	NE	0.019 U	0.02 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U	0.021 U	0.02 U	0.2 U	0.02 U	0.021 U	0.02 U
Metals (mg/kg)															
Aluminum	NE	NE	**7580**	**4050**	**8840**	**7150**	**4480**	**15900**	**6000**	**3420**	**3470**	**7830**	**8320**	**4970**	**13400**
Antimony	NE	NE	0.97 UJ	1.1 UJ	1.1 UJ	1.6 UJ	1.2 UJ	1.6 UJ	1.2 UJ	1.5 UJ	1.3 UJ	1.5 UJ	1.2 UJ	1.2 UJ	1.3 UJ
Arsenic	13	16	**1.2 J**	1.2 U	1.2 U	1.7 U	1.3 U	1.7 U	1.3 U	1.6 U	1.4 U	**8.8 J**	1.3 UJ	1.3 UJ	1.4 UJ
Barium	350	350	**60.8**	**34.6**	**90.8**	**44.6**	**41.2**	**248**	**57.4**	**32.7**	**33.3**	**83.9**	**62.5**	**35.6**	**162**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B6 (6-8) 7/26/2004	PS-B6 (10-12) 7/26/2004	PS-B6 (16-18) 7/26/2004	PS-B7 (6-8) 7/29/2004	PS-B7 (12-14) 7/29/2004	PS-B7 (16-18) 7/29/2004	PS-B8 (8-10) 7/30/2004	PS-B8 (10-12) 7/30/2004	PS-B8 (12-13) 7/30/2004	PS-B9 (0-2) 7/2/2004	PS-B9 (4-6) 7/20/2004	PS-B9 (10-11) 7/20/2004	PS-B9 (16-18) 7/20/2004
Beryllium	7.2	14	0.42 U	0.49 U	0.5 U	0.68 U	0.53 U	**0.72**	0.51 U	0.65 U	0.59 U	0.65 U	0.55 U	0.53 U	**0.68**
Cadmium	2.5	2.5	0.85 U	0.98 U	0.99 U	1.4 U	1.1 U	1.4 U	1 U	1.3 U	1.2 U	1.3 U	1.1 U	1.1 U	1.1 U
Calcium	NE	NE	**1800 J**	**1410 J**	**4530**	**1310**	**9010**	**2630**	**1870**	**1420**	**1200**	**1460 J**	**980 J**	**2390 J**	**1820 J**
Chromium	NE	NE	**28.7 J**	**11.8 J**	**23.7**	**33.6**	**13.5**	**37.6**	**18.4**	**12.8**	**11.3**	**19.4**	**38.9 J**	**15.7 J**	**42.9 J**
Cobalt	NE	NE	**7.5**	**8.2**	**8.3**	**6.1**	**4.1**	**15.3**	**6.4**	**4.3**	**3.9**	**6.2 J**	**4.9**	**6.6**	**17**
Copper	50	270	**22.1**	**15.7**	**24.9 J**	**29.3 J**	**12.6 J**	**25.8 J**	**17.6 J**	**11.6 J**	**9.7 J**	**43.7**	**27.1**	**46.2**	**24.5**
Iron	NE	NE	**13500**	**7530**	**15500**	**16400**	**8920**	**31100**	**13800**	**7800**	**7690**	**16400**	**14900**	**9850**	**26700**
Lead	63	400	**9.3**	**5.4**	**5.1**	**3.1**	**2.3**	**8.1**	**11.6**	**5.1**	**2.6**	**148**	**4.1**	**8.9**	**16.4**
Magnesium	NE	NE	**3020 J**	**1380 J**	**5720**	**2280**	**6170**	**8200**	**2460**	**1430**	**1570**	**2240 J**	**2320 J**	**2600 J**	**7770 J**
Manganese	1600	2000	**351**	**81.4**	**253**	**151**	**415**	**519**	**132**	**72.1**	**55.6**	**217**	**126**	**78**	**305**
Mercury	NE	NE	**0.012 B**	0.014 U	0.012 U	0.016 U	0.012 U	0.015 U	0.012 U	0.011 U	0.011 U	**0.2**	**0.028 B**	0.02 U	0.017 U
Nickel	30	140	**14.7**	**12.7**	**21.9**	**15.6**	**9.5**	**31.5**	**12.8**	**10.1 J**	**9.5 J**	**21.2**	**13.3**	**17.2**	**42.9**
Potassium	NE	NE	**2000 J**	**920 J**	**4110 J**	**1160 J**	**1650 J**	**9910 J**	**2240 J**	**1140 J**	**1150 J**	**553 J**	**1480 J**	**1380 J**	**10300 J**
Selenium	3.9	36	1.4 UJ	1.6 UJ	1.6 U	2.2 U	1.7 U	2.3 U	1.6 U	2.1 U	1.9 U	2.1 UJ	1.7 UJ	1.7 UJ	1.8 UJ
Silver	2	36	0.27 U	0.31 U	0.32 U	0.44 U	0.34 U	0.46 U	0.33 U	0.41 U	0.38 U	0.42 U	0.35 U	0.34 U	0.36 U
Sodium	NE	NE	**108**	**167**	**232 J**	**128**	**203**	**220**	**252 J**	**191 J**	**177 J**	**75.1**	**101**	**256**	**214**
Thallium	NE	NE	1.7 U	1.9 U	2 U	2.7 U	2.1 U	2.8 U	2 U	2.6 U	2.3 U	2.6 U	2.2 U	2.1 U	2.2 U
Vanadium	NE	NE	**29.9**	**17.7**	**29.9**	**26.8**	**18.7**	**54.9**	**23.3**	**15.6**	**14.1**	**28.2**	**35.4**	**17.3**	**45.2**
Zinc	109	2200	**34.4**	**21.8**	**35.4**	**30.6**	**17.6**	**60**	**26.2**	**15 J**	**14.2 J**	**69.6**	**28.8**	**69.1**	**75.9**
Cyanide (mg/kg)															
Cyanide, Total	27	27	**1.16 J**	0.6 U	0.563 UJ	0.573 UJ	0.607 UJ	0.598 UJ	0.559 UJ	0.603 U	0.595 U	**5.06 J**	**2.8 J**	**1.01 J**	0.56 U

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: / Sample Depth: / Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B10 (5-6) 7/15/2004	PS-B10 (10-12) 7/15/2004	PS-B10 (14-16) 7/19/2004	PS-B10 (18-20) 7/19/2004	PS-B11 (3_5-4) 7/22/2004	PS-B11 (6-8) 7/29/2004	PS-B11 (8-10) 7/29/2004	PS-B12 (6-8) 7/29/2004	PS-B12 (8-10) 7/29/2004	PS-B12 (12-14) 7/29/2004	PS-B13 (6-8) 7/31/2004	PS-B13 (10-12) 7/31/2004	PS-B13 (12-13) 7/31/2004	PS-B14 (10-12) 8/5/2004	PS-B14 (14-16) 8/5/2004	PS-B14 (20-22) 8/5/2004	Duplicate of: PS-B14 (20-22) 8/5/2004	PS-B15 (6-8) 8/6/2004
VOCs (mg/kg)																				
Benzene	0.06	2.9	0.6 U	0.57 U	0.58 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Toluene	0.7	100	0.6 U	0.6	0.58 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.0009 J	0.006 U	0.006 U	0.006 U	0.006 U
Ethylbenzene	1	30	0.96	1.9	0.27 J	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.028	0.006 U	0.006 U	0.006 U	0.006 U
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	2.1	13	0.33 J	0.003 J	0.001 J	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.021	0.006 U	0.006 U	0.006 U	0.006 U
Acetone	0.05	100	1.5 U	1.4 U	1.4 U	0.011 UJ	0.054 J	0.014 UJ	0.011 UJ	0.012 UJ	0.011 UJ	0.013 UJ	0.06 UJ	0.024 UJ	0.012 UJ	0.024 UJ	0.003 UJ	0.011 U	0.011 U	0.011 UJ
Butanone,2-	0.12	100	0.6 U	0.57 U	0.58 U	0.011 U	0.012 UJ	0.014 UJ	0.011 UJ	0.012 UJ	0.011 UJ	0.012 UJ	0.012 U	0.012 U	0.012 UJ	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U
Carbon disulfide	NE	NE	0.6 U	0.57 U	0.58 U	0.006 U	0.002 J	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 UJ	0.006 UJ	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Chloroform	0.37	10	0.6 U	0.57 U	0.58 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Dichloroethane,1,2-	0.02	2.3	0.6 U	0.57 U	0.58 U	0.009	0.006 UJ	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Dichloroethene, cis-1,2-	0.25	59	0.6 U	0.57 U	0.58 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	0.14 J	0.099 J	0.1 J	0.006 U	0.006 U	0.008 UJ	0.007 U	0.006 U	0.007 U	0.003 J	0.007 U	0.008 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.008 U
Styrene	NE	NE	0.6 U	5.1	0.09 J	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Tetrachloroethene	1.3	5.5	0.6 U	0.57 U	0.58 U	0.006 U	0.002 J	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.0007 J	0.006 U	0.006 U	0.006 U	0.006 U
Trichloroethene	0.47	10	0.6 U	0.57 U	0.58 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Total VOCs	NE	NE	3.2	20.699	0.79	0.012	0.059	ND	ND	ND	ND	0.003	ND	ND	ND	0.0506	ND	ND	ND	ND
SVOCs (mg/kg)																				
Acenaphthene	20	100	1.8 J	15	0.07 J	0.37 U	0.75 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 UJ	6.9 J	0.16 J	0.37 U	0.36 U	0.36 U
Acenaphthylene	100	100	1.9 J	5.7 J	0.13 J	0.37 U	0.6 J	0.46 U	0.36 U	0.4 U	0.12 J	0.4 U	0.38 U	0.38 U	0.38 U	3.6 J	0.15 J	0.37 U	0.36 U	0.36 U
Anthracene	100	100	6.6	10	0.11 J	0.37 U	1.4	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	18	0.51	0.37 U	0.36 U	0.36 U
Benzo[g,h,i]perylene	100	100	2.1 J	2.1 J	0.38 U	0.37 U	0.57 J	0.46 U	0.36 U	0.4 U	0.056 J	0.4 U	0.044 J	0.38 U	0.38 U	3.6 J	0.16 J	0.37 UJ	0.36 UJ	0.36 U
Fluoranthene	100	100	8.3	12	0.14 J	0.37 U	1.6	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	24	0.75	0.37 U	0.36 U	0.36 U
Fluorene	30	100	3.8 J	11	0.13 J	0.37 U	1.9	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	12	0.43	0.37 U	0.36 U	0.36 U
Methylnaphthalene,2-	NE	NE	1.2 J	11	0.21 J	0.37 U	0.81 U	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	7 UJ	0.38 UJ	0.37 UJ	0.36 UJ	0.36 UJ
Naphthalene	12	100	3.9 J	30	0.27 J	0.37 U	0.81 U	0.46 U	0.36 U	0.4 U	0.37 U	0.096 J	0.077 J	0.38 U	0.38 U	7 U	0.38 U	0.37 U	0.36 U	0.36 U
Phenanthrene	100	100	27	37	0.44	0.1 J	0.5 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.053 J	0.06 J	0.046 J	27	1.4	0.37 U	0.36 U	0.36 U
Pyrene	100	100	16	21	0.24 J	0.37 U	3.4	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.058 J	0.054 J	0.38 U	37	1.3	0.37 U	0.36 U	0.36 U
Benz[a]anthracene	1	1	5.4	7.2 J	0.084 J	0.37 U	1.3	0.079 J	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	14	0.47	0.37 U	0.36 U	0.36 U
Benzo[a]pyrene	1	1	4.6	5.2 J	0.068 J	0.37 U	0.71 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	11	0.37 J	0.37 U	0.36 U	0.36 U
Benzo[b]fluoranthene	1	1	2.6 J	3 J	0.38 U	0.37 U	0.73 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	9.4 J	0.35 J	0.37 UJ	0.36 UJ	0.36 U
Benzo[k]fluoranthene	0.8	1	2.3 J	2.7 J	0.38 U	0.37 U	0.75 J	0.11 J	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	7 UJ	0.38 UJ	0.37 U	0.36 U	0.36 U
Chrysene	1	1	5.4	7.2 J	0.082 J	0.37 U	1.2	0.15 J	0.36 U	0.4 U	0.37 U	0.4 U	0.051 J	0.38 U	0.38 U	14	0.48	0.37 U	0.36 U	0.36 U
Dibenz[a,h]anthracene	0.33	0.33	0.67 J	7.3 U	0.38 U	0.37 U	0.23 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	1.1 J	0.38 U	0.37 UJ	0.36 UJ	0.36 U
Indeno[1,2,3-cd]pyrene	0.5	0.5	1.5 J	1.6 J	0.38 U	0.37 U	0.42 J	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	2.8 J	0.12 J	0.37 UJ	0.36 UJ	0.36 U
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	3.9 U	7.3 U	0.38 U	0.37 U	0.81 U	0.096 J	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.068 J	7 U	0.38 U	0.37 UJ	0.36 UJ	0.36 U
Carbazole	NE	NE	3.9 U	7.3 U	0.38 U	0.37 U	0.81 U	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	7 U	0.38 U	0.37 U	0.36 U	0.36 U
Dibenzofuran	7	14	0.64 J	7.3 U	0.38 U	0.37 U	0.81 U	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	1.2 J	0.38 U	0.37 U	0.36 U	0.36 U
Di-n-octyl phthalate	NE	NE	3.9 U	7.3 U	0.38 U	0.37 U	0.81 U	0.08 J	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.38 U	0.38 U	7 U	0.38 U	0.37 U	0.36 U	0.36 U
Nitrophenol,4-	NE	NE	19 U	35 U	1.8 U	1.8 U	3.9 U	2.2 U	1.8 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	34 U	1.8 U	1.8 U	1.8 U	1.8 U
Phenol	0.33	100	3.9 U	7.3 U	0.38 U	0.37 U	0.81 U	0.46 U	0.36 U	0.4 U	0.37 U	0.4 U	0.38 U	0.12 J	0.38 U	7 UJ	0.38 UJ	0.37 UJ	0.36 UJ	0.36 UJ
Total SVOCs	NE	NE	95.71	181.7	1.974	0.1	16.06	0.515	ND	ND	0.176	0.096	0.283	0.234	0.114	185.6	6.65	ND	ND	ND
PCBs (mg/kg)																				
Aroclor 1254	NE	NE	0.02 U	0.019 U	0.019 U	0.019 U	0.021 U	0.024 U	0.019 U	0.021 U	0.019 U	0.021 U	0.02 U	0.019 U	0.02 U	0.018 U	0.02 U	0.019 U	0.019 U	0.019 U
Aroclor 1260	NE	NE	0.02 U	0.019 U	0.019 U	0.019 U	0.021 U	0.024 U	0.019 U	0.021 U	0.019 U	0.021 U	0.02 U	0.019 U	0.02 U	0.018 U	0.02 U	0.019 U	0.019 U	0.019 U
Metals (mg/kg)																				
Aluminum	NE	NE	8720	3290	5930	8580	9590	10200	4350	9640	3410	4930	9780	5550	4210	5210	19300	13800	21000	6900
Antimony	NE	NE	1.5 UJ	0.94 UJ	1.1 UJ	1.5 UJ	1.5 UJ	1.9 UJ	1.2 UJ	1.5 UJ	1.4 UJ	1.4 UJ	1.2 UJ	1.3 UJ	1.4 UJ	1.4 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.3 UJ
Arsenic	13	16	2 J	1 UJ	1.2 UJ	1.6 UJ	1.6 UJ	2.1	1.3 U	3	1.6 U	1.5 U	1.3 U	1.3 U	1.5 U	1.4 U	1.7 U	1.7 U	1.6 U	1.4 U
Barium	350	350	72.2	26.3	67.3	97.6	205	82.3	86.8	69.2	26.9	41.3	57.7	48	40	175	250	190	235	43

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	 UNRESTRICTED USE SCOs	 RESIDENTIAL USE SCOs	PS-B10 (5-6) 7/15/2004	PS-B10 (10-12) 7/15/2004	PS-B10 (14-16) 7/19/2004	PS-B10 (18-20) 7/19/2004	PS-B11 (3_5-4) 7/22/2004	PS-B11 (6-8) 7/29/2004	PS-B11 (8-10) 7/29/2004	PS-B12 (6-8) 7/29/2004	PS-B12 (8-10) 7/29/2004	PS-B12 (12-14) 7/29/2004	PS-B13 (6-8) 7/31/2004	PS-B13 (10-12) 7/31/2004	PS-B13 (12-13) 7/31/2004	PS-B14 (10-12) 8/5/2004	PS-B14 (14-16) 8/5/2004	PS-B14 (20-22) 8/5/2004	Duplicate of: PS-B14 (20-22) 8/5/2004	PS-B15 (6-8) 8/6/2004
Beryllium	7.2	14	0.67 U	0.41 U	0.5 U	0.67 U	0.67 U	0.84 U	0.52 U	0.65 U	0.64 U	0.62 U	0.54 U	0.55 U	0.6 U	0.59 U	0.68 U	**0.81**	**0.9**	0.59 U
Cadmium	2.5	2.5	1.3 U	0.83 U	0.99 U	1.3 U	1.3 U	1.7 U	1 U	1.3 U	1.3 U	1.2 U	1.1 U	1.1 U	1.2 U	1.2 U	1.4 U	1.4 U	1.4 U	1.2 U
Calcium	NE	NE	**1850 J**	**2270 J**	**3440 J**	**2570 J**	**1070 J**	**1770**	**1370**	**1510**	**1340**	**2140**	**1610**	**1170**	**2550**	**1530 J**	**363 J**	**978 J**	**1770 J**	**1130 J**
Chromium	NE	NE	**39.2 J**	**12.4 J**	**19.2 J**	**27.3 J**	**18.8 J**	**67.4**	**17.4**	**46.9**	**11.9**	**21.1**	**35.1**	**18.3**	**13.6**	**17.1**	**81.3**	**42.6**	**62.1**	**33.4**
Cobalt	NE	NE	**6.6 J**	**7.9**	**6.8**	**10.9**	**8.2**	**18.9**	**3.8**	**5.1 J**	**3.3**	**8.3**	**7.7**	**5.6**	**4.4**	**7.3**	**21.1**	**12.8**	**21.8**	**9.2**
Copper	50	270	**33.3**	**18.9**	**17.6**	**24.2**	**10.4**	**72.5 J**	**10.3 J**	**15.7 J**	**11.8 J**	**14.6 J**	**18.6 J**	**17.1 J**	**16.4 J**	**16.8**	**69.7**	**25.8**	**51.3**	**25**
Iron	NE	NE	**40400**	**9360**	**12600**	**17900**	**13000**	**48800**	**6710**	**27000**	**5860**	**7060**	**22900**	**10500**	**8720**	**14000**	**31600**	**23300**	**36800**	**16200**
Lead	63	400	**4.9**	**3.3**	**5.2**	**11.4**	**7.2**	**3.8**	**2.4**	**4**	**2.1**	**3.2**	**11.3**	**2.8**	**2.3**	**2.9**	**20.4**	**17.4**	**26.9**	**2.4**
Magnesium	NE	NE	**2430 J**	**2190 J**	**3820 J**	**5190 J**	**1290 J**	**3150**	**1590**	**2180**	**1260**	**2040**	**2630**	**2390**	**2510**	**2210**	**11600**	**7860**	**11900**	**2100**
Manganese	1600	2000	**700**	**134**	**211**	**229**	**66**	**841**	**56.8**	**105**	**50.1**	**64.5**	**454**	**93.7**	**84.1**	**2180**	**416**	**291**	**515**	**408**
Mercury	NE	NE	**0.014**	0.01 U	0.014 U	0.013 U	**0.028 B**	0.014 U	0.012 U	**0.015**	0.012 U	0.014 U	**0.022**	0.011 U	0.014 U	0.015 U	0.012 U	0.015 U	0.012 U	0.012 U
Nickel	30	140	**27.2**	**17.7**	**15.7**	**25.7**	**8.4**	**24.1**	**10.2**	**14**	**8.2**	**10.8**	**14.7 J**	**13.4 J**	**11.6**	**13.5**	**89.7**	**35.2**	**61.4**	**18.6**
Potassium	NE	NE	**483 J**	**811 J**	**2680 J**	**4710 J**	**292 J**	**1810 J**	**1210 J**	**833 J**	**739 J**	**1190 J**	**1220 J**	**1760 J**	**1400 J**	**1880 J**	**14300 J**	**9270 J**	**14200 J**	**797 J**
Selenium	3.9	36	2.2 UJ	1.3 UJ	1.6 UJ	2.1 UJ	2.2 UJ	2.7 U	1.7 U	2.1 U	2 U	2 U	1.7 U	1.8 U	1.9 U	1.9 U	2.2 U	2.2 U	2.2 U	1.9 U
Silver	2	36	0.43 U	0.26 U	0.32 U	0.43 U	0.43 U	0.54 U	0.33 U	0.42 U	0.41 U	0.39 U	0.35 U	0.35 U	0.38 U	0.38 U	0.43 U	0.44 U	0.43 U	0.38 U
Sodium	NE	NE	**128**	**128**	**151**	**179**	**27.7**	**186**	**142**	**118**	**158**	**146**	**205 J**	**133 J**	**172**	**109 J**	**215 J**	**129 J**	**223 J**	**259 J**
Thallium	NE	NE	2.7 U	1.6 U	**2.1**	2.7 U	2.7 U	3.3 U	2.1 U	2.6 U	2.5 U	2.4 U	2.2 U	2.2 U	2.4 U	2.3 U	2.7 U	2.7 U	2.7 U	2.3 U
Vanadium	NE	NE	**39.1**	**15.8**	**23.9**	**31.3**	**17.1**	**69.7**	**17.9**	**54**	**16.6**	**18.1**	**39.7**	**23.6**	**17.5**	**22.4**	**65.9**	**50.6**	**69.5**	**33.7**
Zinc	109	2200	**30**	**17.7**	**30.9**	**47.8**	**30.4**	**40.8**	**15.8**	**26**	**13**	**20.9**	**40.8 J**	**24.7 J**	**19.5**	**25.5**	**81.7**	**66.8**	**118**	**23.7**
Cyanide (mg/kg)																				
Cyanide, Total	27	27	0.579 U	0.569 U	0.57 UJ	0.568 UJ	0.59 U	0.706 UJ	**0.138 J**	0.611 UJ	0.563 UJ	0.604 UJ	**0.432 J**	0.572 U	0.554 UJ	0.554 U	0.579 U	0.541 U	0.562 U	**0.0386 J**

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Table 9 SubSurface

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	Duplicate of: PS-B15 (6-8) 8/6/2004	PS-B15 (10-12) 8/6/2004	PS-B15 (16-18) 8/6/2004	PS-B16 (8-10) 8/3/2004	PS-B16 (14-16) 8/3/2004	PS-B16 (20-22) 8/3/2004	PS-B17 (10-12) 8/2/2004	PS-B17 (20-22) 8/2/2004	PS-B18 (8-10) 7/31/2004	PS-B19 (6-7) 8/6/2004	PS-B19 (10-12) 8/6/2004	PS-B19 (18-20) 8/6/2004	PS-B20 (15-17) 2/4/2006	PS-B20 (19-21) 2/4/2006	PS-B20 (27-28) 2/4/2006
VOCs (mg/kg)																	
Benzene	0.06	2.9	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	**0.002 J**	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 U	3.6 U	0.71 U
Toluene	0.7	100	0.006 U	**0.0008 J**	**0.0008 J**	0.59 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	**0.19 J**	**0.0007 J**	0.006 U	**1.4 J**	**28**	0.71 U
Ethylbenzene	1	30	0.006 U	0.006 U	0.006 U	**0.49 J**	0.006 U	0.006 U	**0.013**	0.006 U	**0.044 J**	**11**	0.006 U	0.006 U	**14**	**170 D**	0.71 U
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20**	**190**	1.4 U
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17**	**95**	0.71 U
Xylene, total	0.26	100	0.006 U	0.006 U	0.006 U	**3.5**	0.006 U	0.006 U	**0.007**	0.006 U	**0.064 J**	**14**	0.006 U	0.006 U	NA	NA	NA
Acetone	0.05	100	0.011 UJ	0.011 UJ	0.011 UJ	1.5 UJ	0.017 UJ	0.013 UJ	0.021 UJ	0.012 U	0.028 UJ	1.6 UJ	0.011 UJ	0.011 UJ	18 UJ	18 UJ	3.6 UJ
Butanone,2-	0.12	100	0.011 U	0.011 U	0.011 U	**0.97**	0.011 U	0.011 UJ	0.012 U	0.012 U	**0.009 J**	0.62 U	0.011 U	0.011 U	18 U	18 U	3.6 U
Carbon disulfide	NE	NE	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	0.006 UJ	0.006 UJ	0.006 UJ	0.62 U	0.006 U	0.006 U	3.6 UJ	3.6 UJ	0.71 UJ
Chloroform	0.37	10	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 U	3.6 U	0.71 U
Dichloroethane,1,2-	0.02	2.3	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 U	3.6 U	0.71 U
Dichloroethene, cis-1,2-	0.25	59	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 U	3.6 U	0.71 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2 J**	**7.8**	0.71 U
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6 U	3.6 U	0.71 U
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6 U	3.6 U	0.71 U
Methylene chloride	0.05	51	0.006 U	0.007 U	0.006 U	0.59 U	0.011 U	**0.01**	0.007 U	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 UJ	3.6 UJ	0.71 UJ
Styrene	NE	NE	0.006 U	0.006 U	0.006 U	**0.9**	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	**2.9**	0.006 U	0.006 U	**14**	**77**	0.71 U
Tetrachloroethene	1.3	5.5	0.006 U	0.006 U	0.006 U	0.59 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.62 U	0.006 U	0.006 U	3.6 UJ	3.6 UJ	0.71 UJ
Trichloroethene	0.47	10	0.006 U	0.006 U	0.006 U	**0.08 J**	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.62 UJ	0.006 U	0.006 U	3.6 UJ	3.6 UJ	0.71 UJ
Total VOCs	NE	NE	**ND**	**0.0008**	**0.0008**	**5.94**	**ND**	**0.01**	**0.022**	**ND**	**0.117**	**28.09**	**0.0007**	**ND**	**68.4**	**567.8**	**ND**
SVOCs (mg/kg)																	
Acenaphthene	20	100	0.35 U	0.36 U	0.36 U	380 UJ	0.36 UJ	0.37 UJ	**1.1 J**	0.39 UJ	0.37 U	**7.4 J**	0.35 U	0.35 U	**15 D**	**18 D**	0.37 U
Acenaphthylene	100	100	0.35 U	0.36 U	0.36 U	**380 J**	0.36 UJ	**0.14 J**	**0.35 J**	0.39 UJ	0.37 U	**82**	**0.043 J**	0.35 U	**12 D**	**68 D**	**0.091 J**
Anthracene	100	100	0.35 U	0.36 U	0.36 U	**180 J**	0.36 U	**0.1 J**	**0.83**	0.39 U	**0.089 J**	**37**	0.35 U	0.35 U	**13 D**	**43 D**	0.37 U
Benzo[g,h,i]perylene	100	100	0.35 U	0.36 U	0.36 UJ	380 U	0.36 U	**0.048 J**	**0.39**	0.39 U	0.37 U	**4.6 J**	0.35 U	0.35 U	**1.1 J**	**3.3 J**	0.37 U
Fluoranthene	100	100	0.35 U	0.36 U	0.36 U	**180 J**	0.36 U	**0.13 J**	**1.4**	0.39 U	**0.33 J**	**39**	0.35 U	0.35 U	**16 D**	**50 D**	0.37 U
Fluorene	30	100	0.35 U	0.36 U	0.36 U	**190 J**	0.36 U	**0.091 J**	**0.72**	0.39 U	**0.062 J**	**41**	0.35 U	0.35 U	**11 D**	**41 D**	0.37 U
Methylnaphthalene,2-	NE	NE	0.35 UJ	0.36 UJ	0.36 UJ	**900 J**	0.36 UJ	**0.17 J**	**0.064 J**	0.39 UJ	**0.28 J**	**46 J**	0.35 UJ	0.35 UJ	**39 D**	**210 D**	**0.25 J**
Naphthalene	12	100	0.35 U	0.36 U	0.36 U	**2400 J**	0.36 UJ	**0.11 J**	**0.21 J**	0.39 UJ	**0.12 J**	**82**	**0.12 J**	0.35 U	**290 D**	**680 D**	**0.86**
Phenanthrene	100	100	0.35 U	0.36 U	**0.054 J**	**520**	**0.083 J**	**0.32 J**	**2.8**	0.39 U	**0.32 J**	**110**	**0.1 J**	0.35 U	**110 DJ**	**150 DJ**	0.37 U
Pyrene	100	100	0.35 U	0.36 U	0.36 U	**280 J**	**0.067 J**	**0.29 J**	**2.2**	0.39 U	**0.31 J**	**60**	**0.078 J**	0.35 U	**21 D**	**70 D**	**0.099 J**
Benz[a]anthracene	1	1	0.35 U	0.36 U	0.36 U	**110 J**	0.36 U	**0.089 J**	**0.74**	0.39 U	**0.1 J**	**22**	0.35 U	0.35 U	**9.5 D**	**30 D**	0.37 U
Benzo[a]pyrene	1	1	0.35 U	0.36 U	0.36 U	**79 J**	0.36 U	**0.067 J**	**0.6**	0.39 U	**0.059 J**	**16 J**	0.35 U	0.35 U	**5.9 D**	**20 D**	0.37 U
Benzo[b]fluoranthene	1	1	0.35 U	0.36 U	0.36 U	380 UJ	0.36 UJ	0.37 UJ	**0.64 J**	0.39 UJ	0.37 U	**15 J**	0.35 U	0.35 U	**4 D**	**13 D**	0.37 U
Benzo[k]fluoranthene	0.8	1	0.35 U	0.36 U	0.36 U	380 UJ	0.36 UJ	0.37 UJ	0.39 UJ	0.39 UJ	**0.065 J**	20 UJ	0.35 U	0.35 U	**1.9 J**	**4.4 J**	0.37 U
Chrysene	1	1	0.35 U	0.36 U	0.36 U	**110 J**	0.36 U	**0.099 J**	**0.77**	0.39 U	**0.095 J**	**22**	0.35 U	0.35 U	**8.1 D**	**27 D**	0.37 U
Dibenz[a,h]anthracene	0.33	0.33	0.35 U	0.36 U	0.36 UJ	380 UJ	0.36 UJ	0.37 UJ	**0.1 J**	0.39 UJ	0.37 U	20 UJ	0.35 U	0.35 U	**0.15 J**	**0.45 J**	0.37 U
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.35 U	0.36 U	0.36 UJ	380 UJ	0.36 UJ	**0.038 J**	**0.25 J**	0.39 UJ	0.37 U	**3.1 J**	0.35 U	0.35 U	**0.68 J**	**2.7 J**	0.37 U
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6 D**	**23 D**	0.37 U
Bis(2-ethylhexyl)phthalate	NE	NE	0.35 U	0.36 U	0.36 U	380 U	0.36 U	0.37 U	0.39 U	0.39 U	0.37 U	20 U	0.35 U	0.35 U	0.76 U	1.9 U	0.37 U
Carbazole	NE	NE	0.35 U	0.36 U	0.36 U	380 U	0.36 U	0.37 U	0.39 U	0.39 U	0.37 U	20 U	0.35 U	0.35 U	0.76 U	1.9 U	0.37 U
Dibenzofuran	7	14	0.35 U	0.36 U	0.36 U	380 U	0.36 U	0.37 U	0.39 U	0.39 U	0.37 U	**3.7 J**	0.35 U	0.35 U	**1.3**	**4.6**	0.37 U
Di-n-octyl phthalate	NE	NE	0.35 U	0.36 U	0.36 U	380 U	0.36 U	0.37 U	0.39 U	0.39 U	0.37 U	20 U	0.35 U	0.35 U	0.76 UJ	1.9 U	0.37 U
Nitrophenol,4-	NE	NE	1.7 U	1.8 U	1.8 U	1800 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	99 U	1.7 U	1.7 U	1.9 U	4.8 U	0.94 U
Phenol	0.33	100	0.35 UJ	0.36 UJ	0.36 UJ	380 UJ	0.36 UJ	0.37 UJ	0.39 UJ	0.39 UJ	0.37 U	20 UJ	0.35 UJ	0.35 UJ	0.76 U	1.9 U	0.37 U
Total SVOCs	NE	NE	**ND**	**ND**	**0.054**	**5329**	**0.15**	**1.692**	**13.164**	**ND**	**1.83**	**590.8**	**0.341**	**ND**	**565.63**	**1458.45**	**1.3**
PCBs (mg/kg)																	
Aroclor 1254	NE	NE	0.018 U	0.018 U	0.019 U	0.02 U	0.019 U	0.019 U	0.02 U	0.02 U	**0.0063 J**	0.021 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U
Aroclor 1260	NE	NE	0.018 U	0.018 U	0.019 U	0.02 U	0.019 U	0.019 U	0.02 U	0.02 U	0.019 U	0.021 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U
Metals (mg/kg)																	
Aluminum	NE	NE	**6650**	**4930**	**9260**	**5970**	**1140**	**14300**	**3600**	**15700**	**8680**	**5370**	**6050**	**4990**	**6720**	**7240**	**20600**
Antimony	NE	NE	1.5 UJ	1.4 UJ	1.2 UJ	1.6 UJ	0.39 UJ	1.5 UJ	1.2 UJ	1.5 UJ	1.5 UJ	1.1 UJ	1.3 UJ	1 UJ	**2.25 J**	6.91 UJ	**50.5 J**
Arsenic	13	16	1.6 U	1.5 U	**11.2**	1.7 U	0.41 U	1.6 U	1.3 U	1.6 U	1.6 U	**5.2**	1.4 U	1.1 U	**0.629 J**	1.15 U	1.13 U
Barium	350	350	**38.8**	**41.8**	**118**	**50.4**	**11.8**	**154**	**27.3**	**215**	**117**	**45.9**	**69.1**	**37.2**	**70**	**77.5**	**254**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	Duplicate of: PS-B15 (6-8) 8/6/2004	PS-B15 (10-12) 8/6/2004	PS-B15 (16-18) 8/6/2004	PS-B16 (8-10) 8/3/2004	PS-B16 (14-16) 8/3/2004	PS-B16 (20-22) 8/3/2004	PS-B17 (10-12) 8/2/2004	PS-B17 (20-22) 8/2/2004	PS-B18 (8-10) 7/31/2004	PS-B19 (6-7) 8/6/2004	PS-B19 (10-12) 8/6/2004	PS-B19 (18-20) 8/6/2004	PS-B20 (15-17) 2/4/2006	PS-B20 (19-21) 2/4/2006	PS-B20 (27-28) 2/4/2006
Beryllium	7.2	14	0.67 U	0.63 U	0.53 U	0.7 U	0.17 U	**0.7**	0.55 U	**0.82**	0.67 U	0.5 U	0.58 U	0.44 U	0.58 UJ	0.58 UJ	**1.02 J**
Cadmium	2.5	2.5	1.3 U	1.3 U	1.1 U	1.4 U	0.34 U	1.3 U	1.1 U	1.3 U	1.3 U	1 U	1.2 U	0.89 U	0.566 U	0.576 U	**0.042 J**
Calcium	NE	NE	**1020 J**	**1030 J**	**3810 J**	**1310**	**1000**	**2870**	**1380**	**3180**	**1580**	**1390 J**	**2860 J**	**4370 J**	**2140**	**2830**	**2210**
Chromium	NE	NE	**29.4**	**17.6**	**23.2**	**21.3**	**2.9**	**37.2**	**12.8**	**54.2**	**27.2**	**20.1**	**14.1**	**12.2**	**20.6**	**22.5**	**44.6**
Cobalt	NE	NE	**9.3**	**4.7**	**9.2**	**6.4**	**1.3**	**14.2**	**5.3**	**13.2**	**8.4**	**6.7**	**6.6**	**4.6**	**7.59 J**	**10.3 J**	**20.7 J**
Copper	50	270	**27.1**	**13.7**	**22.2**	**16.1 J**	**3.9 J**	**30.1 J**	**16.2 J**	**31.1 J**	**21.9 J**	**17.7**	**18.4**	**16.7**	**27.9 J**	**20.5 J**	**27.7 J**
Iron	NE	NE	**21300**	**8710**	**19000**	**12200**	**2270**	**25800**	**23500**	**28600**	**16400**	**25100**	**12200**	**9360**	**13000**	**13300**	**38800**
Lead	63	400	**2.5**	**2.5**	**4.6**	**5.4**	**0.58**	**15.2**	**15.6**	**15.6**	**5.6**	**20.8**	**3**	**1.9**	**3.02**	**6.12**	**9.44**
Magnesium	NE	NE	**2020**	**2030**	**5700**	**2900**	**784**	**7690**	**1640**	**9570**	**3850**	**1980**	**3570**	**2800**	**3750**	**4240**	**10100**
Manganese	1600	2000	**367**	**75.2**	**252**	**80.3**	**36.2**	**282**	**168**	**449**	**123**	**146**	**177**	**172**	**146**	**194**	**707**
Mercury	NE	NE	0.012 U	0.011 U	0.014 U	0.012 U	0.01 U	0.014 U	**0.022**	0.014 U	0.015 U	0.011 U	0.011 U	0.012 U	0.007 UJ	**0.009 J**	0.007 UJ
Nickel	30	140	**17.4**	**11.6**	**19.2**	**15.1 J**	**2.8 J**	**34.7 J**	**11.6 J**	**38.8 J**	**20.5 J**	**12.8**	**13.8**	**10.8**	**15.2 J**	**15.4 J**	**31.1 J**
Potassium	NE	NE	**1420 J**	**1550 J**	**5150 J**	**2100 J**	**331 J**	**10100 J**	**644 J**	**9260 J**	**3930 J**	**1050 J**	**2490 J**	**1110 J**	**3630 J**	**3700 J**	**16100 J**
Selenium	3.9	36	2.1 U	2 U	1.7 U	2.3 U	0.54 U	2.1 U	1.8 U	2.1 U	2.1 U	1.6 U	1.9 U	1.4 U	1.2 U	1.2 U	**2.32 J**
Silver	2	36	0.43 U	0.4 U	0.34 U	0.45 U	0.11 U	0.42 U	0.35 U	0.43 U	0.43 U	0.32 U	0.37 U	0.28 U	1.13 U	1.15 U	1.13 U
Sodium	NE	NE	**197 J**	**165 J**	**193 J**	**141 J**	**57.5 J**	**195 J**	**98.4 J**	**229 J**	**282 J**	**140 J**	**156 J**	**297 J**	**191 J**	**184 J**	566 UJ
Thallium	NE	NE	2.6 U	2.5 U	2.1 U	2.8 U	0.67 U	2.6 U	2.2 U	2.6 U	2.7 U	2 U	2.3 U	1.8 U	1.13 U	1.15 U	1.13 U
Vanadium	NE	NE	**34.9**	**23.2**	**32.2**	**21.5**	**4.7**	**46.1**	**22.3**	**50.7**	**31.6**	**27.6**	**21.4**	**17.2**	**28.4**	**30.6**	**62.1**
Zinc	109	2200	**26.7**	**20.4**	**38.7**	**46.3 J**	**4.5 J**	**73.8 J**	**25.9 J**	**66.5 J**	**37.6 J**	**27.8**	**27.8**	**16.1**	**35.5**	**37.9**	**83.9**
Cyanide (mg/kg)																	
Cyanide, Total	27	27	0.55 U	0.529 U	0.555 U	0.574 U	0.551 U	0.571 U	0.581 U	0.581 U	0.573 U	0.616 U	0.528 U	0.529 U	0.577 U	0.576 U	0.566 U

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: / Sample Depth: / Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-B21 (11-13) 2/4/2006	PS-B21 (13-15) 2/4/2006	PS-B22 (9-11) 2/11/2006	PS-B22 (13-15) 2/11/2006	PS-B22 (17-19) 2/11/2006	PS-B23 (7-9) 2/11/2006	PS-B23 (13-15) 2/11/2006	PS-B24 (15-17) 2/23/2006	PS-B24 (23-25) 2/23/2006	PS-B24 (24) 2/23/2006	PS-B24 (29-31) 2/23/2006	PS-MW1 (6-8) 7/27/2004	PS-MW1 (10-12) 7/27/2004	PS-MW1 (20-22) 7/28/2004	PS-MW2 (6-8) 8/2/2004	PS-MW2 (14-16) 8/2/2004	PS-MW2 (16-18) 8/2/2004	PS-MW2 (20-22) 8/2/2004
VOCs (mg/kg)																				
Benzene	0.06	2.9	0.76 U	0.79 U	2.9 U	0.03 U	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Toluene	0.7	100	0.76 U	0.79 U	2.9 U	**0.2**	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Ethylbenzene	1	30	0.76 U	0.79 U	**1.8 J**	**0.15**	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Xylene, m,p-	NE	NE	1.5 U	1.6 U	**2.5 J**	**0.6**	0.057 U	0.058 U	0.058 U	1.6 U	0.057 U	0.055 U	0.06 U	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	0.76 U	0.79 U	**3.3**	**0.29**	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Acetone	0.05	100	3.8 UJ	4 UJ	15 UJ	0.24 UJ	0.14 U	0.15 U	0.14 U	4 UJ	0.14 UJ	0.14 UJ	0.15 UJ	0.011 UJ	0.011 UJ	0.013 UJ	0.06 UJ	0.012 UJ	0.021 UJ	0.012 UJ
Butanone,2-	0.12	100	3.8 U	4 U	15 U	0.15 UJ	**0.026 J**	0.15 UJ	0.14 U	4 UJ	0.14 U	0.14 UJ	0.15 UJ	0.011 UJ	0.011 UJ	0.013 UJ	0.013 U	0.012 U	0.011 U	0.012 U
Carbon disulfide	NE	NE	0.76 UJ	0.79 UJ	2.9 U	**0.0039 J**	0.028 U	0.029 U	0.029 U	0.79 UJ	0.029 UJ	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Chloroform	0.37	10	0.76 U	0.79 U	2.9 U	0.03 U	0.028 UJ	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Dichloroethane,1,2-	0.02	2.3	0.76 U	0.79 U	2.9 U	0.03 U	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Dichloroethene, cis-1,2-	0.25	59	0.76 U	0.79 U	2.9 U	0.03 U	0.028 UJ	0.029 UJ	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Isopropyl benzene	NE	NE	0.76 U	0.79 U	**1.5 J**	**0.049**	0.028 UJ	0.029 U	0.029 UJ	0.79 U	0.029 U	0.027 U	0.03 U	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	0.76 U	0.79 U	2.9 U	**0.0063 J**	0.028 UJ	0.029 UJ	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	0.76 U	0.79 U	2.9 U	**0.011 J**	0.028 U	0.029 U	0.029 U	0.79 UJ	0.029 U	0.027 U	0.03 U	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	0.76 UJ	0.79 UJ	2.9 UJ	**0.014 J**	0.028 U	0.029 U	0.029 U	0.79 UJ	0.029 UJ	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.013 U	0.006 U	0.006 U	0.006 U
Styrene	NE	NE	0.76 U	0.79 U	2.9 U	0.03 U	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Tetrachloroethene	1.3	5.5	0.76 UJ	0.79 UJ	2.9 UJ	0.03 U	0.028 U	0.029 U	0.029 U	0.79 UJ	0.029 U	0.027 UJ	0.03 UJ	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Trichloroethene	0.47	10	0.76 UJ	0.79 UJ	2.9 U	0.03 U	0.028 U	0.029 U	0.029 U	0.79 U	0.029 U	0.027 U	0.03 U	0.006 U	0.006 U	0.007 U	0.006 U	0.006 U	0.006 U	0.006 U
Total VOCs	NE	NE	**ND**	**ND**	**9.1**	**1.3242**	**0.026**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
SVOCs (mg/kg)																				
Acenaphthene	20	100	0.4 U	**2.7**	**0.45**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 UJ	0.37 UJ	0.37 UJ
Acenaphthylene	100	100	0.4 U	**0.29 J**	**2.5 J**	0.39 U	0.38 U	0.39 U	0.39 UJ	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**1.9 J**	0.37 UJ	0.37 UJ
Anthracene	100	100	0.4 U	**8.6 D**	**2.9 J**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**1.3 J**	0.37 U	0.37 U
Benzo[g,h,i]perylene	100	100	0.4 U	**1.3 J**	**0.59 J**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**3.3**	0.37 U	0.37 U
Fluoranthene	100	100	**0.11 J**	**25 D**	**4.3 D**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**3.7**	0.37 U	0.37 U
Fluorene	30	100	0.4 U	**10 D**	**2.4 J**	0.39 U	0.38 U	0.39 U	0.39 UJ	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**0.31 J**	0.37 U	0.37 U
Methylnaphthalene,2-	NE	NE	0.4 U	**4.9**	**0.19 J**	0.39 U	0.38 U	0.39 U	0.39 U	**0.12 J**	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**0.3 J**	0.37 UJ	0.37 UJ
Naphthalene	12	100	0.4 U	**11 D**	**2.4 J**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**0.53 J**	**0.07 J**	0.37 UJ
Phenanthrene	100	100	0.4 U	**40 D**	**7.2 D**	**0.14 J**	**0.11 J**	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	**0.1 J**	**3**	0.37 U	0.37 U
Pyrene	100	100	**0.14 J**	**18 D**	**8.8 D**	**0.081 J**	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**7.6**	0.37 U	0.37 U
Benz[a]anthracene	1	1	**0.084 J**	**9.8 D**	**5.2 D**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**3.8**	0.37 U	0.37 U
Benzo[a]pyrene	1	1	0.4 U	**5.9 D**	**7.5 D**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**3.3**	0.37 U	0.37 U
Benzo[b]fluoranthene	1	1	0.4 U	**7.6 D**	**5.7 D**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**5.8 J**	0.37 UJ	0.37 U
Benzo[k]fluoranthene	0.8	1	0.4 U	**3.3 J**	**2.5 J**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 UJ	0.37 UJ	0.37 UJ
Chrysene	1	1	0.4 U	**8 D**	**5.3 D**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**4.8**	0.37 U	0.37 U
Dibenz[a,h]anthracene	0.33	0.33	0.4 U	**0.2 J**	**0.23 J**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**1.3 J**	0.37 UJ	0.37 U
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.4 U	**1.3 J**	0.39 U	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UR	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**2.6**	0.37 UJ	0.37 U
Biphenyl,1,1-	NE	NE	0.4 U	**1.3**	**0.95**	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	0.4 U	0.83 U	**0.13 J**	0.39 U	**0.079 J**	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	**0.47 J**	0.37 U	**0.051 J**
Carbazole	NE	NE	0.4 U	**4.3**	0.39 U	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 U	0.37 U	0.37 U
Dibenzofuran	7	14	0.4 U	**6.6 D**	**0.2 J**	0.39 U	0.38 U	0.39 U	0.39 UJ	0.42 U	0.38 UJ	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 U	0.37 U	0.37 U
Di-n-octyl phthalate	NE	NE	0.4 U	0.83 UJ	0.39 U	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 U	0.37 U	0.37 U
Nitrophenol,4-	NE	NE	1 U	2.1 U	0.97 UR	0.98 UJ	0.95 UJ	0.97 UJ	0.97 UJ	1 U	0.95 UJ	0.94 U	1 U	1.8 U	1.8 U	2.1 U	2 U	7.3 U	1.8 U	1.8 U
Phenol	0.33	100	0.4 U	0.83 U	0.39 UR	0.39 U	0.38 U	0.39 U	0.39 U	0.42 U	0.38 U	0.37 U	0.4 U	0.37 U	0.37 U	0.43 U	0.41 U	1.5 UJ	0.37 UJ	0.37 UJ
Total SVOCs	NE	NE	**0.334**	**170.09**	**59.44**	**0.221**	**0.189**	**ND**	**ND**	**0.12**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.1**	**44.01**	**0.07**	**0.051**
PCBs (mg/kg)																				
Aroclor 1254	NE	NE	0.021 U	0.021 U	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.021 U	0.019 U	0.019 U	0.02 U	0.019 U	0.019 U	0.022 U	0.022 U	0.02 U	0.019 U	0.02 U
Aroclor 1260	NE	NE	0.021 U	0.021 U	0.02 U	0.02 U	0.019 U	0.02 U	0.02 U	0.021 U	0.019 U	0.019 U	0.02 U	0.019 U	0.019 U	0.022 U	0.022 U	0.02 U	0.019 U	0.02 U
Metals (mg/kg)																				
Aluminum	NE	NE	**11100**	**10600**	**9220**	**15600**	**17200**	**5350**	**4840**	**8300**	**22000**	**22800**	**28200**	**7200**	**4970**	**12000**	**11900**	**8470**	**3660**	**5880**
Antimony	NE	NE	7.33 UJ	7.61 UJ	7.07 UJ	7.15 UJ	6.87 UJ	6.9 UJ	6.96 UJ	7.63 UJ	**10.2 J**	6.85 UJ	7.14 UJ	1.5 UJ	1.4 UJ	1.7 UJ	1.2 UJ	1.3 UJ	1.3 UJ	1.3 UJ
Arsenic	13	16	**1.52**	**1.85**	**1.58**	**5.36**	1.15 U	1.15 U	1.16 U	1.3 U	1.13 U	1.14 U	1.19 U	1.6 U	1.5 U	1.9 U	1.3 U	**3.8**	1.4 U	1.4 U
Barium	350	350	**97.2**	**94.2**	**99.4**	**221**	**221**	**33.3**	**57.2**	**96.9**	**271**	**273**	**314**	**62**	**47.2**	**119**	**116**	**82.1**	**34**	**78.7**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location:			PS-B21	PS-B21	PS-B22	PS-B22	PS-B22	PS-B23	PS-B23	PS-B24	PS-B24	PS-B24	PS-B24	PS-MW1	PS-MW1	PS-MW1	PS-MW2	PS-MW2	PS-MW2	PS-MW2
Sample Depth:	UNRESTRICTED	RESIDENTIAL	(11-13)	(13-15)	(9-11)	(13-15)	(17-19)	(7-9)	(13-15)	(15-17)	(23-25)	(24)	(29-31)	(6-8)	(10-12)	(20-22)	(6-8)	(14-16)	(16-18)	(20-22)
Sample Date:	USE SCOs	USE SCOs	2/4/2006	2/4/2006	2/11/2006	2/11/2006	2/11/2006	2/11/2006	2/11/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006	7/27/2004	7/27/2004	7/28/2004	8/2/2004	8/2/2004	8/2/2004	8/2/2004
Beryllium	7.2	14	0.61 UJ	0.63 UJ	**0.589 J**	0.596 UJ	**0.771 J**	0.59 UJ	0.59 UJ	0.64 UJ	**0.628 J**	0.57 UJ	**0.753 J**	0.66 U	0.61 U	0.76 U	**0.56**	0.57 U	0.57 U	0.59 U
Cadmium	2.5	2.5	0.611 U	0.635 U	0.589 U	0.596 U	0.57 U	0.575 U	0.58 U	0.636 U	0.566 U	0.571 U	0.595 U	1.3 U	1.2 U	1.5 U	1.1 U	1.1 U	1.1 U	1.2 U
Calcium	NE	NE	**1420**	**1680**	**1850**	**1900**	**2170**	**946**	**2530**	**1660**	**2140**	**2000**	**1580**	**1540**	**3100**	**2710**	**2290**	**2280**	**2900**	**2820**
Chromium	NE	NE	**28.1**	**23.2**	**35**	**33.1**	**48.4**	**22.2**	**13.3**	**23.4**	**58**	**55.8**	**73.2**	**22.4**	**12.3**	**52.9**	**30.4**	**35.2**	**9.6**	**17.6**
Cobalt	NE	NE	**3.14 J**	**3.51 J**	**7.72 J**	**18 J**	**20.3 J**	**9.05 J**	**6.45 J**	**11.3 J**	**22.5 J**	**25.8 J**	**27.2 J**	**6.1**	**4.3**	**8.7**	**12.9**	**7.7**	**9.2**	**8.1**
Copper	50	270	**17.1 J**	**19.4 J**	**27.9 J**	**37.5 J**	**38 J**	**20.7 J**	**17.2 J**	**29.5 J**	**45.2 J**	**52.6 J**	**61.5 J**	**19.2 J**	**13.3 J**	**19.6 J**	**25.9 J**	**38.8 J**	**13.5 J**	**19.8 J**
Iron	NE	NE	**14900**	**13300**	**17000**	**29800**	**26600**	**11700**	**9760**	**14000**	**27500**	**29800**	**37700**	**18300**	**9460**	**21500**	**23900**	**20400**	**7960**	**12200**
Lead	63	400	**15.4**	**41.8**	**2.59**	**39.5**	**9.93**	0.575 U	**0.758**	**17.2**	**14.5**	**11.3 J**	**7.43 J**	**7.1**	**3.5**	**8**	**5.7**	**86.1**	**1.9**	**4.4**
Magnesium	NE	NE	**1470**	**1460**	**2330**	**7880**	**9620**	**1150**	**2770**	**4130**	**12100**	**12900**	**14500**	**3110**	**2990**	**7130**	**5770**	**2090**	**2490**	**3670**
Manganese	1600	2000	**91.8**	**121**	**320**	**220**	**358**	**667**	**102**	**185**	**279**	**302**	**438**	**147**	**125**	**286**	**617**	**142**	**98**	**162**
Mercury	NE	NE	**0.065 J**	**1.1 J**	**0.015 J**	0.012 UJ	0.011 UJ	**0.008 J**	0.012 UJ	0.013 UJ	0.012 UJ	0.011 UJ	0.012 UJ	0.013 U	0.012 U	0.015 U	0.017 U	**0.63**	0.011 U	0.011 U
Nickel	30	140	**9.36 J**	**6.99 J**	**12.6 J**	**25.4 J**	**43 J**	**10 J**	**9.1 J**	**21.2 J**	**39.3 J**	**47.2 J**	**56.7 J**	**16.4**	**10.6**	**38**	**25.1 J**	**21.6 J**	**13.1 J**	**19.5 J**
Potassium	NE	NE	**501 J**	**539 J**	**875 J**	**16700 J**	**19600 J**	**600 J**	**2310 J**	**3920 J**	**11900 J**	**13100 J**	**16100 J**	**2590 J**	**1650 J**	**6640 J**	**5430 J**	**875 J**	**1210 J**	**3030 J**
Selenium	3.9	36	1.2 U	1.3 U	**1.46 J**	**1.68 J**	**1.29 J**	1.2 U	1.2 U	**1.5 J**	**2.11 J**	**2.51 J**	**3.33 J**	2.1 U	1.9 U	2.4 U	1.7 U	1.8 U	1.8 U	1.9 U
Silver	2	36	1.22 U	1.27 U	**1.4 J**	**2.42 J**	**1.48 J**	1.2 U	**1.18 J**	1.27 UJ	1.13 UJ	1.14 UJ	1.19 UJ	0.42 U	0.39 U	0.49 U	0.34 U	0.36 U	0.36 U	0.38 U
Sodium	NE	NE	**70.5 J**	**121 J**	**676 J**	596 UJ	575 UJ	588 UJ	585 UJ	**711 J**	577 UJ	571 UJ	601 UJ	**768 J**	**255 J**	**219**	**326 J**	**114 J**	**164 J**	**138 J**
Thallium	NE	NE	1.22 U	1.27 U	1.18 UJ	1.19 UJ	1.15 UJ	1.15 UJ	1.16 UJ	**1.28 J**	1.13 U	1.14 U	1.2 U	2.6 U	2.4 U	3 U	2.1 U	2.3 U	2.3 U	2.3 U
Vanadium	NE	NE	**26.9 J**	**25.9 J**	**54.9**	**47.7**	**62.1**	**19.2**	**21.3**	**31.1**	**82.5**	**84.2**	**94.8**	**25.5**	**17.7**	**33**	**40.4**	**36.6**	**14.4**	**23.5**
Zinc	109	2200	**34.3**	**49.1**	**33.3**	**120**	**90.7**	**21.6**	**22.4**	**49.3**	**82.4**	**92.3**	**104**	**50.9**	**19.6**	**44.6**	**59.8 J**	**104 J**	**15.4 J**	**26.9 J**
Cyanide (mg/kg)																				
Cyanide, Total	27	27	0.611 U	0.635 U	0.589 U	0.596 U	0.573 U	0.586 U	0.585 U	0.636 U	0.577 U	0.571 U	0.601 U	**0.0403 J**	0.542 UJ	0.66 UJ	0.62 U	**3.35**	0.545 U	0.56 U

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-MW3 (5-6) 7/30/2004	PS-MW3 (10-12) 7/30/2004	PS-MW3 (14-16) 7/30/2004	PS-MW4 (6-8) 7/30/2004	PS-MW4 (8-10) 7/30/2004	PS-MW4 (14-16) 7/30/2004	PS-TP1 (3-4) 7/6/2004	PS-TP1a (4-5) 7/6/2004	PS-TP1a (6-7) 7/6/2004	PS-TP2A (2_5-3) 7/7/2004	PS-TP2B (3) 7/7/2004	PS-TP3 (7-8) 7/8/2004	PS-TP3A (2_5-3_5) 7/8/2004
VOCs (mg/kg)															
Benzene	0.06	2.9	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	**19 J**	14 U	0.55 U	0.006 U
Toluene	0.7	100	0.57 U	**0.0007 J**	**0.001 J**	0.006 U	0.006 U	0.006 U	0.007 U	**0.18 J**	**8.7**	**42**	**2 J**	0.55 U	**0.0009 J**
Ethylbenzene	1	30	**0.23 J**	**0.005 J**	**0.008**	0.006 U	0.006 U	0.006 U	0.007 U	**0.48 J**	**25**	**720**	**42**	**0.25 J**	0.006 U
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	**0.28 J**	**0.007**	**0.014**	0.006 U	0.006 U	0.006 U	0.007 U	**1.2**	**150**	**1200**	**42**	**0.13 J**	0.006 U
Acetone	0.05	100	1.4 UJ	0.013 UJ	0.013 UJ	0.011 UJ	0.011 UJ	0.012 UJ	0.018 UJ	1.4 U	7.6 U	89 U	34 U	1.4 U	0.012 UJ
Butanone,2-	0.12	100	**0.46 J**	0.013 UJ	0.013 UJ	0.011 UJ	0.011 UJ	0.012 UJ	0.013 U	0.58 UJ	3 UJ	36 U	14 U	0.55 UJ	0.012 U
Carbon disulfide	NE	NE	0.57 UJ	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Chloroform	0.37	10	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Dichloroethane,1,2-	0.02	2.3	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Dichloroethene, cis-1,2-	0.25	59	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.01 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Styrene	NE	NE	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	**0.42 J**	**65**	36 U	14 U	0.55 U	0.006 U
Tetrachloroethene	1.3	5.5	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Trichloroethene	0.47	10	0.57 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.007 U	0.58 U	3 U	36 U	14 U	0.55 U	0.006 U
Total VOCs	NE	NE	**0.97**	**0.0127**	**0.023**	**ND**	**ND**	**ND**	**ND**	**2.28**	**248.7**	**1981**	**86**	**0.38**	**0.0009**
SVOCs (mg/kg)															
Acenaphthene	20	100	**4.8 J**	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	**0.82 J**	79 U	**2400 J**	**1600 J**	**7.9**	1.5 U
Acenaphthylene	100	100	**9 J**	0.41 U	0.41 U	0.36 U	**0.14 J**	1.6 U	**0.26 J**	**3.4 J**	**67 J**	3700 U	1800 U	**0.84 J**	**5.5**
Anthracene	100	100	**25**	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	**0.3 J**	**2 J**	**35 J**	**1200 J**	**860 J**	**4.2**	**3.6**
Benzo[g,h,i]perylene	100	100	**5.1 J**	0.41 U	0.41 U	0.36 U	**0.18 J**	1.6 U	**0.42 J**	**0.45 J**	79 U	3700 U	1800 U	**0.78 J**	**10 J**
Fluoranthene	100	100	**30**	0.41 U	0.41 U	**0.12 J**	**0.31 J**	1.6 U	**0.7 J**	**2.2 J**	**41 J**	**1500 J**	**920 J**	**4.6**	**6.7**
Fluorene	30	100	**25**	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	**2.3 J**	**39 J**	**1400 J**	**920 J**	**3.9**	1.5 U
Methylnaphthalene,2-	NE	NE	**6.4 J**	0.41 U	0.41 U	0.36 U	**0.27 J**	1.6 U	**0.29 J**	**6.3**	**170**	**6100**	**3600**	**7.8**	**1.2 J**
Naphthalene	12	100	**79**	**0.16 J**	**0.17 J**	0.36 U	**0.16 J**	1.6 U	**0.59 J**	**15**	**570**	**14000**	**9000**	**2.3 J**	**1.6**
Phenanthrene	100	100	**92**	**0.064 J**	0.41 U	**0.063 J**	**0.36 J**	1.6 U	**0.56 J**	**6.8**	**120**	**4500**	**3200**	**14**	**5.6**
Pyrene	100	100	**47**	0.41 U	0.41 U	**0.1 J**	**0.4 J**	**0.26 J**	**1.1**	**4**	**71 J**	**2500 J**	**1800 J**	**8**	**11**
Benz[a]anthracene	1	1	**17**	0.41 U	0.41 U	**0.069 J**	**0.18 J**	1.6 U	**0.47 J**	**1.4 J**	**24 J**	**880 J**	**570 J**	**2.7 J**	**6.6**
Benzo[a]pyrene	1	1	**14 J**	0.41 U	0.41 U	**0.058 J**	**0.21 J**	1.6 U	**0.45 J**	**1 J**	**17 J**	**540 J**	**440 J**	**1.9 J**	**8.8**
Benzo[b]fluoranthene	1	1	**12 J**	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	**0.46 J**	3.8 U	79 U	3700 U	1800 U	**0.8 J**	**6.3**
Benzo[k]fluoranthene	0.8	1	15 UJ	0.41 U	0.41 U	**0.064 J**	**0.21 J**	1.6 U	**0.43 J**	**0.59 J**	79 U	3700 U	**270 J**	**1.2 J**	**6.6**
Chrysene	1	1	**17**	0.41 U	0.41 U	**0.067 J**	**0.24 J**	1.6 U	**0.61 J**	**1.4 J**	**25 J**	**920 J**	**540 J**	**2.7 J**	**8.6**
Dibenz[a,h]anthracene	0.33	0.33	15 U	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	**0.15 J**	3.8 U	79 U	3700 U	1800 U	2.9 U	**3.5 J**
Indeno[1,2,3-cd]pyrene	0.5	0.5	**3.6 J**	0.41 U	0.41 U	0.36 U	**0.13 J**	1.6 U	**0.37 J**	3.8 U	79 U	3700 U	1800 U	**0.55 J**	**8.1 J**
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	15 U	0.41 U	0.41 U	0.36 U	**0.28 J**	**0.46 J**	0.84 U	3.8 U	79 U	3700 U	1800 U	2.9 U	1.5 U
Carbazole	NE	NE	15 U	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	3.8 U	79 U	3700 U	1800 U	2.9 U	1.5 U
Dibenzofuran	7	14	15 U	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	3.8 U	79 U	3700 U	1800 U	2.9 U	1.5 U
Di-n-octyl phthalate	NE	NE	15 U	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	3.8 U	79 U	3700 U	1800 U	2.9 U	1.5 U
Nitrophenol,4-	NE	NE	71 U	2 U	2 U	1.7 U	3.6 U	7.7 U	4.1 U	18 U	380 U	18000 U	8600 U	14 U	7.3 UJ
Phenol	0.33	100	15 U	0.41 U	0.41 U	0.36 U	0.73 U	1.6 U	0.84 U	3.8 U	79 U	3700 U	1800 U	2.9 U	1.5 U
Total SVOCs	NE	NE	**386.9**	**0.224**	**0.17**	**0.541**	**3.07**	**0.72**	**7.16**	**47.66**	**1179**	**35940**	**23720**	**64.17**	**93.7**
PCBs (mg/kg)															
Aroclor 1254	NE	NE	0.019 U	0.021 U	0.021 U	0.019 U	0.019 U	0.021 U	0.022 U	0.02 U	0.021 U	0.048 U	0.046 U	0.019 U	0.019 U
Aroclor 1260	NE	NE	0.019 U	0.021 U	0.021 U	0.019 U	0.019 U	0.021 U	0.022 U	0.02 U	0.021 U	0.048 U	0.046 U	0.019 U	0.019 U
Metals (mg/kg)															
Aluminum	NE	NE	**9170**	**11300**	**17400**	**5860**	**8190**	**4340**	**11000**	**8130**	**4330**	**2620**	**2840**	**4260**	**5320**
Antimony	NE	NE	1.2 UJ	1.7 UJ	1.6 UJ	1.1 UJ	1.3 UJ	1.5 UJ	1.4 UJ	1.3 UJ	1.2 UJ	1.8 UJ	1.9 UJ	1.6 UJ	1.5 UJ
Arsenic	13	16	**1.4**	1.8 U	1.7 U	**1.3**	**3**	1.6 U	**3.7 J**	**1.5 J**	**2 J**	**62.2 J**	**53.9 J**	1.7 U	**20.9 J**
Barium	350	350	**62.7**	**125**	**199**	**35.8**	**54.5**	**38.7**	**137**	**90.6**	**43.2**	**48.6**	**78**	**20**	**116**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-MW3 (5-6) 7/30/2004	PS-MW3 (10-12) 7/30/2004	PS-MW3 (14-16) 7/30/2004	PS-MW4 (6-8) 7/30/2004	PS-MW4 (8-10) 7/30/2004	PS-MW4 (14-16) 7/30/2004	PS-TP1 (3-4) 7/6/2004	PS-TP1a (4-5) 7/6/2004	PS-TP1a (6-7) 7/6/2004	PS-TP2A (2_5-3) 7/7/2004	PS-TP2B (3) 7/7/2004	PS-TP3 (7-8) 7/8/2004	PS-TP3A (2_5-3_5) 7/8/2004
Beryllium	7.2	14	0.52 U	0.74 U	**0.88**	0.49 U	0.58 U	0.65 U	**0.68**	0.57 U	0.51 U	0.79 U	0.73 U	0.69 U	0.64 U
Cadmium	2.5	2.5	1 U	1.5 U	1.4 U	0.97 U	1.2 U	1.3 U	1.2 U	1.1 U	1 U	1.6 U	1.5 U	1.4 U	1.3 U
Calcium	NE	NE	**1360**	**3300**	**2370**	**1300**	**12300**	**3940**	**14600 J**	**1900 J**	**1270 J**	**2520 J**	**2230 J**	**1050 J**	**5650 J**
Chromium	NE	NE	**34.5**	**32.3**	**53.4**	**26.3**	**25.4**	**14.5**	**25.3 J**	**20.1 J**	**21.9 J**	**17.2 J**	**23 J**	**23.5 J**	**22.8 J**
Cobalt	NE	NE	**4.7**	**10.2**	**15.2**	**5.8**	**5.7**	**4.5**	**7.5**	**5.4**	**8.1**	**46.6**	**64**	**4.5**	**8.6**
Copper	50	270	**20.8 J**	**26 J**	**31.6 J**	**14.9 J**	**18.4 J**	**15.4 J**	**26.6**	**13**	**13.6**	**298**	**190**	**12.4**	**118**
Iron	NE	NE	**16900**	**21200**	**33500**	**11300**	**16200**	**9130**	**18000**	**11800**	**11900**	**278000**	**140000**	**8430**	**43700**
Lead	63	400	**6**	**7.1**	**13.3**	**4.6**	**32.5**	**19.3**	**95.9**	**9.3**	**2.9**	**1730**	**1350**	**2.5**	**1090**
Magnesium	NE	NE	**2760**	**6500**	**9570**	**1450**	**7200**	**2540**	**2760 J**	**2080 J**	**1620 J**	**976 J**	**4490 J**	**1510 J**	**2790 J**
Manganese	1600	2000	**302**	**293**	**549**	**438**	**205**	**99.7**	**632**	**154**	**200**	**1330**	**821**	**57.3**	**253**
Mercury	NE	NE	0.014 U	0.02 U	0.015 U	0.011 U	**0.077**	**0.022**	**0.15**	**0.016**	**0.024**	**1.4**	**0.73**	0.011 U	**0.73**
Nickel	30	140	**11.8 J**	**25.7**	**47**	**14.9**	**14.3**	**12**	**14.3**	**13**	**12.3**	**74.2**	**240**	**12.4**	**18.2**
Potassium	NE	NE	**1420 J**	**6100 J**	**10200 J**	**453 J**	**657 J**	**1170 J**	**920 J**	**347 J**	**812 J**	**228 J**	**168 J**	**459 J**	**496 J**
Selenium	3.9	36	1.7 U	2.4 U	2.3 U	1.6 U	1.9 U	2.1 U	2 UJ	1.8 UJ	1.6 UJ	**59.4 J**	**19.3 J**	2.2 UJ	2 UJ
Silver	2	36	0.33 U	0.48 U	0.45 U	0.31 U	0.37 U	0.42 U	0.4 U	0.36 U	0.33 U	**1.3**	**0.95**	0.44 U	0.41 U
Sodium	NE	NE	**72.3 J**	**184**	**224**	**121**	**103**	**196**	**182**	**95.5**	**118**	**33.8**	**171**	**82.2**	**116**
Thallium	NE	NE	2.1 U	2.9 U	2.8 U	1.9 U	2.3 U	2.6 U	2.5 U	2.2 U	2 U	3.1 U	2.9 U	2.7 U	2.5 U
Vanadium	NE	NE	**44.2**	**41.2**	**56.9**	**22.3**	**30.6**	**17.3**	**28.4**	**26.3**	**16.9**	**15.2**	**14.3**	**19.9**	**27.4**
Zinc	109	2200	**29.3 J**	**51.5**	**81.5**	**35.6**	**59.3**	**31**	**53.5**	**30**	**20.5**	**409**	**269**	**15.4**	**204**
Cyanide (mg/kg)															
Cyanide, Total	27	27	0.566 U	0.606 UJ	0.624 UJ	**0.239 J**	**0.575 J**	**0.374 J**	**6.81 J**	**0.0954 J**	**0.0342 J**	**142 J**	**14.5 J**	0.534 U	**13.2 J**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: / Sample Depth: / Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	PS-TP4 (2) 7/12/2004	Duplicate of: PS-TP4 (2) 7/12/2004	PS-TP4 (3) 7/12/2004	PS-TP4A (6) 7/12/2004	PS-TP4B (4_5-5_5) 7/13/2004	PS-TP5A (9-10) 7/9/2004	PS-TP5C (3_4-4_5) 7/9/2004	PS-TP5C (7-8) 7/9/2004	PS-TP6A (3-4) 7/9/2004	PS-TP6A (8-9) 7/9/2004	PS-TP6B (1_5-2_5) 7/9/2004	PS-TP7 (3-4) 7/8/2004	PS-TP7 (6-7) 7/8/2004	PS-TP8 (7-8) 7/13/2004	PS-TP9 (7-8) 7/14/2004
VOCs (mg/kg)																	
Benzene	0.06	2.9	0.006 U	0.006 U	0.006 U	0.031 U	0.006 U	0.006 U	**0.016 J**	0.006 U	**0.002 J**	0.012 U	0.006 U	**0.3 J**	0.022 U	0.032 U	**0.015 J**
Toluene	0.7	100	0.006 U	**0.0008 J**	0.006 U	0.031 U	0.006 U	0.006 U	**0.27**	**0.002 J**	**0.009**	**0.004 J**	0.006 U	**0.23 J**	**0.014 J**	0.032 U	**0.036**
Ethylbenzene	1	30	0.006 U	**0.0009 J**	0.006 U	**0.037**	0.006 U	0.006 U	**0.055**	0.006 U	**0.026**	0.012 U	0.006 U	**33**	**0.18**	0.032 U	**0.36**
Xylene, m,p-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	0.26	100	0.006 U	**0.002 J**	0.006 U	**0.019**	0.006 U	0.006 U	**1.9**	0.006 U	**0.034**	0.012 U	0.006 U	**3.7**	**1.1**	**0.009 J**	**1.5**
Acetone	0.05	100	0.005 UJ	0.011 UJ	0.013 UJ	0.063 UJ	0.012 UJ	0.011 UJ	0.11 UJ	0.011 UJ	**0.12 J**	0.048 UJ	0.012 U	3.5 U	0.045 UJ	0.064 UJ	0.05 UJ
Butanone,2-	0.12	100	0.011 UJ	0.011 UJ	0.013 UJ	0.063 UJ	0.012 UJ	0.011 U	0.051 U	0.011 U	**0.049 J**	0.023 U	0.012 U	1.4 U	0.044 U	0.064 UJ	0.05 U
Carbon disulfide	NE	NE	0.006 UJ	0.006 UJ	0.006 UJ	0.031 UJ	0.006 UJ	0.006 U	**0.014 J**	0.006 U	**0.047**	**0.001 J**	0.006 U	1.4 U	0.022 U	0.032 UJ	0.025 U
Chloroform	0.37	10	0.006 U	0.006 U	0.006 U	0.031 U	0.006 U	0.006 U	0.025 U	0.006 U	0.006 U	0.012 U	0.006 U	1.4 U	0.022 U	0.032 U	0.025 U
Dichloroethane,1,2-	0.02	2.3	0.006 U	0.006 U	0.006 U	0.031 U	0.006 U	0.006 U	0.025 U	0.006 U	0.006 U	0.012 U	0.006 U	1.4 U	0.022 U	0.032 U	0.025 U
Dichloroethene, cis-1,2-	0.25	59	0.006 U	**0.001 J**	0.006 U	0.031 U	0.006 U	0.006 U	0.025 U	0.006 U	**0.001 J**	0.012 U	0.006 U	1.4 U	0.022 U	0.032 U	0.025 U
Isopropyl benzene	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.93	62	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	51	0.006 U	0.018 U	0.007 UJ	0.031 U	0.006 U	0.006 U	0.025 U	0.006 U	0.016 U	0.012 U	0.007 U	**0.14 J**	0.022 U	0.032 U	0.025 U
Styrene	NE	NE	0.006 U	0.006 U	0.006 U	0.031 U	0.006 U	0.006 U	**0.59**	0.006 U	**0.015**	0.012 U	0.006 U	1.4 U	**0.41**	0.032 U	**0.46**
Tetrachloroethene	1.3	5.5	**0.002 J**	**0.008**	**0.003 J**	0.031 U	0.006 U	0.006 U	**0.012 J**	0.006 U	**0.004 J**	0.012 U	0.006 U	1.4 U	**0.008 J**	0.032 U	0.025 U
Trichloroethene	0.47	10	0.006 U	0.006 U	0.006 U	0.031 U	0.006 U	0.006 U	0.025 U	0.006 U	0.006 U	0.012 U	0.006 U	1.4 U	0.022 U	0.032 U	0.025 U
Total VOCs	NE	NE	**0.002**	**0.0127**	**0.003**	**0.056**	**ND**	**ND**	**2.857**	**0.002**	**0.307**	**0.005**	**ND**	**37.37**	**1.712**	**0.009**	**2.371**
SVOCs (mg/kg)																	
Acenaphthene	20	100	1.5 U	3 U	0.42 U	**6.5**	0.38 U	**0.56**	**9.9 J**	0.37 U	**4.1 J**	0.76 U	0.8 U	**14 J**	**2.3 J**	**15**	**2.1 J**
Acenaphthylene	100	100	**5.6**	**8.9**	**0.12 J**	**0.85 J**	**0.061 J**	**0.25 J**	**21 J**	0.37 U	**4.5 J**	**0.22 J**	**2.1**	**18**	**7.8 J**	**5.7 J**	**9.6**
Anthracene	100	100	**3.3**	**5.3**	**0.07 J**	**3.9**	0.38 U	**0.66**	**24 J**	0.37 U	**6.5 J**	0.76 U	**0.53 J**	**25**	**7.3 J**	**8.2**	**8.8**
Benzo[g,h,i]perylene	100	100	**8.6**	**11**	**0.18 J**	**0.8 J**	**0.077 J**	**0.21 J**	**4.6 J**	0.37 UJ	16 U	**0.37 J**	**0.62 J**	**7.9 J**	**1.3 J**	**4 J**	**2.8 J**
Fluoranthene	100	100	**3.2**	**4.6**	**0.1 J**	**4.8**	0.38 U	**1.3**	**35**	0.37 U	**8.7 J**	**0.15 J**	**1.8**	**31**	**8.8 J**	**23**	**12**
Fluorene	30	100	1.5 U	**0.98 J**	0.42 U	**3.8**	0.38 U	**0.89**	**31 J**	0.37 U	**9.9 J**	0.76 U	0.8 U	**36**	**8.3 J**	**13**	**9.7**
Methylnaphthalene,2-	NE	NE	**1.2 J**	**1.5 J**	0.42 U	2 U	0.38 U	0.36 U	**170**	0.37 U	**92**	**0.43 J**	**0.56 J**	18 U	**33**	6.7 U	**32**
Naphthalene	12	100	**1.5**	**1.9 J**	0.42 U	**0.7 J**	0.38 U	0.36 U	**150**	0.37 U	**17**	**0.46 J**	**0.89**	**33**	**67**	6.7 U	**54**
Phenanthrene	100	100	**3.1**	**4.4**	**0.11 J**	**13**	0.38 U	**2.9**	**87**	0.37 U	**27**	**0.13 J**	**0.93**	**83**	**28**	**20**	**33**
Pyrene	100	100	**6.6**	**8.7**	**0.15 J**	**7.5**	0.38 U	**2.2**	**63**	0.37 U	**15 J**	**0.29 J**	**3.2**	**54**	**16**	**40**	**21**
Benz[a]anthracene	1	1	**3.1**	**4.4**	**0.078 J**	**2.7**	0.38 U	**0.73**	**22 J**	0.37 U	**6.8 J**	**0.18 J**	**1.4**	**22**	**5.3 J**	**15**	**7.4 J**
Benzo[a]pyrene	1	1	**4.4**	**6.8**	**0.11 J**	**1.9 J**	0.38 U	**0.49**	**12 J**	0.37 U	**3.4 J**	**0.34 J**	**0.74 J**	**15 J**	**3.8 J**	**9.6**	**6 J**
Benzo[b]fluoranthene	1	1	**7 J**	**6.8**	**0.18 J**	**1.9 J**	0.38 U	**0.19 J**	**7.3 J**	0.37 U	16 U	**0.23 J**	**0.77 J**	**8.2 J**	**1.6 J**	**6.3 J**	**2.7 J**
Benzo[k]fluoranthene	0.8	1	1.5 UJ	**4.1**	0.42 UJ	2 UJ	0.38 U	**0.29 J**	**10 J**	0.37 U	**3.3 J**	**0.27 J**	**0.93**	**13 J**	**2.4 J**	**3.4 J**	**3.4 J**
Chrysene	1	1	**4**	**5.9**	**0.1 J**	**2.5**	0.38 U	**0.71**	**25 J**	0.37 U	**7.8 J**	**0.32 J**	**1.9**	**28**	**5.6 J**	**13**	**7.4 J**
Dibenz[a,h]anthracene	0.33	0.33	**2.2**	**2.2 J**	0.42 U	2 U	0.38 U	**0.069 J**	32 U	0.37 UJ	16 U	0.76 UJ	**0.27 J**	**2.4 J**	9.1 U	**1.4 J**	**0.95 J**
Indeno[1,2,3-cd]pyrene	0.5	0.5	**4.9**	**6.7**	**0.12 J**	**0.64 J**	0.38 U	**0.15 J**	**3.7 J**	0.37 UJ	16 U	**0.26 J**	**0.63 J**	**5.9 J**	**0.98 J**	**3.2 J**	**2 J**
Biphenyl,1,1-	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	NE	1.5 U	3 U	0.42 U	2 U	0.38 U	0.36 U	32 U	0.37 U	16 U	0.76 U	0.8 U	18 U	9.1 U	6.7 U	8.3 U
Carbazole	NE	NE	1.5 U	3 U	0.42 U	2 U	0.38 U	0.36 U	32 U	0.37 U	16 U	0.76 U	0.8 U	18 U	9.1 U	6.7 U	8.3 U
Dibenzofuran	7	14	1.5 U	3 U	0.42 U	2 U	0.38 U	0.36 U	32 U	0.37 U	16 U	0.76 U	0.8 U	**4.9 J**	9.1 U	6.7 U	8.3 U
Di-n-octyl phthalate	NE	NE	1.5 U	3 U	0.42 U	2 U	0.38 U	0.36 U	32 U	0.37 U	16 U	0.76 U	0.8 U	18 U	9.1 U	6.7 U	8.3 U
Nitrophenol,4-	NE	NE	7.1 UJ	14 UJ	2 UJ	9.8 UJ	1.8 UJ	1.8 UJ	160 U	1.8 UJ	77 U	3.7 UJ	3.9 UJ	87 U	44 U	33 UJ	40 U
Phenol	0.33	100	1.5 U	3 U	0.42 U	2 U	0.38 U	0.36 U	32 U	0.37 U	16 U	0.76 U	0.8 U	18 U	9.1 U	6.7 U	8.3 U
Total SVOCs	NE	NE	**58.7**	**84.18**	**1.318**	**51.49**	**0.138**	**11.599**	**675.5**	**ND**	**206**	**3.65**	**17.27**	**401.3**	**199.48**	**180.8**	**214.85**
PCBs (mg/kg)																	
Aroclor 1254	NE	NE	0.019 U	0.019 U	0.022 U	0.021 U	0.02 U	0.019 U	2.1 U	0.019 U	0.41 U	0.2 U	0.1 U	12 U	0.019 U	0.021 U	0.021 U
Aroclor 1260	NE	NE	**0.031 NJ**	**0.1 J**	**0.0087 J**	0.021 U	0.02 U	0.019 U	2.1 U	0.019 U	0.41 U	0.2 U	0.1 U	12 U	0.019 U	0.021 U	0.021 U
Metals (mg/kg)																	
Aluminum	NE	NE	**3000**	**2560**	**9580**	**6070**	**7180**	**6570**	**846**	**5040**	**3160**	**11900**	**6000**	**3950**	**6730**	**8460**	**7530**
Antimony	NE	NE	1.5 UJ	1.3 UJ	1.7 UJ	1.2 UJ	1.5 UJ	1.4 UJ	5.1 UJ	1.6 UJ	4.6 UJ	1.3 UJ	1.6 UJ	8.1 UJ	1.3 UJ	1.4 UJ	1.6 UJ
Arsenic	13	16	**9.1 J**	**8 J**	1.8 U	1.3 U	1.6 UJ	1.5 U	**13.3 J**	1.7 U	**22.8 J**	**1.6 J**	**16.7 J**	**33.4 J**	1.4 U	1.5 U	**1.9 J**
Barium	350	350	**81.3**	**66.6**	**79.2**	**48.1**	**44.8**	**61.8**	**74.9**	**25.6**	**86.4**	**80.7**	**99.1**	**105**	**61.1**	**45.2**	**73.6**

Table 9
Subsurface-Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	 UNRESTRICTED USE SCOs	 RESIDENTIAL USE SCOs	PS-TP4 (2) 7/12/2004	Duplicate of: PS-TP4 (2) 7/12/2004	PS-TP4 (3) 7/12/2004	PS-TP4A (6) 7/12/2004	PS-TP4B (4_5-5_5) 7/13/2004	PS-TP5A (9-10) 7/9/2004	PS-TP5C (3_4-4_5) 7/9/2004	PS-TP5C (7-8) 7/9/2004	PS-TP6A (3-4) 7/9/2004	PS-TP6A (8-9) 7/9/2004	PS-TP6B (1_5-2_5) 7/9/2004	PS-TP7 (3-4) 7/8/2004	PS-TP7 (6-7) 7/8/2004	PS-TP8 (7-8) 7/13/2004	PS-TP9 (7-8) 7/14/2004
Beryllium	7.2	14	0.64 U	0.59 U	0.73 U	0.51 U	0.64 U	0.62 U	0.62 U	0.69 U	0.65 U	0.56 U	0.69 U	0.76 U	0.59 U	0.6 U	0.72 U
Cadmium	2.5	2.5	**1.3**	1.2 U	1.5 U	1 U	1.3 U	1.2 U	1.2 U	1.4 U	1.3 U	1.1 U	1.4 U	1.5 U	1.2 U	1.2 U	1.4 U
Calcium	NE	NE	**4110**	**3340 J**	**2310 J**	**1390 J**	**1310 J**	**1480 J**	**582 J**	**1190 J**	**2570 J**	**1010 J**	**1760 J**	**919 J**	**1120 J**	**2630 J**	**1260 J**
Chromium	NE	NE	**10.3**	**9.4 J**	**20.4 J**	**24.2 J**	**50.2 J**	**27.8 J**	**8.6 J**	**22.6 J**	**16.3 J**	**36.4 J**	**21.4 J**	**22.5 J**	**29.5 J**	**40.8 J**	**31.8 J**
Cobalt	NE	NE	**5.8**	**4.3**	**4.4**	**6.6**	**6.5**	**7.3**	**4**	**5.4**	**10.1**	**6.9**	**7.7**	**8.4**	**6.7**	**7.1**	**6.1**
Copper	50	270	**74.7**	**64.9**	**11.3**	**20.9**	**19.3**	**21.4**	**166**	**23.6**	**218**	**15.8**	**88.7**	**370**	**19.9**	**24.1**	**24.4**
Iron	NE	NE	**17200**	**16200**	**12600**	**13100**	**18100**	**13700**	**21500**	**10000**	**45500**	**21000**	**49700**	**70200**	**15500**	**12600**	**14000**
Lead	63	400	**445**	**322**	**36.4**	**9.2**	**4.2**	**4.3**	**260**	**2.2**	**358**	**19.7**	**129**	**618**	**3.9**	**5.1**	**34.1**
Magnesium	NE	NE	1050 R	**860 J**	**1700 J**	**2520 J**	**1830 J**	**2630 J**	**333 J**	**1660 J**	**1210 J**	**2350 J**	**1130 J**	**1060 J**	**2320 J**	**2570 J**	**2210 J**
Manganese	1600	2000	**153**	**114**	**117**	**80**	**108**	**107**	**66.2**	**136**	**94.9**	**180**	**419**	**136**	**187**	**72.3**	**172**
Mercury	NE	NE	**1.1**	**1.2**	**0.2**	**0.043**	0.015 U	0.013 U	**0.38**	0.015 U	**0.31**	**0.045**	**0.21**	**0.35**	0.015 U	**0.018**	**0.043**
Nickel	30	140	**18.6**	**15.4**	**9.4**	**15.5**	**18.6**	**15.9**	**9.1**	**14.6**	**26.4**	**24.9**	**14.2**	**20.3**	**16.3**	**20**	**13.3**
Potassium	NE	NE	**334 J**	**285 J**	**357 J**	**1870 J**	**290 J**	**1960 J**	**110 J**	**524 J**	**423 J**	**634 J**	**999 J**	**659 J**	**1730 J**	**948 J**	**966 J**
Selenium	3.9	36	2 U	1.9 UJ	2.3 UJ	1.6 UJ	2.1 UJ	2 UJ	2 UJ	2.2 UJ	2.1 UJ	1.8 UJ	2.2 UJ	2.4 UJ	1.9 UJ	1.9 UJ	2.3 UJ
Silver	2	36	0.41 U	0.38 U	0.47 U	0.33 U	0.41 U	0.39 U	**1.2**	0.44 U	**1.8**	0.36 U	0.44 U	**2.5**	0.38 U	0.39 U	0.46 U
Sodium	NE	NE	**92.1**	**71.5**	**73**	**110**	**58.3**	**130**	24.7 U	**136**	**108**	**69**	**153**	**53.3**	**80.3**	**346**	138 U
Thallium	NE	NE	2.5 U	2.3 U	2.9 U	2 U	2.5 U	2.4 U	2.4 U	2.7 U	2.6 U	2.2 U	2.7 U	3 U	2.3 U	2.4 U	2.9 U
Vanadium	NE	NE	**22.2**	**17.5**	**26.1**	**26.8**	**40.3**	**30.1**	**11.5**	**20.8**	**28.2**	**35.7**	**43.2**	**40.8**	**36.6**	**40.2**	**30.5**
Zinc	109	2200	**132**	**127**	**32.3**	**30.6**	**21.8**	**41.8**	**128**	**21.1**	**712**	**49.4**	**67.6**	**192**	**29.8**	**73**	**39.8**
Cyanide (mg/kg)																	
Cyanide, Total	27	27	**9.52 J**	**6.28 J**	**0.0359 J**	**0.414 J**	0.572 U	0.541 U	**109 J**	**0.0671 J**	**35 J**	**1.73 J**	**8.89 J**	**28.8 J**	**1.07 J**	**0.158 J**	**1.07 J**

Table 9
Subsurface Soil Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Notes:

mg/kg is milligrams per kilogram
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
PCBs - Polychlorinated Biphenyls

UNRESTRICTED USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
RESIDENTIAL USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives

Bolding indicates a detected result value
Grey Shading - Detection exceeds Unrestricted Use SCOs
Yellow Shading - Detection exceeds Residential Use SCOs

NA - not analyzed
NJ - Presumptively present concentration valve
ND - Total concentration is listed as ND because no compounds were detected in the group.
NE - not established

J - Estimated value
U - not detected to the reporting limit shown (for organic analyses and cyanide)
and the method detection limit shown (for inorganic analyses except cyanide)
UJ - not detected to the limit shown, the limit shown is estimated

Table 10
Surface-Soil Summary Statistics
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	Number of Samples Analyzed	Number of Detections	Maximum Detected Concentration	Number of Samples with Detected Results Greater than Unrestricted Use SCOs	Number of Samples with Detected Results Greater than Residential Use SCOs
VOCs (mg/kg)							
Benzene	0.06	2.9	7	0	ND	0	0
Toluene	0.7	100	7	1	0.0007	0	0
Ethylbenzene	1	30	7	0	ND	0	0
Xylene, total	0.26	100	7	1	0.002	0	0
Tetrachloroethene	1.3	5.5	7	6	0.006	0	0
SVOCs (mg/kg)							
Acenaphthene	20	100	7	1	1.3	0	0
Acenaphthylene	100	100	7	2	0.23	0	0
Anthracene	100	100	7	1	1.1	0	0
Benzo[g,h,i]perylene	100	100	7	5	5.1	0	0
Fluoranthene	100	100	7	6	15	0	0
Fluorene	30	100	7	1	0.67	0	0
Methylnaphthalene,2-	NE	NE	7	0	ND	NE	NE
Naphthalene	12	100	7	0	ND	0	0
Phenanthrene	100	100	7	4	9.7	0	0
Pyrene	100	100	7	6	15	0	0
Benz[a]anthracene	1	1	7	5	5.9	1	1
Benzo[a]pyrene	1	1	7	5	6.6	1	1
Benzo[b]fluoranthene	1	1	7	5	4.9	1	1
Benzo[k]fluoranthene	0.8	1	7	5	7.4	1	1
Chrysene	1	1	7	5	8.5	1	1
Dibenz[a,h]anthracene	0.33	0.33	7	1	2	1	1
Indeno[1,2,3-cd]pyrene	0.5	0.5	7	5	4.4	1	1
Bis(2-ethylhexyl)phthalate	NE	NE	7	4	0.2	NE	NE
PCBs (mg/kg)							
Aroclor 1254	NE	NE	7	2	0.047	NE	NE
Aroclor 1260	NE	NE	7	6	0.075	NE	NE
Metals (mg/kg)							
Aluminum	NE	NE	7	7	12600	NE	NE
Antimony	NE	NE	7	0	ND	NE	NE
Arsenic	13	16	7	7	20.7	1	1
Barium	350	350	7	7	173	0	0
Beryllium	7.2	14	7	1	0.81	0	0
Cadmium	2.5	2.5	7	0	ND	0	0
Calcium	NE	NE	7	7	33700	NE	NE
Chromium	NE	NE	7	7	29.5	NE	NE
Cobalt	NE	NE	7	7	8.1	NE	NE
Copper	50	270	7	7	55.8	2	0
Iron	NE	NE	7	7	38500	NE	NE
Lead	63	400	7	7	244	5	0
Magnesium	NE	NE	7	7	19200	NE	NE
Manganese	1600	2000	7	7	314	0	0
Mercury	NE	NE	7	6	0.36	NE	NE
Nickel	30	140	7	5	21.8	0	0
Potassium	NE	NE	7	7	1930	NE	NE
Selenium	3.9	36	7	0	ND	0	0
Silver	2	36	7	0	ND	0	0
Sodium	NE	NE	7	7	476	NE	NE
Thallium	NE	NE	7	0	ND	NE	NE
Vanadium	NE	NE	7	7	41.6	NE	NE
Zinc	109	2200	7	7	118	1	0
Cyanide (mg/kg)							
Cyanide, Total	NE	NE	7	6	3.85	NE	NE

Notes:

mg/kg - milligrams/kilogram or parts per million (ppm)
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
PCBs - Polychlorinated Biphenyls
UNRESTRICTED USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
RESIDENTIAL USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
NE - not established
ND - not detected; total concentration is listed as ND because no compounds were detected in the group

Table 11
Subsurface-Soil Summary Statistics
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	Number of Samples Analyzed	Number of Detections	Maximum Detected Concentration	Number of Samples with Detected Results Greater than Unrestricted Use SCOs	Number of Samples with Detected Results Greater than Residential Use SCOs
VOCs (mg/kg)							
Benzene	0.06	2.9	110	11	19	5	2
Toluene	0.7	100	110	33	64	9	0
Ethylbenzene	1	30	110	43	720	15	6
Xylene, m,p-	NE	NE	14	4	190	NE	NE
Xylene, o-	NE	NE	14	4	95	NE	NE
Xylene, total	0.26	100	96	40	1200	22	4
Acetone	0.05	100	110	3	16	3	0
Butanone,2-	0.12	100	110	5	0.97	2	0
Carbon disulfide	NE	NE	110	9	0.047	NE	NE
Chloroform	0.37	10	110	1	0.001	0	0
Dichloroethane,1,2-	0.02	2.3	110	1	0.009	0	0
Dichloroethene, cis-1,2-	0.25	59	110	2	0.001	0	0
Isopropyl benzene	NE	NE	14	4	7.8	NE	NE
Methyl tert-butyl ether	0.93	62	14	1	0.0063	0	0
Methylcyclohexane	NE	NE	14	1	0.011	NE	NE
Methylene chloride	0.05	51	110	7	0.14	4	0
Styrene	NE	NE	110	19	77	NE	NE
Tetrachloroethene	1.3	5.5	110	8	0.012	0	0
Trichloroethene	0.47	10	110	1	0.08	0	0
SVOCs (mg/kg)							
Acenaphthene	20	100	110	40	2400	4	2
Acenaphthylene	100	100	110	57	380	1	1
Anthracene	100	100	110	55	1200	3	3
Benzo[g,h,i]perylene	100	100	110	49	11	0	0
Fluoranthene	100	100	110	62	1500	3	3
Fluorene	30	100	110	49	1400	13	3
Methylnaphthalene,2-	NE	NE	110	49	6100	NE	NE
Naphthalene	12	100	110	56	14000	21	10
Phenanthrene	100	100	110	74	4500	11	11
Pyrene	100	100	110	71	2500	3	3
Benz[a]anthracene	1	1	110	62	880	38	38
Benzo[a]pyrene	1	1	110	57	540	35	35
Benzo[b]fluoranthene	1	1	110	41	19	27	27
Benzo[k]fluoranthene	0.8	1	110	35	270	23	21
Chrysene	1	1	110	62	920	38	38
Dibenz[a,h]anthracene	0.33	0.33	110	22	3.5	13	13
Indeno[1,2,3-cd]pyrene	0.5	0.5	110	43	8.1	29	29
Biphenyl,1,1-	NE	NE	14	4	23	NE	NE
Bis(2-	NE	NE	110	16	0.47	NE	NE
Carbazole	NE	NE	110	1	4.3	NE	NE
Dibenzofuran	7	14	110	9	6.6	0	0
Di-n-octyl phthalate	NE	NE	110	1	0.08	NE	NE
Nitrophenol,4-	NE	NE	110	0	0	NE	NE
Phenol	0.33	100	110	2	0.17	0	0
PCBs (mg/kg)							
Aroclor 1254	NE	NE	110	1	0.0063	NE	NE
Aroclor 1260	NE	NE	110	3	0.1	NE	NE

Table 11
Subsurface-Soil Summary Statistics
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location: Sample Depth: Sample Date:	UNRESTRICTED USE SCOs	RESIDENTIAL USE SCOs	Number of Samples Analyzed	Number of Detections	Maximum Detected Concentration	Number of Samples with Detected Results Greater than Unrestricted Use SCOs	Number of Samples with Detected Results Greater than Residential Use SCOs
Metals (mg/Kg)							
Aluminum	NE	NE	110	110	28200	NE	NE
Antimony	NE	NE	110	4	50.5	NE	NE
Arsenic	13	16	110	37	62.2	8	7
Barium	350	350	110	110	333	0	0
Beryllium	7.2	14	110	19	1.2	0	0
Cadmium	2.5	2.5	110	2	1.3	0	0
Calcium	NE	NE	110	110	19600	NE	NE
Chromium	NE	NE	110	110	82.1	NE	NE
Cobalt	NE	NE	110	110	64	NE	NE
Copper	50	270	110	110	370	18	2
Iron	NE	NE	110	110	278000	NE	NE
Lead	63	400	110	109	1730	15	6
Magnesium	NE	NE	110	110	14800	NE	NE
Manganese	1600	2000	110	110	2180	1	1
Mercury	NE	NE	110	37	1.4	NE	NE
Nickel	30	140	110	110	240	20	1
Potassium	NE	NE	110	110	19600	NE	NE
Selenium	3.9	36	110	11	59.4	2	1
Silver	2	36	110	9	2.5	2	0
Sodium	NE	NE	110	100	768	NE	NE
Thallium	NE	NE	110	4	3.2	NE	NE
Vanadium	NE	NE	110	110	94.8	NE	NE
Zinc	109	2200	110	110	712	13	0
Cyanide (mg/kg)							
Cyanide, Total	27	27	110	38	142	4	4

Notes:
mg/kg is milligrams per kilogram
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
PCBs - Polychlorinated Biphenyls
UNRESTRICTED USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
RESIDENTIAL USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
NE - not established

Table 12
Background Concentrations of PAHs and Metals
Purdy Street Station Former MGP Site
Bronx, New York

Compounds	Background Concentration Range (mg/kg)	Arithmetic Means (mg/kg)
Polycylic Aromatic Hydrocarbons (PAHs) [1]		
2-Methylnaphthalene	0.017 - 0.64	0.151
Acenaphthene	0.024 - 0.34	0.201
Acenaphthylene	0.018 - 1.10	0.173
Anthracene	0.029 - 5.70	0.351
Benz(a)anthracene	0.048 - 15.00	1.319
Benzo(a)pyrene	0.040 - 13.00	1.323
Benzo(b)fluoranthene	0.049 - 12.00	1.435
Benzo(g,h,i)perylene	0.200 - 5.90	0.891
Benzo(k)fluoranthene	0.043 - 25.00	1.681
Chrysene	0.038 - 21.00	1.841
Dibenz(a,h)anthracene	0.020 - 2.90	0.388
Fluoranthene	0.110 - 39.00	3.047
Fluorene	0.022 - 3.30	0.214
Indeno(1,2,3-c,d)pyrene	0.093 - 6.00	0.987
Naphthalene	0.018 - 0.66	0.125
Phenanthrene	0.071 - 36.00	1.838
Pyrene	0.082 - 11.00	2.398
Total PAH	2.292 - 166.65	18.361
Metals[2]		
Aluminum	700 - > 10,000	72,000
Antimony	<1 - 8.8	0.66
Arsenic	<0.1 - 97	7.2
Barium	10 - 5,000	580
Beryllium	<1 - 15	0.92
Cadmium[3]	0.01 - 22	-
Calcium	100 - 320,000	24,000
Chromium	1 - 2,000	54
Cobalt	<3 - 70	9.1
Copper	<1 - 700	25
Iron	100 - 100,000	26,000
Lead	<10 - 700	19
Magnesium	50 - >100,000	9,000
Manganese	<2 - 7,000	550
Mercury	0.01 - 4.6	0.09
Nickel	<5 - 700	19
Potassium	50 - 63,000	15,000
Selenium	<0.1 - 4.3	0.39
Silver[3]	0.01 - 5	0.05
Sodium	<500 - 100,000	12,000
Thallium	70 - 20,000	2,900
Vanadium	<7 - 500	80
Zinc	<5 - 2,900	60

Table 12
Background Concentrations of PAHs and Metals
Purdy Street Station Former MGP Site
Bronx, New York

Note:

mg/kg - milligrams per kilogram

[1]Bradley, B.H., et al. 1994. "Background Levels of Polycyclic Aromatic hydrocarbons (PAHs) and Selected Metals in New England Urban Soils," Journal of Soil Contamination, 3(4), p. 349-361.

[2]. H.T. Shacklette and J.G. Boerngen, USGS Professional Paper 1270, 1984

[3.] USEPA, *Metals in Soils: A Brief Summary*, 1980

- Not presented in source

Table 13
Surface-Soil Analytical Results Summary Benzo(a)pyrene Equivalents
Purdy Street Station Former MGP Site
Bronx, New York

Chemical Name	Unrestricted Use SCOs	Residential Use SCOs	B(a)p equivalents	PS-SS1 Measured	PS-SS1 B(a)p equivalents	PS-SS2 Measured	PS-SS2 B(a)p equivalents	PS-SS3 Measured	PS-SS3 B(a)p equivalents
Semivolatile Organic Compounds (mg/kg)									
Benz[a]anthracene	1	1	0.1	**0.26**	**0.026**	**0.45**	**0.045**	ND	ND
Benzo[a]pyrene	1	1	1	**0.28**	**0.28**	**0.46**	**0.46**	ND	ND
Benzo[b]fluoranthene	1	1	0.1	**0.29**	**0.029**	**0.4**	**0.04**	ND	ND
Benzo[k]fluoranthene	0.8	1	0.01	**0.25**	**0.0025**	**0.49**	**0.0049**	ND	ND
Chrysene	1	1	0.001	**0.36**	**0.00036**	**0.58**	**0.00058**	ND	ND
Dibenz[a,h]anthracene	0.33	0.33	1	ND	ND	ND	ND	ND	ND
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.1	**0.25**	**0.025**	**0.35**	**0.035**	ND	ND
Total SVOCs	NE	NE	NE	**1.69**	**0.36286**	**2.73**	**0.58548**	ND	0

Chemical Name	Unrestricted Use SCOs	Residential Use SCOs	B(a)p equivalents	PS-SS4 Measured	PS-SS4 B(a)p equivalents	PS-SS5 Measured	PS-SS5 B(a)p equivalents	PS-SS6 Measured	PS-SS6 B(a)p equivalents
Semivolatile Organic Compounds (mg/kg)									
Benz[a]anthracene	1	1	0.1	ND	ND	**0.31**	**0.031**	**5.9**	**0.59**
Benzo[a]pyrene	1	1	1	ND	ND	**0.35**	**0.35**	**6.6**	**6.6**
Benzo[b]fluoranthene	1	1	0.1	ND	ND	**0.32**	**0.032**	**4.9**	**0.49**
Benzo[k]fluoranthene	0.8	1	0.01	ND	ND	**0.38**	**0.0038**	**7.4**	**0.074**
Chrysene	1	1	0.001	ND	ND	**0.42**	**0.00042**	**8.5**	**0.0085**
Dibenz[a,h]anthracene	0.33	0.33	1	ND	ND	ND	ND	**2**	**2**
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.1	ND	ND	**0.28**	**0.028**	**4.4**	**0.44**
Total SVOCs	NE	NE	NE	ND	0	**2.06**	**0.44522**	**39.7**	**10.2025**

Notes:
mg/kg - milligrams per kilogram
UNRESTRICTED USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
RESIDENTIAL USE SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
Bolding indicates a detected result value
Grey Shading - Detection exceeds Unrestricted Use SCOs
Yellow Shading - Detection exceeds Residential Use SCOs
ND - not detected to the reporting limit

Table 14
Soil Gas Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Compounds	NYSDOH Background Indoor Air Concentrations 25th - 95th Percentile Range[1]	NYSDOH Background Outdoor Air Concentrations 25th - 95th Percentile Range[1]	SP-SGP1 ug/m^3	SP-SGP2 ug/m^3	SP-SGP3 ug/m^3
Benzene	1.1 - 29	0.6 - 5.8	**30**	1.6 U	1.6 U
Toluene	3.5 - 110	0.6 - 21	**17**	**2.3**	**3.8**
Xylene, m,p-	0.5 - 21	<0.25 - 3.1	**3.7**	2.2 U	**4.1**
Carbon Disulfide	NE	NE	**31**	**2.6**	**2.6**
Carbon Tetrachloride	<0.25 - 1.1	<0.25 - 1	**49**	3.2 U	**60**
Chloroform	<0.25 - 4.6	<0.25 - 0.5	**18**	**3.8**	**8.8**
Cyclohexane	<0.25 - 19	<0.25 - 3	**4.8**	1.7 U	1.7 U
Dichlorodifluoromethane	<0.25 - 26	<0.25 - 11	**3.4**	**3.7**	**8.9**
Hexane, n-	0.6 - 35	<0.25 - 3.6	**3.9**	**1.8**	1.8 U
Heptane, n-	1 - 33	<0.25 - 5.1	**2.4**	2.1 U	2.1 U
Tetrachloroethene	<0.25 - 4.1	<0.25 - 1.6	**4.7**	**4.7**	3.4 U
Trichlorofluoromethane	1.1 - 30	<0.25 - 6.1	2.8 U	2.8 U	**3**
Trimethylbenzene, 1,2,4-	0.7 - 18	<0.25 - 2.5	**3.4**	2.5 U	**3.6**
Total VOCs	NE	NE	**171.3**	**18.9**	**94.8**

Notes:

ug/m^3 - micrograms per cubic meter
VOCs - Volatile Organic Compounds
NE - Not Established
NYSDOH - New York State Department of Health
Bolding indicates a detection
Bolding and shading indicates a detection and an exceedance of NYSDOH Indoor Air 95th Percentile

[1] Source: New York State Department of Health (NYSDOH), October 2006. Summary of Indoor and Outdoor Levels of Volatile Organic Compounds from Fuel Oil Heated Homes reported in various locations within sampled homes in NYS, 1997-2003.

Data Qualifiers:

U - Not detected at or above the reporting limit shown

Table 15
Groundwater Analytical Results Summary
Purdy Street Station Former MGP Site
Bronx, New York

Sample Location Sample ID Date Collected	NYS AWQS	MW-01 PS-MW1 8/25/2004	MW-02 PS-MW2 8/26/2004	MW-03 PS-MW3 8/25/2004	MW-04 PS-MW4 8/25/2004	MW-05 PS-MW5 8/26/2004
VOCs (ug/L)						
Acetone	NE	10 U	50 U	100 U	10 U	**130 J**
Benzene	1.0	5 U	**200**	**11 J**	5 U	25 U
Chloroform	7	5 U	25 U	50 U	5 U	**23 J**
Ethylbenzene	5	5 U	**560**	**740**	**15**	**500**
Styrene	5	5 U	**32**	**190**	5 U	25 U
Toluene	5	5 U	**90**	**130**	5 U	25 U
Xylene, total	5	5 U	**110**	**1700**	**3 J**	**78**
Total VOCs (ug/L)	NE	ND	**992**	**2771**	**18**	**731**
SVOCs (ug/L)						
Acenaphthene	20	10 U	**130**	1100 U	**37**	**8 J**
Acenaphthylene	50	10 U	**45**	**190 J**	**2 J**	50 U
Anthracene	50	10 U	**5 J**	1100 U	10 U	50 U
Carbazole	NE	10 U	**3 J**	1100 U	**0.5 J**	50 U
Dibenzofuran	NE	10 U	**4 J**	1100 UJ	**1 J**	50 UJ
Fluoranthene	50	10 U	40 U	1100 U	**0.8 J**	50 U
Fluorene	50	10 U	**51**	1100 U	**12**	50 U
Methylnaphthalene,2-	NE	10 UJ	**6 J**	**550 J**	10 U	**78**
Naphthalene	10	10 U	**180**	**7900**	**2 J**	**300**
Phenanthrene	50	10 U	**32 J**	1100 U	**0.9 J**	**4 J**
Pyrene	50	10 U	40 U	1100 U	**0.9 J**	50 U
Total SVOCs (ug/L)	NE	ND	**456**	**8640**	**57.1**	**390**
Total Metals (ug/L)						
Aluminum	100	**475 J**	**189 J**	92 UJ	92 UJ	92 UJ
Arsenic	25	3.9 U	3.9 U	3.9 U	3.9 U	**4.2**
Barium	1000	**567 J**	**55.9 J**	**124 J**	**62.1 J**	**306 J**
Cadmium	5	**1.8 J**	**1.3**	1.1 U	1.1 U	1.1 U
Calcium	NE	**221000 J**	**131000 J**	**102000 J**	**24900 J**	**101000 J**
Chromium	50	**1.3 J**	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt	5	**9**	**2.6**	**3.9**	1.8 U	1.8 U
Iron	300	**816 J**	**85900 J**	**9780 J**	**4880 J**	**14300 J**
Lead	25	3 U	3 U	3 U	**7.6**	**8.4**
Magnesium	35000	**47500**	**25800**	**32900**	**8120**	**20000**
Manganese	300	**3790**	**2610**	**8750**	**550**	**941**
Nickel	100	**24.7**	1.9 U	**3.1**	1.9 U	1.9 U
Potassium	NE	**47300 J**	**7370 J**	**6240 J**	**3860 J**	**17700**
Sodium	20000	**802000**	**17600**	**21400**	**17700**	**83200**
Thallium	0.5	10 UJ	10 U	10 U	10 U	10 U
Zinc	2000	**38**	11 U	11 U	**15.2**	11 U
Dissolved Metals (ug/L)						
Aluminum	100	NA	102 UJ	NA	NA	NA
Arsenic	25	NA	3.9 U	NA	NA	NA
Barium	1000	NA	**57.4 J**	NA	NA	NA
Cadmium	5	NA	1.1 U	NA	NA	NA
Calcium	NE	NA	**132000**	NA	NA	NA
Chromium	50	NA	1.3 U	NA	NA	NA
Cobalt	5	NA	1.8 U	NA	NA	NA
Iron	300	NA	**88200 J**	NA	NA	NA
Lead	25	NA	4.7 U	NA	NA	NA
Magnesium	35000	NA	**24900**	NA	NA	NA
Manganese	300	NA	**2600**	NA	NA	NA
Nickel	100	NA	1.9 U	NA	NA	NA
Potassium	NE	NA	**7380 J**	NA	NA	NA
Sodium	20000	NA	**16800**	NA	NA	NA
Thallium	0.5	NA	**17**	NA	NA	NA
Zinc	2000	NA	**13.5**	NA	NA	NA
Cyanide (ug/L)						
Cyanide, Available	NE	**2.9 J**	**6**	2 UJ	2 U	2 U
Cyanide, Total	200	**40.2 J**	**184 J**	**255 J**	10 UJ	10 UJ

Notes:

ug/L is milligrams per liter
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
PCBs - Polychlorinated Biphenyls
NYS AWQS - New York State Ambient Water Quality Standards for GA Groundwater
NA - Not analyzed
ND - Total concentration is listed as ND because no compounds were detected in the group.
NE - Cleanup objective not established
J - estimated value
U - not detected to the reporting limit shown (for organic analyses and cyanide)
and the method detection limit shown (for inorganic analyses except cyanide)
UJ - not detected to the limit shown, the limit shown is estimated

Table 16
Groundwater Summary Statistics
Purdy Street Station Former MGP
Bronx, New York

	NYS AWQS	Number of Samples Analyzed	Number of Detections	Maximum Detected Concentration	Number of Samples with Detected Results Greater than NY AWQS
VOCs (ug/L)					
Benzene	1.0	5	2	200	2
Toluene	5	5	2	130	2
Ethylbenzene	5	5	4	740	4
Xylene, total	5	5	4	1700	3
Acetone	NE	5	1	130	NE
Chloroform	7	5	1	23	1
Styrene	5	5	2	190	2
Total VOCs	NE	5	4	2771	NE
SVOCs (ug/L)					
Acenaphthene	20	5	3	130	2
Acenaphthylene	50	5	3	190	1
Anthracene	50	5	1	5	0
Carbazole	NE	5	2	3	NE
Dibenzofuran	NE	5	2	4	NE
Fluoranthene	50	5	1	0.8	0
Fluorene	50	5	2	51	1
Methylnaphthalene,2-	NE	5	3	550	NE
Naphthalene	10	5	4	7900	3
Phenanthrene	50	5	3	32	0
Pyrene	50	5	1	0.9	0
Total SVOCs	NE	5	4	8640	NE
Total Metals (ug/L)			x		
Aluminum	100	5	2	475	2
Arsenic	25	5	1	4.2	0
Barium	1000	5	5	567	0
Cadmium	5	5	2	1.8	0
Calcium	NE	5	5	221000	NE
Chromium	50	5	1	1.3	0
Cobalt	5	5	3	9	1
Iron	300	5	5	85900	5
Lead	25	5	2	8.4	0
Magnesium	35000	5	5	47500	1
Manganese	300	5	5	8750	5
Nickel	100	5	2	24.7	0
Potassium	NE	5	5	47300	NE
Sodium	20000	5	5	802000	3
Zinc	2000	5	2	38	0
Dissolved Metals (ug/L)					
Barium	1000	1	1	57.4	0
Calcium	NE	1	1	13200	NE
Iron	300	1	1	88200	1
Magnesium	35000	1	1	24900	0
Manganese	300	1	1	2600	1
Potassium	NE	1	1	7380	NE
Sodium	20000	1	1	16800	0
Thallium	0.5	1	1	17	1
Zinc	2000	1	1	13.5	0
Cyanide (ug/L)					
Cyanide, Total	200	5	3	255	1
Cyanide, Available	NE	5	2	6	NE

Notes:
ug/L - micrograms/Liter or parts per billion (ppb)
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
NYS AWQS – New York State Ambient Water Quality Standards for GA Groundwater
NE - not established

Table 17
Exposure Pathway Assessment
Purdy Street Station Former MGP Site
Bronx, New York

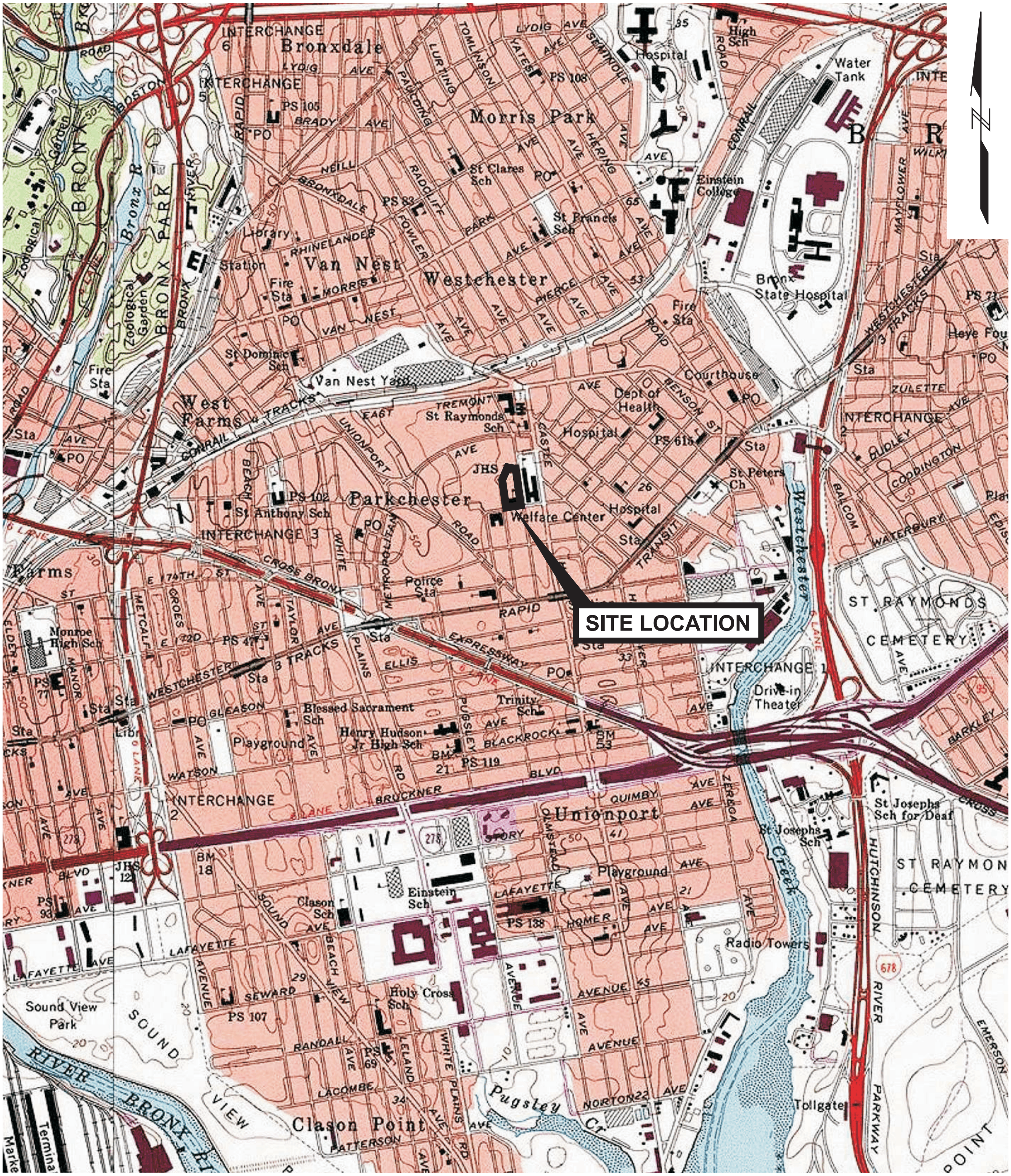
Compound Group	Media	Screening Criteria	Exceeds Criteria?	Potential Receptors	Complete Exposure Pathway?
VOCs	Surface Soil [1]	6 NYCRR Part 375 Unrestricted Use SCOs	No	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	No
	Subsurface Soil	6 NYCRR Part 375 Unrestricted Use SCOs	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes
	Groundwater	NYS AWQS	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes
SVOCs	Surface Soil [1]	6 NYCRR Part 375 Unrestricted Use SCOs and	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/Custodial Worker	Yes
				Construction Worker	Yes
	Subsurface Soil	6 NYCRR Part 375 Unrestricted Use SCOs	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/Custodial Worker	No
				Construction Worker	Yes
	Groundwater	NYS AWQS	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes
Metals	Surface Soil [1]	6 NYCRR Part 375 Unrestricted Use SCOs	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	Yes
				Construction Worker	Yes
	Subsurface Soil	6 NYCRR Part 375 Unrestricted Use SCOs	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes
	Groundwater	NYS AWQS	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes

Table 17
Exposure Pathway Assessment
Purdy Street Station Former MGP Site
Bronx, New York

Compound Group	Media	Screening Criteria	Exceeds Criteria?	Potential Receptors	Complete Exposure Pathway?
PCBs	Surface Soil [1]	6 NYCRR Part 375 Unrestricted Use SCOs	No	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	No
	Subsurface Soil	6 NYCRR Part 375 Unrestricted Use SCOs	No	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	No
Total Cyanide	Surface Soil [1]	6 NYCRR Part 375 Unrestricted Use SCOs	No	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	No
	Subsurface Soil	6 NYCRR Part 375 Unrestricted Use SCOs	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes
	Groundwater	NYS AWQS	Yes	Staff/Students/Visitors Using Buildings and Asphalt Parking Lot/Playing Field	No
				Grass Playing Field User/ Custodial Worker	No
				Construction Worker	Yes

Notes:
1 – Surface soil samples collected prior to grading and placement of new additional top soil and sod in September of 2004.
Unrestricted Use SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
Residential Use SCOs – 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives
NYS AWQS - New York State Ambient Water Quality Standards for GA Groundwater

Figures

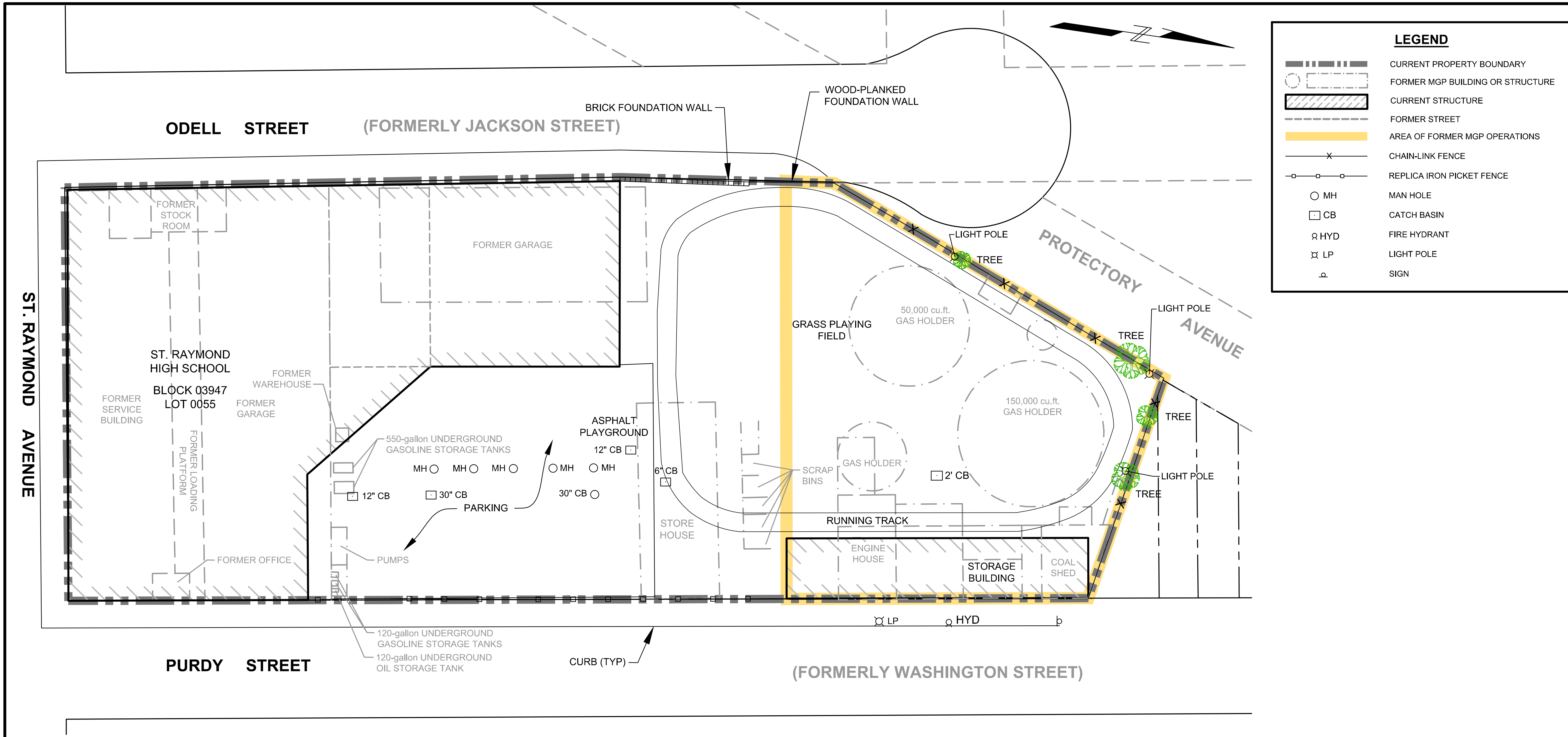


SOURCE: Map created with TOPO! ® ©2001
National Geographic
(www.nationalgeographic.com/topo)

0 2000 4000
SCALE, FEET

REMEDIAL INVESTIGATION PURDY STREET STATION BRONX, NEW YORK	GEI Consultants	**SITE LOCATION MAP**
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. NEW YORK, NEW YORK		April 2010 Figure 1

I:\GEI\CON_ED\032211-Purdy Street\RI\3-2010\PURDY ST-LOC.CDR

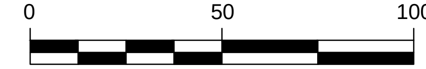


SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.



SCALE, FEET

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

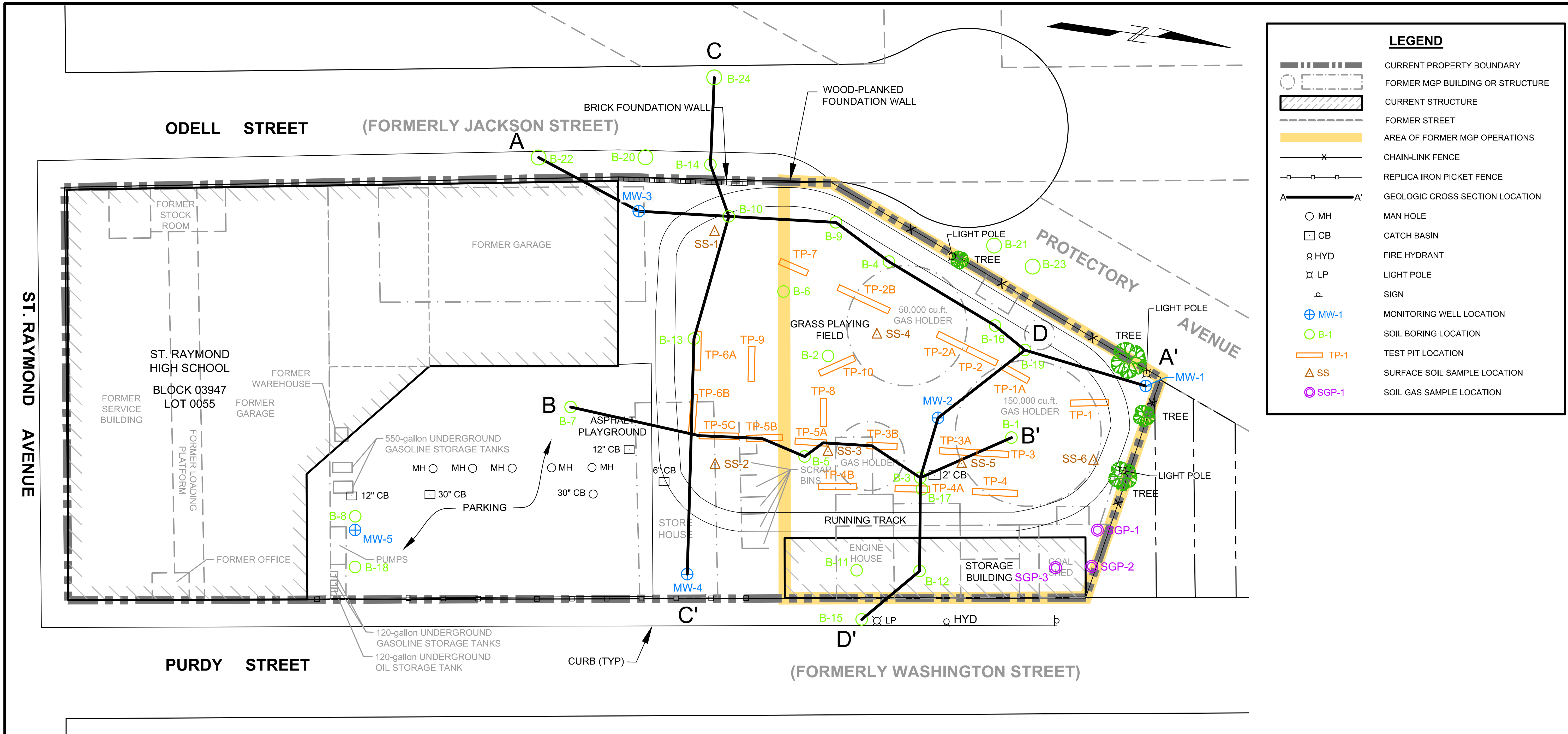
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

GEI Consultants

HISTORIC STRUCTURES AND CURRENT SITE LAYOUT

April 2010 Figure 2

I:\GEI\CON_ED\032211-Purdy Street\RI\3-2010\ Purdy St Samples.dwg \Apr 07, 2010



SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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INVESTIGATION AREAS AND CROSS SECTION LOCATIONS

April 2010 Figure 3

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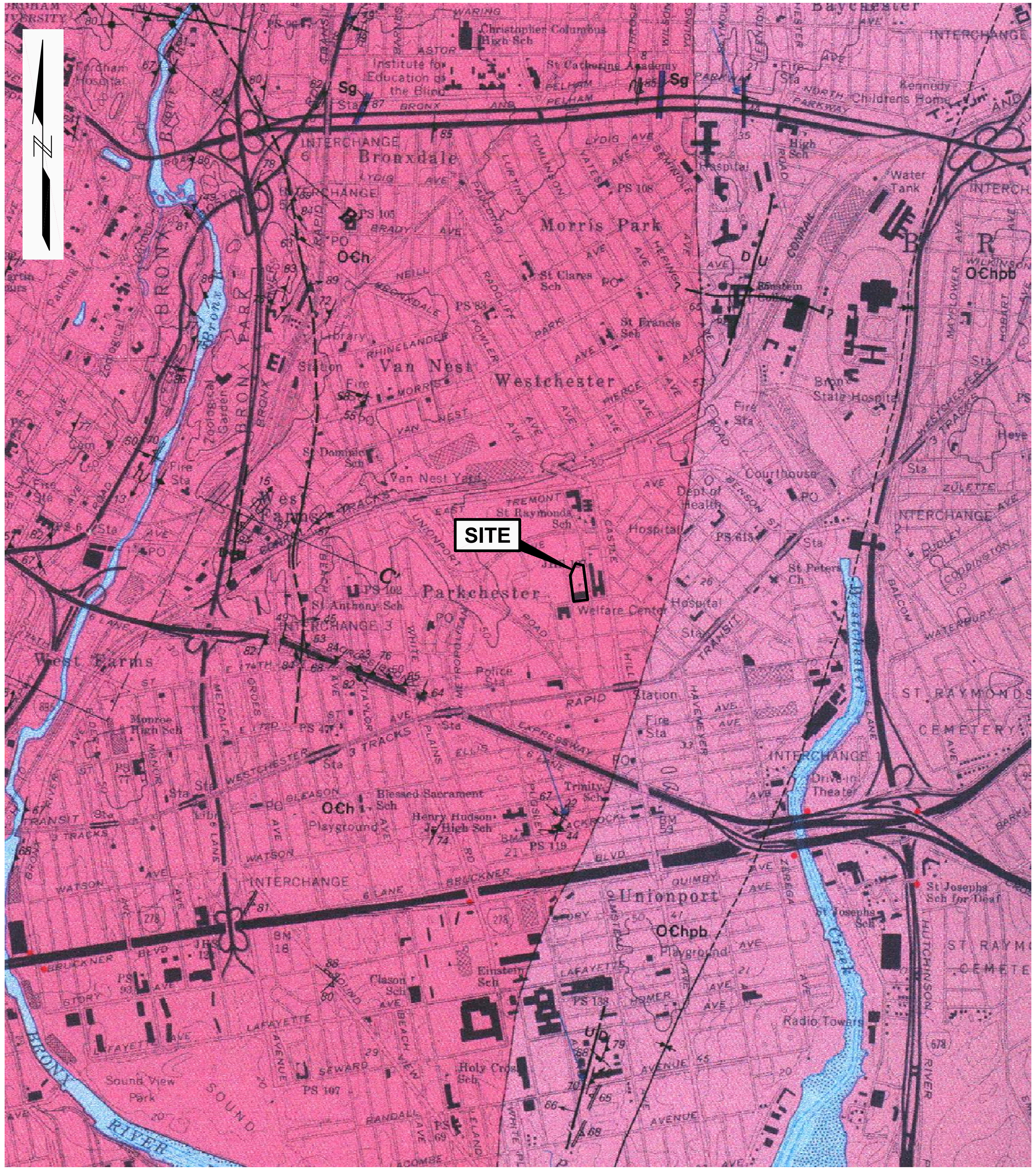


SCALE 1:24 000

1 ½ 0 1 MILE

DESCRIPTION OF MAP UNITS

The rank order of the minerals used in the descriptions follows that of Winkler (1979).

ALLOCHTHONOUS UNITS—EAST OF CAMERON'S LINE

O€h **Hartland Formation (Middle Ordovician to Lower Cambrian)**—Consists of the following:

1. Gray and gray-weathering, thinly laminated muscovite-biotite-quartz schist with minor garnet;
2. Medium-gray, black-weathering, fine-grained biotite-muscovite-quartz schist; the muscovite flakes are commonly large and may give outcrops a "spangled" or shiny metallic appearance;
3. White to pinkish-white, light-green-weathering, fine- to medium-grained gneissic quartz-microcline-muscovite-biotite-plagioclase granite with minor garnet; occurs in layers as much as several feet thick, and locally has large feldspar crystals 2 in. or more across. Some of the granite shows gneissic banding; the bands are about 0.8 in. thick separated by discontinuous stripes of biotite 0.04–0.08 in. thick;
4. Dark greenish-black quartz-biotite-hornblende amphibolite, with some white and (or) pink granite pegmatite; occurs in belts 30–60 ft wide; weathers black and rusty along fractures;
5. Gray, rusty-weathering, unevenly foliated sillimanite-plagioclase-muscovite-biotite-microcline-quartz gneissic schist with minor garnet, and mica-feldspar-quartz boudins.

These rocks are interlayered with coarse quartz-plagioclase-muscovite pegmatite, hornblende amphibolite, and coarse granoblastic-textured amphibolite gneiss; the gneiss is similar in composition to an igneous diorite

O€hpb Pelham Bay Member—Represents a lateral eastward increase in metamorphic grade. Rocks are generally sillimanite-grade gneisses composed of (1) medium- to dark-gray, light- to medium-gray-weathering (tan-weathering on exposed fracture surfaces) garnet-plagioclase-sillimanite-muscovite-biotite-quartz gneiss, with locally abundant opaque minerals and microcline instead of sillimanite; (2) gray, light-gray-to white-weathering sillimanite-plagioclase-biotite-muscovite-microcline-quartz gneiss with locally interlayered granofels and amphibolite; and (3) gray, felsic biotite-hornblende gneiss, and thick (averaging about 100 ft), very dark greenish-black, black-weathering, hornblende-biotite-amphibolite with interlayered garnetiferous pegmatite and rusty- and black-weathering, thinly laminated biotite gneiss and coarse granite containing garnets up to 1.5 in. across.

Biotite-quartz-plagioclase-hornblende amphibolites 50 ft or more thick are scattered throughout the Pelham Bay Member. Amphibolites farther to the east, on Twin, Hunter and Rat Islands, contain garnet porphyroblasts more than 0.4 in. across. A locally occurring combination is dark-gray, black- and tan- to rusty-weathering, quartz-biotite-hornblende amphibolite interlayered with coarse, rough-weathering quartz-plagioclase-biotite-hornblende granite and fine-grained hornblende-biotite-microcline-quartz banded gneiss with minor garnet. Some amphibolite boudins with epidote are locally present.

Quartz-microcline-orthoclase-mica pegmatites more than 50 ft thick and having crystals several inches across intrude some of the amphibolites

EXPLANATION OF MAP SYMBOLS

Contact—Dashed where approximately located; dotted where under water; queried where uncertain. Where shown solid under water, was located by test borings and tunnel data

30 U D **Fault**—Showing dip; short line normal to fault trace indicates vertical dip; paired arrows show relative movement; U, upthrown side; D, downthrown side. Dashed where approximately located; dotted where under water. Where observed in tunnels is shown solid. On cross sections only, relative movement is shown by: a, away from observer; t, toward observer

Thrust fault—Sawteeth on upper plate. Dashed where approximately located; dotted where under water. Where observed in tunnels is shown solid. Shows dip where known

Overturned thrust fault—Sawteeth are on lower plate, but point in direction of movement of overturned upper plate; bars are on upper plate (see section *A–A'*)

Thrust faults coincident in map view—Inwood Hill thrust (open teeth) lies several hundred feet below Cameron's Line (solid teeth). See section *F–F'*

FOLDS

Folds show trace of axial surface. They are dashed where approximately located; dotted where under water

Antiform—Showing direction of plunge where known. Where asymmetric, shorter arrow indicates steeper limb

Overturned antiform—Showing direction of dip of limbs, and direction of plunge where known

Synform—Where asymmetric, shorter arrow indicates steeper limb

Overturned synform—Showing direction of dip of limbs, and direction of plunge where known

---?--- **Uncertain axial trace**

MINOR FOLDS

Strike and dip of axial surface of folds

10 15 Inclined—Arrow, where shown, indicates bearing and plunge of axis

Vertical

15 **Minor anticline or antiform**—Showing bearing and plunge (only one occurrence, near Yankee Stadium)

20 **Minor syncline or synform**—Showing bearing and plunge (only one occurrence, in Eastchester; is combined with symbol showing vertically striking foliation)

12 **Minor fold deforming earlier foliation**—Showing bearing and plunge

PLANAR FEATURES

May be combined with linear features. Shown open where measured in excavations and tunnels

Strike and dip of foliation

15 Inclined

Vertical

Strike and dip of joints

15 Inclined

Vertical

Horizontal

LINEAR FEATURES

15 **Bearing and plunge of mineral lineation**

Bearing of glacial groove or striation—Point of observation at tip of arrow

SUBSURFACE INFORMATION

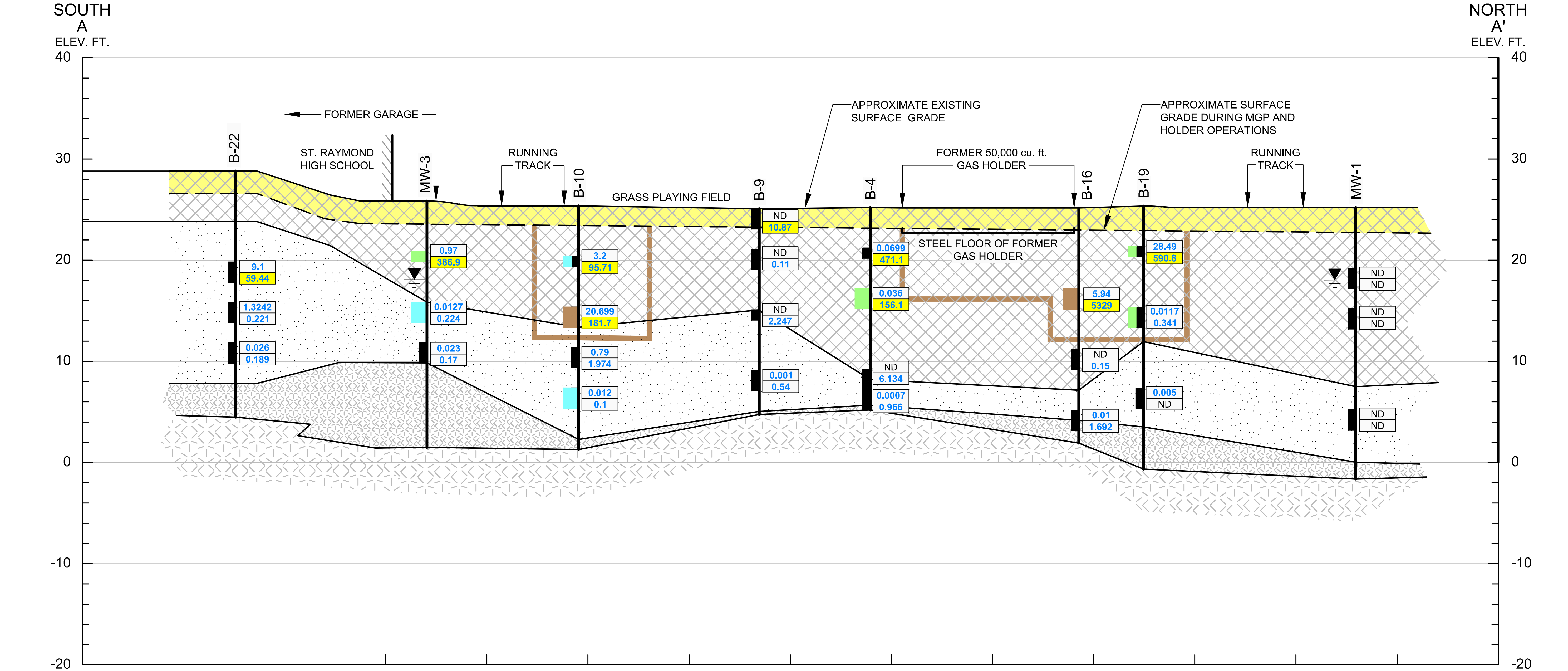
Locality of boring used to define stratigraphic contact

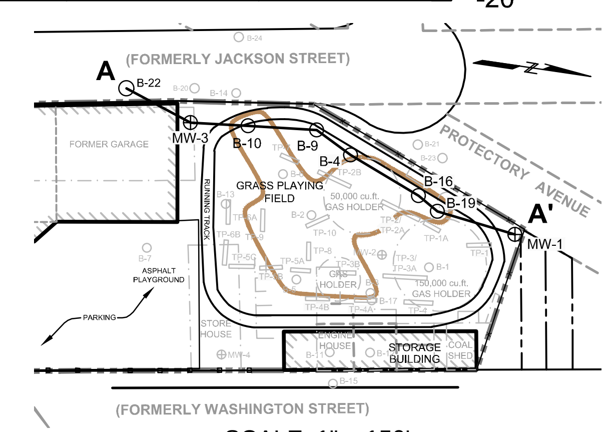
SOURCE:

BEDROCK AND ENGINEERING GEOLOGIC MAPS OF BRONX COUNTY AND PARTS OF NEW YORK AND QUEENS COUNTIES, NEW YORK, BY CHARLES A. BASKERVILLE, 1992.

REMEDIAL INVESTIGATION PURDY STREET STATION BRONX, NEW YORK	GEI Consultants	**BEDROCK GEOLOGY MAP**
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. NEW YORK, NEW YORK		April 2010 Figure 4

I:\GEI\CON_ED\032211-Purdy Street\RI\3-2010\ Purdy-Bed Geo.dwg \Apr 07, 2010





SCALE: 1" = 150'

VERTICAL SCALE IN FEET: 0, 10, 20

HORIZONTAL SCALE IN FEET: 0, 30, 60

VERTICAL EXAGGERATION = 3X

LEGEND

(hatch)	FILL	(cyan)	NAPHTHALENE AND/OR MGP-LIKE ODORS
(hatch)	CONCRETE	(green)	NAPL TAR STAINING AND/OR SHEEN
(hatch)	SAND AND SILT	(brown)	NAPL
(hatch)	WEATHERED BEDROCK	(yellow)	POST MGP-ERA FILL
(hatch)	BEDROCK	(brown line)	NAPL SOURCE AREA
		(line)	CONTACT
ND / ND	TOTAL VOCs (VOLATILE ORGANIC COMPOUNDS) mg/kg; TOTAL SVOCs (SEMIVOLATILE ORGANIC COMPOUNDS) mg/kg	MW-1	SOIL BORING OR MONITORING WELL IDENTIFICATION
		▼	OBSERVED APPARENT GROUNDWATER TABLE
		▮	ANALYTICAL SOIL SAMPLE INTERVAL

NOTES:

ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
BLUE	ORGANIC COMPOUND(S) DETECTED IN SAMPLE
(yellow)	EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs) FROM GROUND SURFACE TO 14 FEET BGS
(pink)	EXCEEDS RESIDENTIAL USE SCOs DEEPER THAN 14 FEET BGS

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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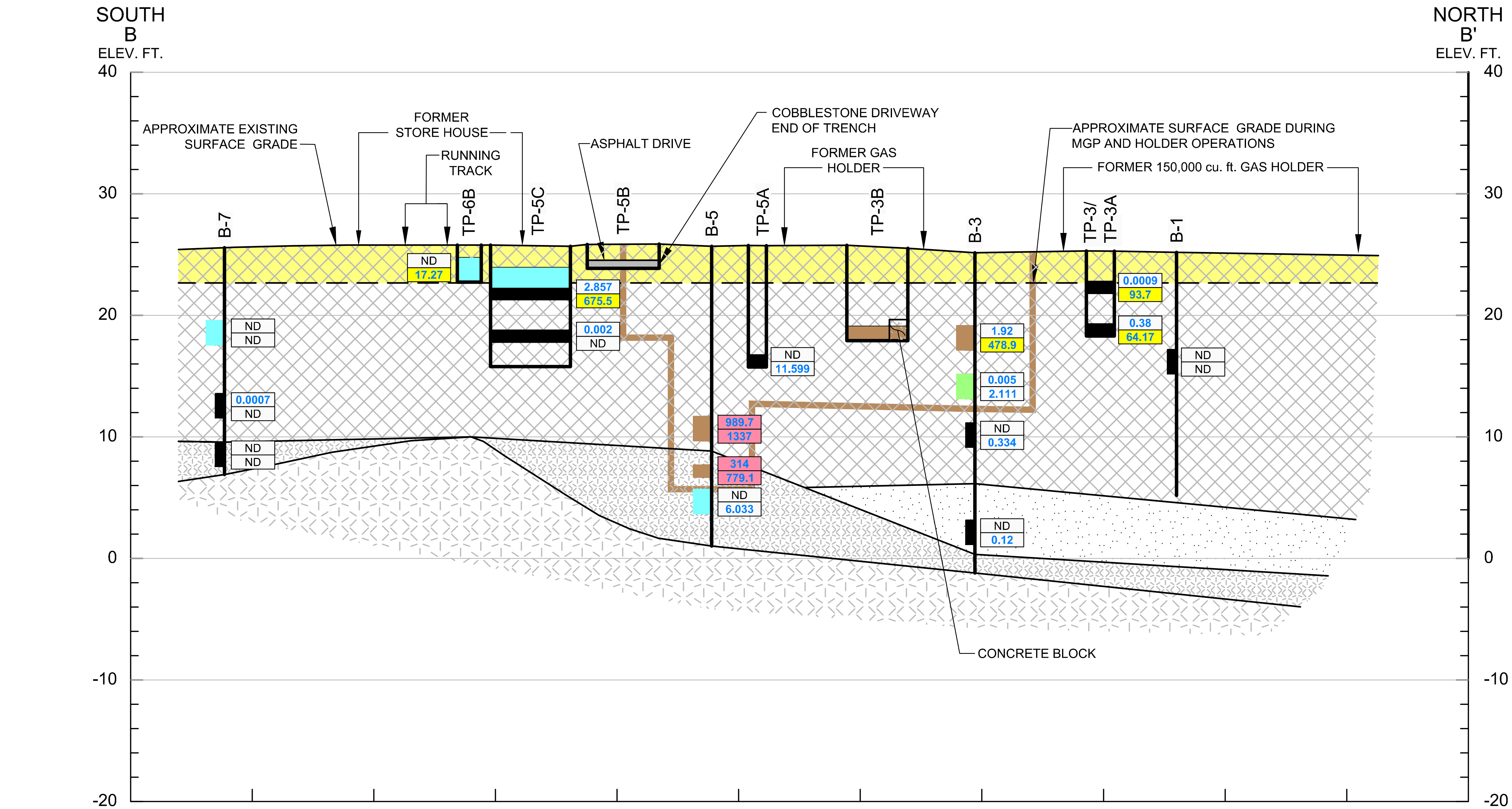
CROSS SECTION A-A'

April 2010 Figure 5



LEGEND

	FILL		NAPHTHALENE AND/OR MGP-LIKE ODORS
	CONCRETE		NAPL TAR STAINING AND/OR SHEEN
	SAND AND SILT		NAPL
	WEATHERED BEDROCK		POST MGP-ERA FILL
	BEDROCK		NAPL SOURCE AREA
			CONTACT

ND / ND — TOTAL VOCs (VOLATILE ORGANIC COMPOUNDS) mg/kg; TOTAL SVOCs (SEMIVOLATILE ORGANIC COMPOUNDS) mg/kg

MW-1 — SOIL BORING OR MONITORING WELL IDENTIFICATION

OBSERVED APPARENT GROUNDWATER TABLE

ANALYTICAL SOIL SAMPLE INTERVAL

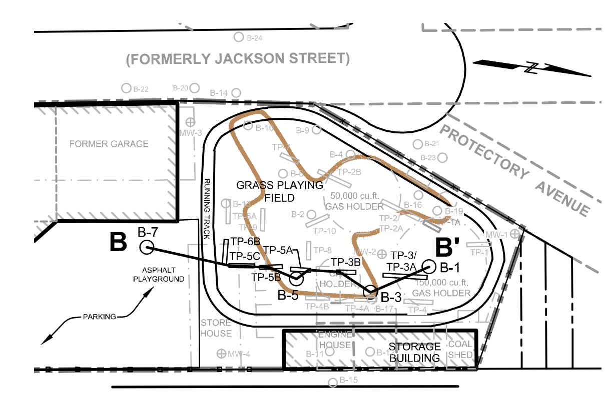
0 10 20
VERTICAL SCALE IN FEET

0 30 60
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 3X

NOTES:

ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
BLUE	ORGANIC COMPOUND(S) DETECTED IN SAMPLE
(yellow)	EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs) FROM GROUND SURFACE TO 14 FEET BGS
(pink)	EXCEEDS RESIDENTIAL USE SCOs DEEPER THAN 14 FEET BGS



SCALE: 1" = 150'

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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CROSS SECTION B-B'

April 2010 Figure 6

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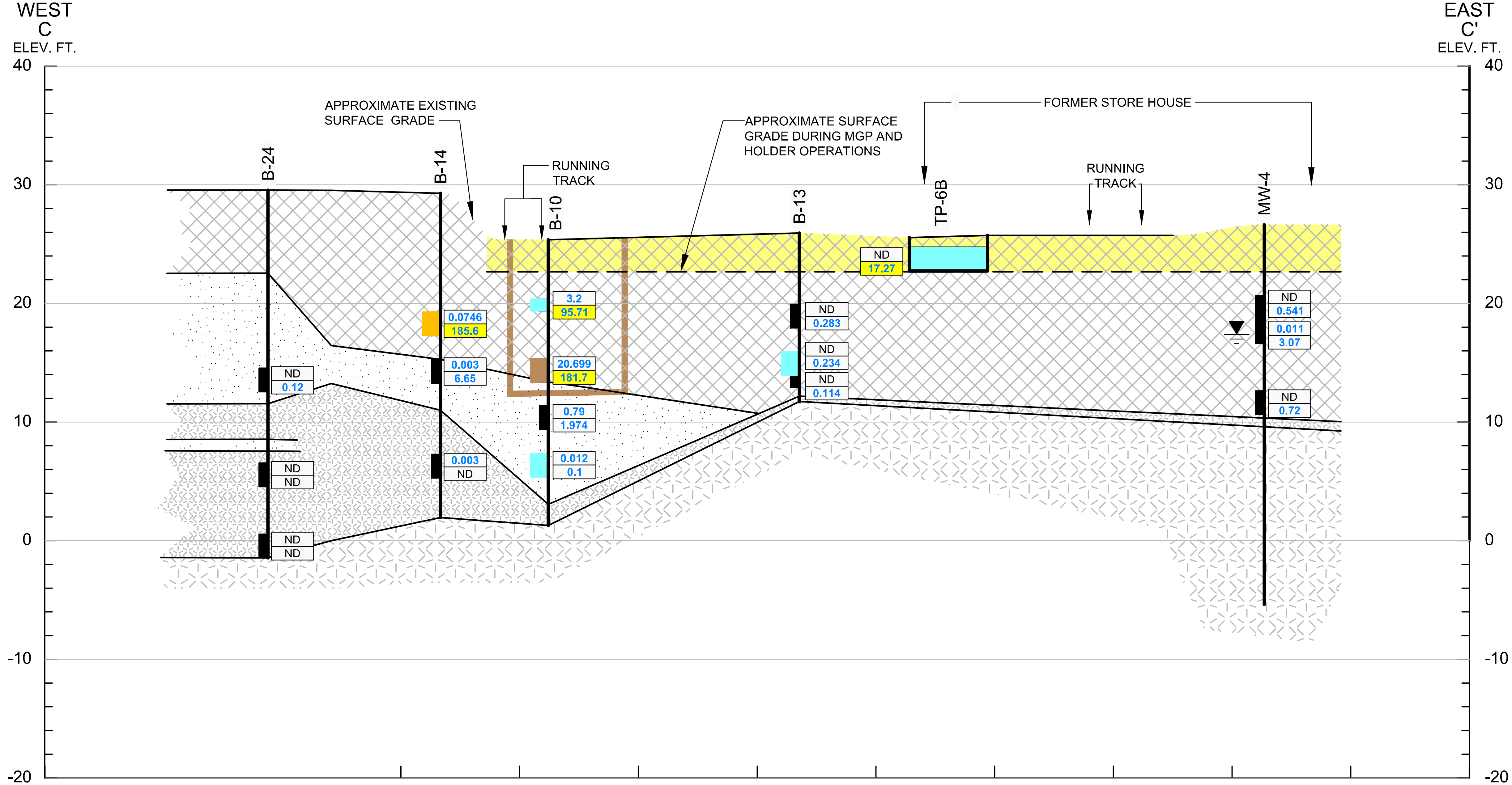


LEGEND

(crosshatch)	FILL	(cyan)	NAPHTHALENE AND/OR MGP-LIKE ODORS
(stipple)	CONCRETE	(orange)	FUEL OIL-LIKE ODORS
(dots)	SAND AND SILT	(green)	NAPL TAR STAINING AND/OR SHEEN
(hatch)	WEATHERED BEDROCK	(brown)	NAPL
(hatch)	BEDROCK	(yellow)	POST MGP-ERA FILL
		(brown line)	NAPL SOURCE AREA
		(line)	CONTACT

ND / ND — TOTAL VOCs (VOLATILE ORGANIC COMPOUNDS) mg/kg; TOTAL SVOCs (SEMIVOLATILE ORGANIC COMPOUNDS) mg/kg

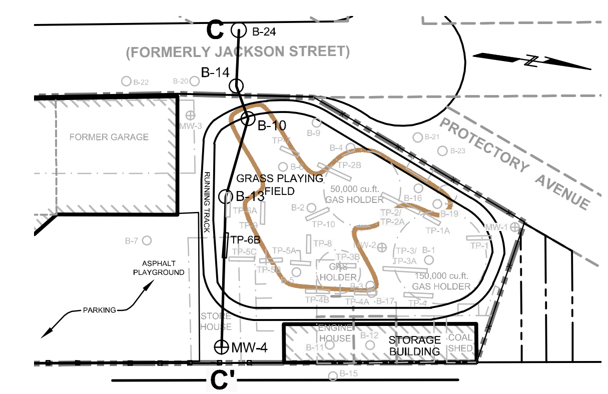
MW-1 — SOIL BORING OR MONITORING WELL IDENTIFICATION

OBSERVED APPARENT GROUNDWATER TABLE

ANALYTICAL SOIL SAMPLE INTERVAL

NOTES:

ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
BLUE	ORGANIC COMPOUND(S) DETECTED IN SAMPLE
(yellow)	EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs) FROM GROUND SURFACE TO 14 FEET BGS
(pink)	EXCEEDS RESIDENTIAL USE SCOs DEEPER THAN 14 FEET BGS



SCALE: 1" = 150'

0 — 10 — 20
VERTICAL SCALE IN FEET

0 — 30 — 60
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 3X

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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CROSS SECTION C-C'

April 2010 — Figure 7

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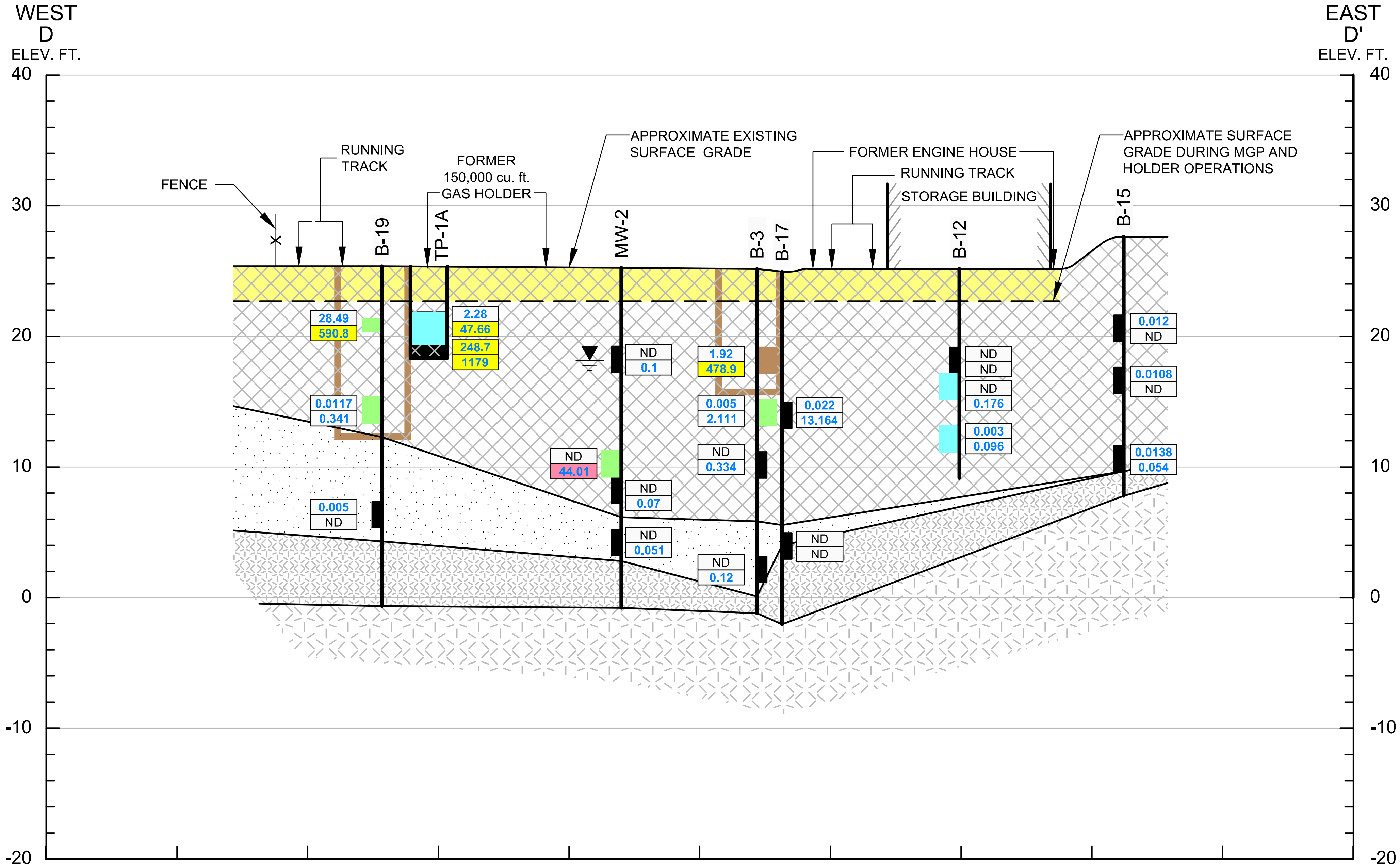


LEGEND

FILL	NAPHTHALENE AND/OR MGP-LIKE ODORS
CONCRETE	NAPL TAR STAINING AND/OR SHEEN
SAND AND SILT	NAPL
WEATHERED BEDROCK	POST MGP-ERA FILL
BEDROCK	NAPL SOURCE AREA
	CONTACT

ND / ND — TOTAL VOCs (VOLATILE ORGANIC COMPOUNDS) mg/kg; TOTAL SVOCs (SEMIVOLATILE ORGANIC COMPOUNDS) mg/kg

MW-1 — SOIL BORING OR MONITORING WELL IDENTIFICATION

OBSERVED APPARENT GROUNDWATER TABLE

ANALYTICAL SOIL SAMPLE INTERVAL

NOTES:

ND — NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE

BLUE — ORGANIC COMPOUND(S) DETECTED IN SAMPLE

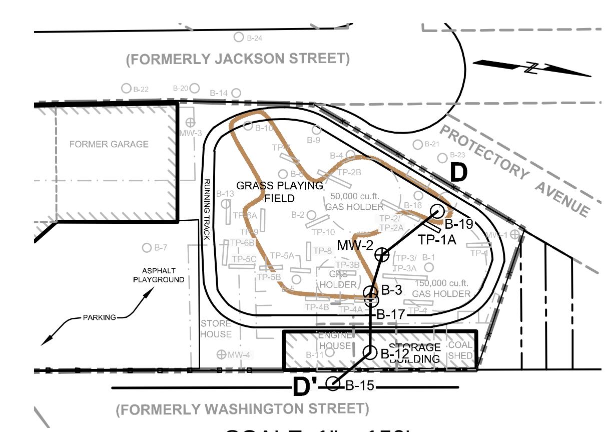
(yellow) — EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs) FROM GROUND SURFACE TO 14 FEET BGS

(pink) — EXCEEDS RESIDENTIAL USE SCOs DEEPER THAN 14 FEET BGS

0 10 20
VERTICAL SCALE IN FEET

0 30 60
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 3X



SCALE: 1" = 150'

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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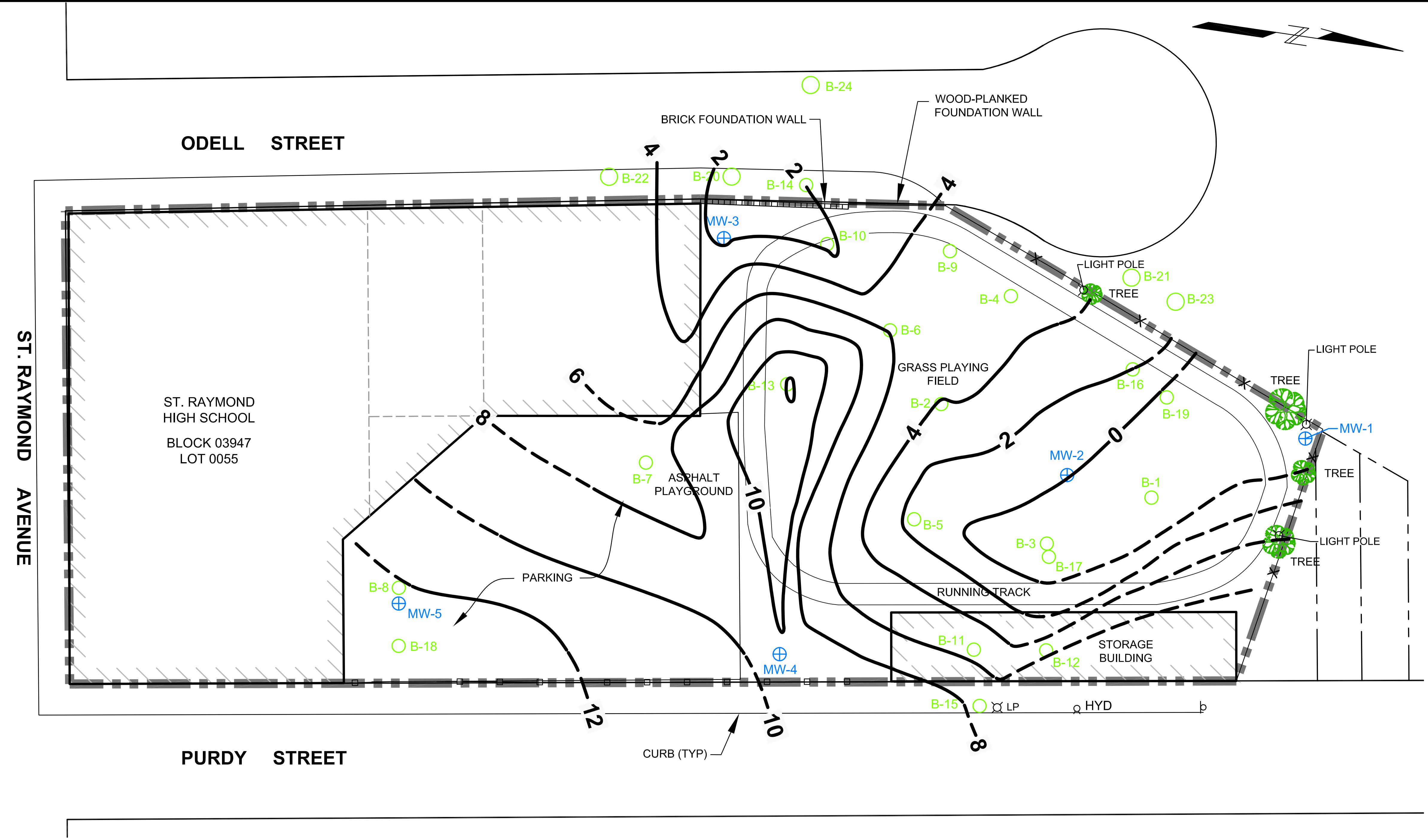
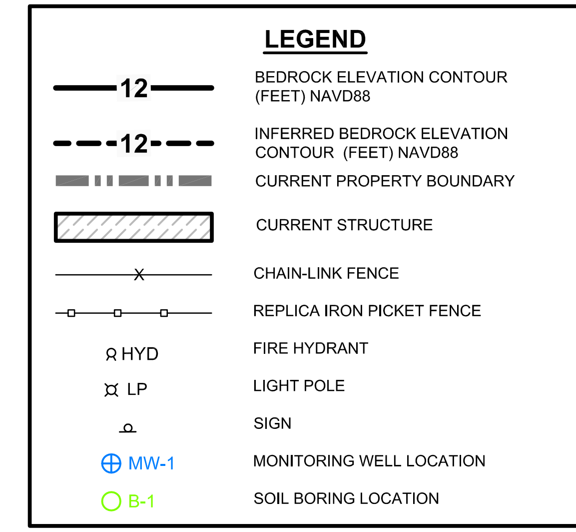
CROSS SECTION D-D'

April 2010 Figure 8

I:\GEI\CON_ED\032211-Purdy Street\RI\3-2010\ Purdy-XSECT.dwg \Apr 07, 2010





Location	Surveyed Surface Elevation (feet NAVD)	Depth to Bedrock (feet from surface)	Bedrock Elevation (feet NAVD)
B-1	25.19	NA	NA
B-2	25.93	22.00	3.93
B-3	25.15	26.34	-1.19
B-4	25.21	20.00	5.21
B-5	25.69	24.67	1.02
B-6	25.85	20.00	5.85
B-7	25.57	18.67	6.90
B-8	25.73	13.60	12.13
B-9	25.09	20.34	4.75
B-10	25.37	24.08	1.29
B-11	25.16	NA	NA
B-12	25.16	NA	NA
B-13	25.93	13.75	12.18
B-14	29.29	27.34	1.95
B-15	27.62	19.83	7.79
B-16	25.17	23.25	1.92
B-17	24.95	26.75	-1.80
B-18	26.23	12.34	13.89
B-19	25.35	26.00	-0.65
B-20	29.30	28.00	1.30
B-21	28.26	NA	NA
B-22	28.82	22.50	6.32
B-23	27.59	NA	NA
B-24	29.55	NA	NA
MW-1	25.59	26.83	-1.24
MW-2	25.23	26.00	-0.77
MW-3	25.85	24.34	1.51
MW-4	26.63	17.00	9.63
MW-5	25.85	12.50	13.35

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. CONTOURS GENERATED FROM SAMPLE POINT SHOWN IN TABLE.
2. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM (NAD)83.
3. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD)88..

REMEDIAL INVESTIGATION
PURDY STREET STATION
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NEW YORK, NEW YORK

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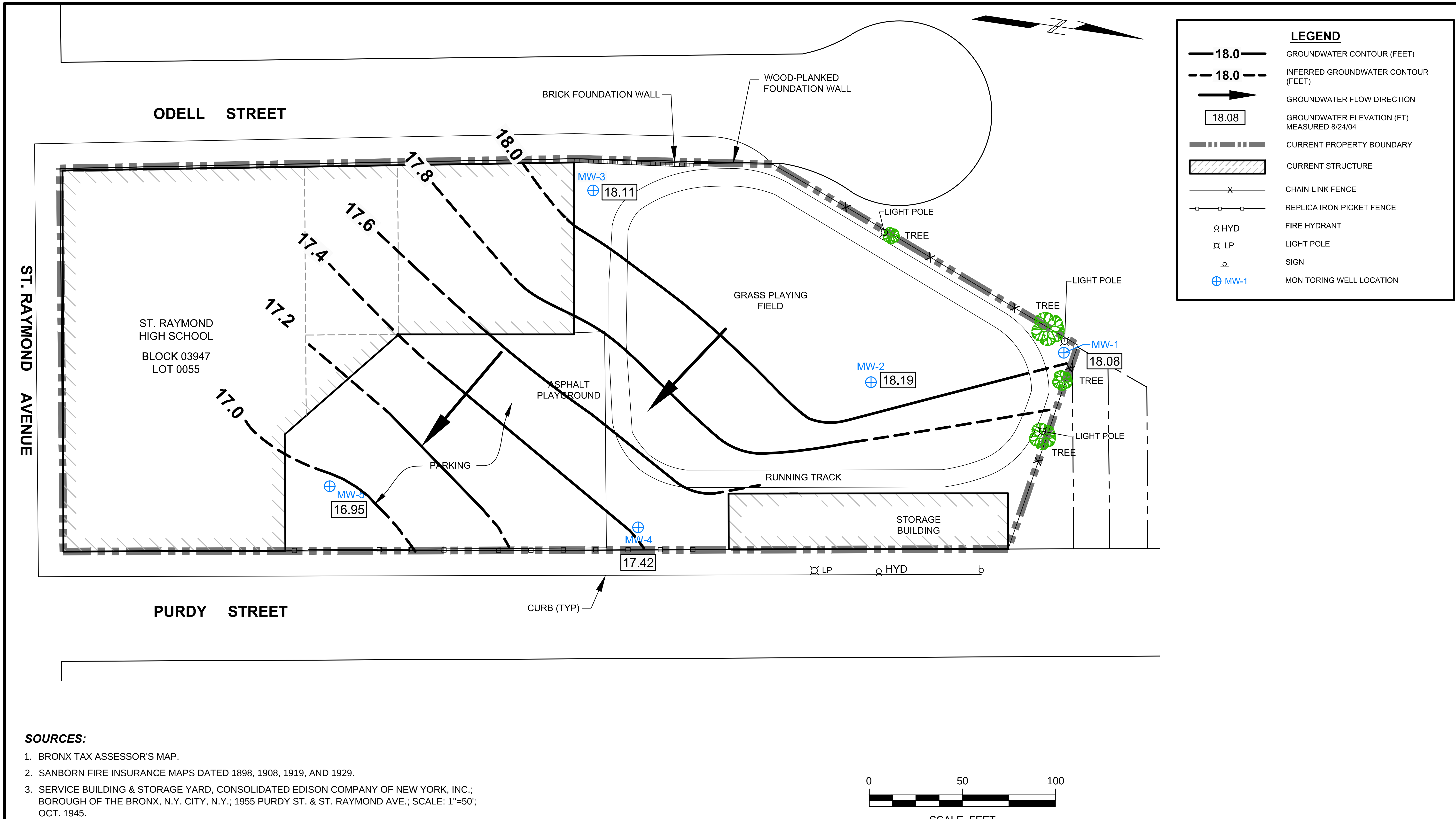
BEDROCK CONTOUR MAP

April 2010 Figure 9



SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION PURDY STREET STATION BRONX, NEW YORK	GEI Consultants	**GROUNDWATER CONTOURS AND FLOW DIRECTION AUGUST 25, 2004**
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. NEW YORK, NEW YORK		April 2010 Figure 10

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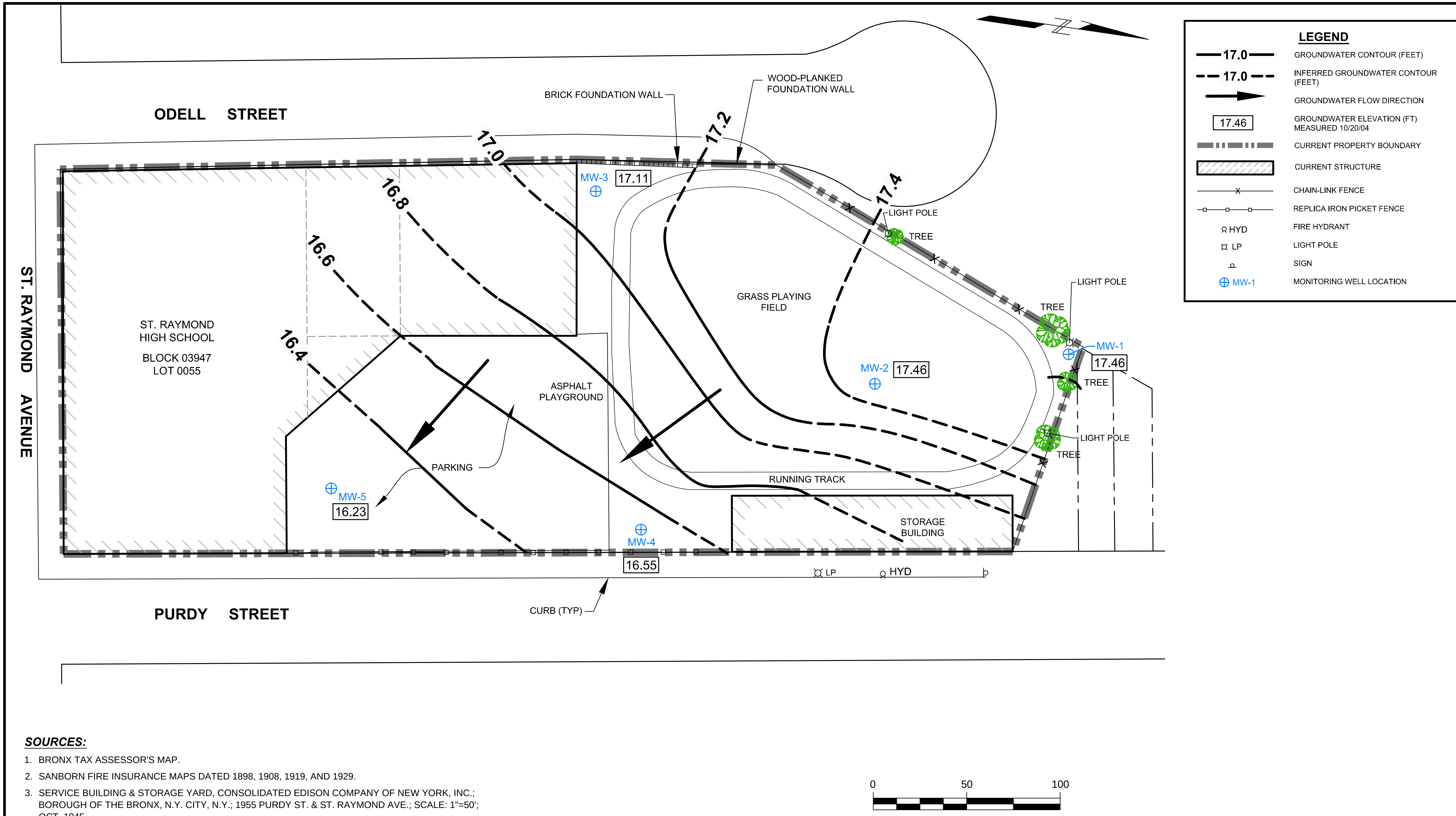

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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GROUNDWATER CONTOURS AND FLOW DIRECTION OCTOBER 20, 2004

April 2010 Figure 11

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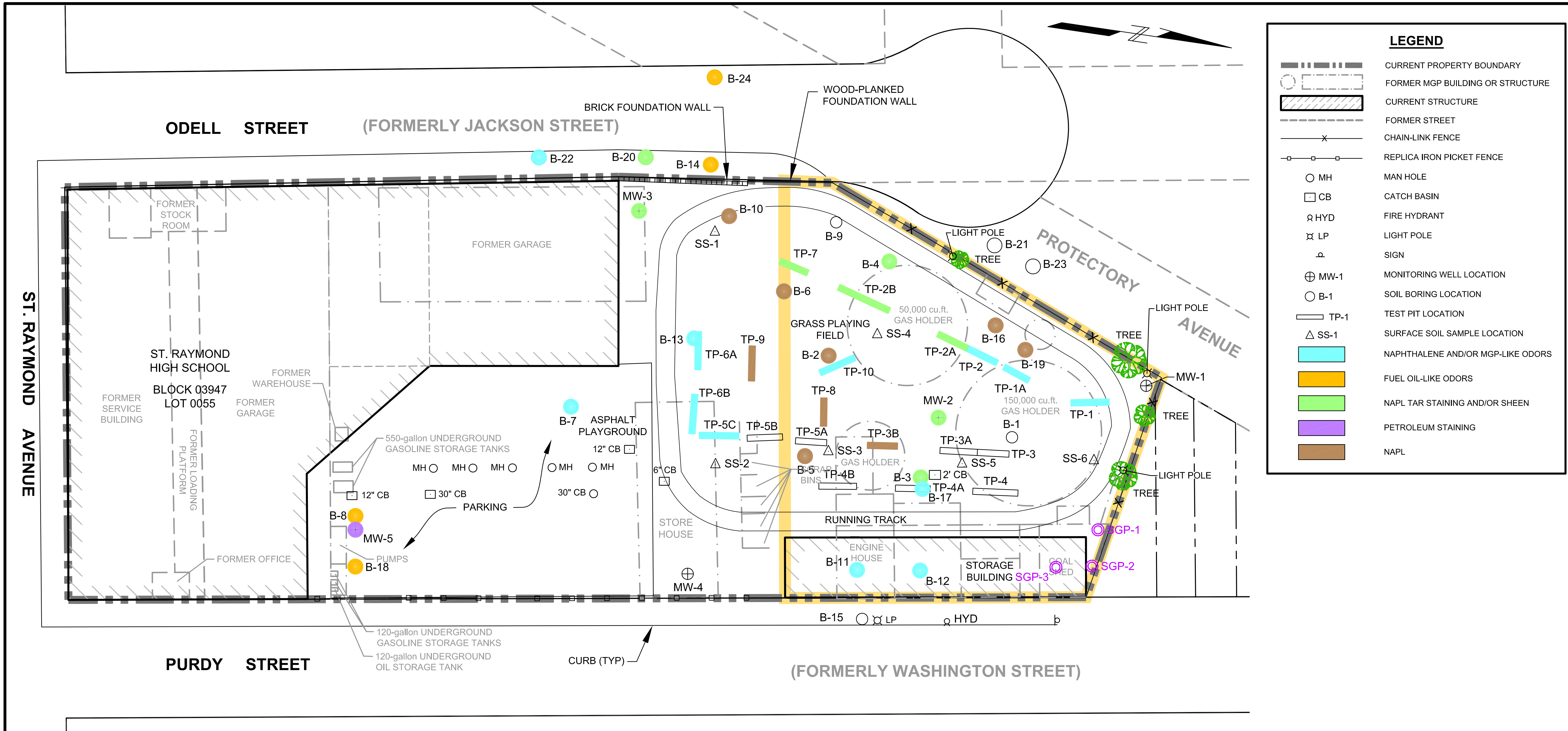

0 50 100

SCALE, FEET

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION PURDY STREET STATION BRONX, NEW YORK	GEI Consultants	**OBSERVED IMPACTS**
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. NEW YORK, NEW YORK		April 2010 Figure 12

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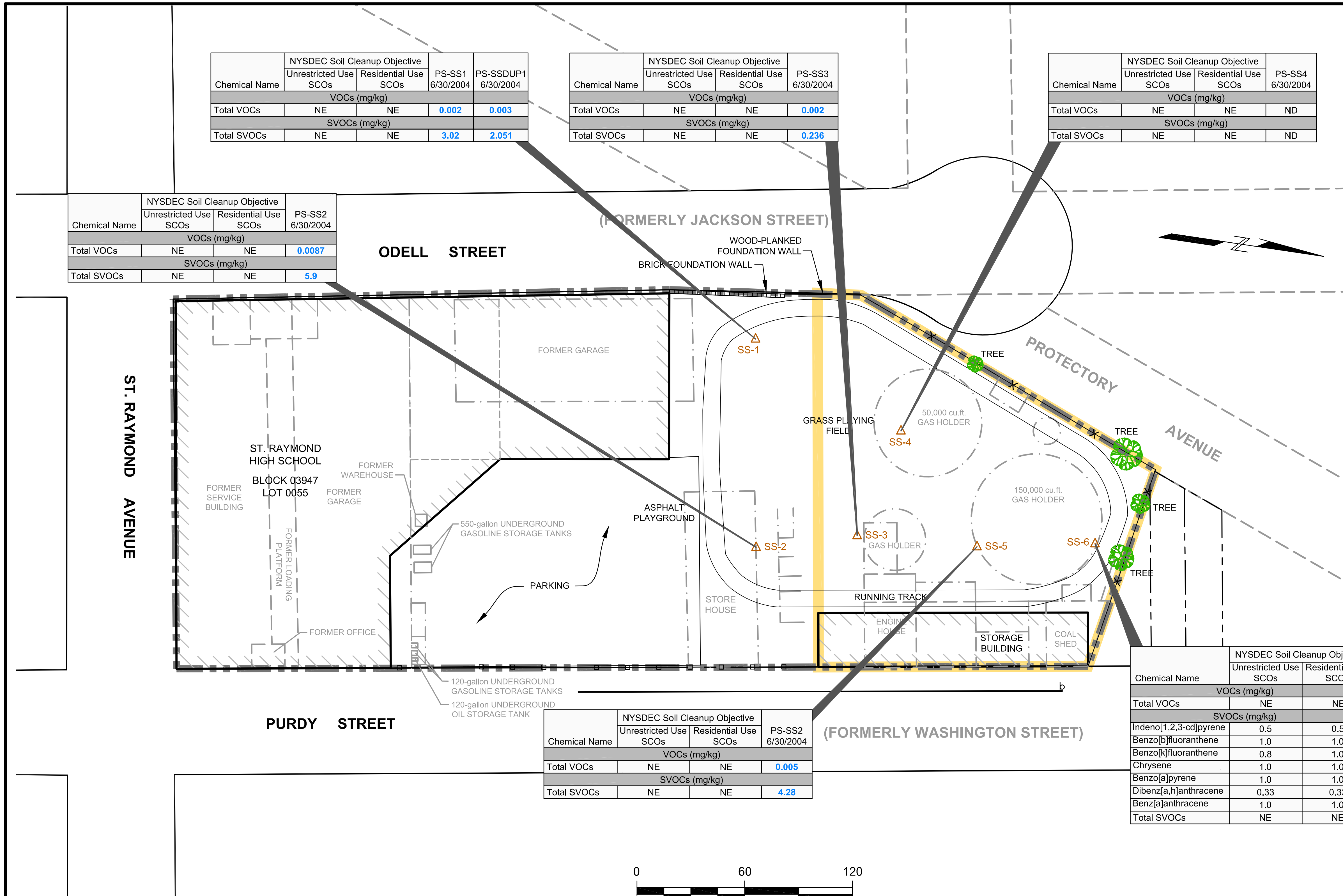

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS1 6/30/2004	PS-SSDUP1 6/30/2004
VOCs (mg/kg)				
Total VOCs	NE	NE	0.002	0.003
SVOCs (mg/kg)				
Total SVOCs	NE	NE	3.02	2.051

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS3 6/30/2004
VOCs (mg/kg)			
Total VOCs	NE	NE	0.002
SVOCs (mg/kg)			
Total SVOCs	NE	NE	0.236

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS4 6/30/2004
VOCs (mg/kg)			
Total VOCs	NE	NE	ND
SVOCs (mg/kg)			
Total SVOCs	NE	NE	ND

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS2 6/30/2004
VOCs (mg/kg)			
Total VOCs	NE	NE	0.0087
SVOCs (mg/kg)			
Total SVOCs	NE	NE	5.9

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS2 6/30/2004
VOCs (mg/kg)			
Total VOCs	NE	NE	0.005
SVOCs (mg/kg)			
Total SVOCs	NE	NE	4.28

Chemical Name	NYSDEC Soil Cleanup Objective Unrestricted Use SCOs	NYSDEC Soil Cleanup Objective Residential Use SCOs	PS-SS6 6/30/2004
VOCs (mg/kg)			
Total VOCs	NE	NE	0.003
SVOCs (mg/kg)			
Indeno[1,2,3-cd]pyrene	0.5	0.5	4.4
Benzo[b]fluoranthene	1.0	1.0	4.9
Benzo[k]fluoranthene	0.8	1.0	7.4
Chrysene	1.0	1.0	8.5
Benzo[a]pyrene	1.0	1.0	6.6
Dibenz[a,h]anthracene	0.33	0.33	2 J
Benz[a]anthracene	1.0	1.0	5.9 J
Total SVOCs	NE	NE	88.67

LEGEND

- CURRENT PROPERTY BOUNDARY
- FORMER MGP BUILDING OR STRUCTURE
- CURRENT STRUCTURE
- FORMER STREET
- AREA OF FORMER MGP OPERATIONS
- CHAIN-LINK FENCE
- REPLICA IRON PICKET FENCE
- △ SS SURFACE SOIL SAMPLE LOCATION

NOTES:

VOCs	VOLATILE ORGANIC COMPOUNDS
SVOCs	SEMIVOLATILE ORGANIC COMPOUNDS
ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
mg/kg	MILLIGRAMS PER KILOGRAM
BLUE	ORGANIC COMPOUNDS DETECTED IN SAMPLE
	EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs)
	EXCEEDS UNRESTRICTED USE SCOs
NE	NOT ESTABLISHED

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION
PURDY STREET STATION
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SURFACE SOIL VOC AND SVOC ANALYTICAL DATA

April 2010 Figure 13

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Sample ID	PS-B24(15-17)	PS-B24(23-25)	PS-B24(24)	PS-B24(29-31)
Total VOCs (mg/kg)	ND	ND	ND	ND
Total SVOCs (mg/kg)	0.12	ND	ND	ND

Sample ID	PS-B14(10-12)	PS-B14(14-16)	PS-B14(20-22)
Total VOCs (mg/kg)	0.0746	0.003	0.003
Total SVOCs (mg/kg)	185.6	6.65	ND

Sample ID	PS-B10(5-6)	PS-B10(10-12)	PS-B10(14-16)	PS-B10(18-20)
Total VOCs (mg/kg)	3.2	20.699	0.79	0.012
Total SVOCs (mg/kg)	95.71	181.7	1.974	0.1

Sample ID	PS-B20(15-17)	PS-B20(19-21)	PS-B20(27-28)
Total VOCs (mg/kg)	68.4	567.8	ND
Total SVOCs (mg/kg)	565.63	1458.45	1.3

Sample ID	PS-MW3(5-6)	PS-MW3(10-12)	PS-MW3(14-16)
Total VOCs (mg/kg)	0.97	0.0127	0.023
Total SVOCs (mg/kg)	386.9	0.224	0.17

Sample ID	PS-B22(9-11)	PS-B22(13-15)	PS-B22(17-19)
Total VOCs (mg/kg)	9.1	1.3242	0.026
Total SVOCs (mg/kg)	59.44	0.221	0.189

Sample ID	PS-B6(0-2)	PS-B6(3-5)	PS-B6(6-8)	PS-B6(10-12)	PS-B6(16-18)
Total VOCs (mg/kg)	0.0007	1.382	112.54	7.94	0.002
Total SVOCs (mg/kg)	5.57	116.48	1367	153.2	0.392

Sample ID	PS-B9(0-2)	PS-B9(4-6)	PS-B9(10-11)	PS-B9(16-18)
Total VOCs (mg/kg)	ND	ND	ND	0.001
Total SVOCs (mg/kg)	10.87	0.11	2.247	0.54

Sample ID	PS-TP7(3-4)	PS-TP7(6-7)
Total VOCs (mg/kg)	37.37	1.712
Total SVOCs (mg/kg)	401.3	199.48

Sample ID	PS-B2(2-4)	PS-B2(8-10)	PS-B2(16-18)
Total VOCs (mg/kg)	0.006	0.302	ND
Total SVOCs (mg/kg)	293.2	0.289	1.46

Sample ID	PS-B4(4-5)	PS-B4(8-10)	PS-B4(16-18)	PS-B4(18-20)
Total VOCs (mg/kg)	0.0699	0.036	ND	0.0007
Total SVOCs (mg/kg)	471.1	156.1	6.134	0.966

Sample ID	PS-TP2B(3)
Total VOCs (mg/kg)	86
Total SVOCs (mg/kg)	23720

Sample ID	PS-TP8(7-8)
Total VOCs (mg/kg)	0.009
Total SVOCs (mg/kg)	180.8

Sample ID	PS-MW2(6-8)	PS-MW2(14-16)	PS-MW2(16-18)	PS-MW2(20-22)
Total VOCs (mg/kg)	ND	ND	ND	ND
Total SVOCs (mg/kg)	0.1	44.01	0.07	0.051

Sample ID	PS-TP2A(2.5-3)
Total VOCs (mg/kg)	1981
Total SVOCs (mg/kg)	35940

Sample ID	PS-21(11-13)	PS-21(13-15)
Total VOCs (mg/kg)	ND	ND
Total SVOCs (mg/kg)	0.334	170.09

Sample ID	PS-B23(7-9)	PS-B23(13-15)
Total VOCs (mg/kg)	ND	ND
Total SVOCs (mg/kg)	ND	ND

Sample ID	PS-B16(8-10)	PS-B16(14-16)	PS-B16(20-22)
Total VOCs (mg/kg)	5.94	ND	0.01
Total SVOCs (mg/kg)	5329	0.15	1.692

Sample ID	PS-B19(6-7)	PS-B19(10-12)	PS-B19(18-20)
Total VOCs (mg/kg)	28.49	0.0117	0.005
Total SVOCs (mg/kg)	590.8	0.341	ND

Sample ID	PS-TP1A(4-5)	PS-TP1A(6-7)
Total VOCs (mg/kg)	2.28	248.7
Total SVOCs (mg/kg)	47.66	1179

Sample ID	PS-MW1(6-8)	PS-MW1(10-12)	PS-MW1(20-22)
Total VOCs (mg/kg)	ND	ND	ND
Total SVOCs (mg/kg)	ND	ND	ND

Sample ID	PS-TP9(7-8)
Total VOCs (mg/kg)	2.371
Total SVOCs (mg/kg)	214.85

Sample ID	PS-B13(6-8)	PS-B13(10-12)	PS-B13(12-13)
Total VOCs (mg/kg)	ND	ND	ND
Total SVOCs (mg/kg)	0.283	0.234	0.114

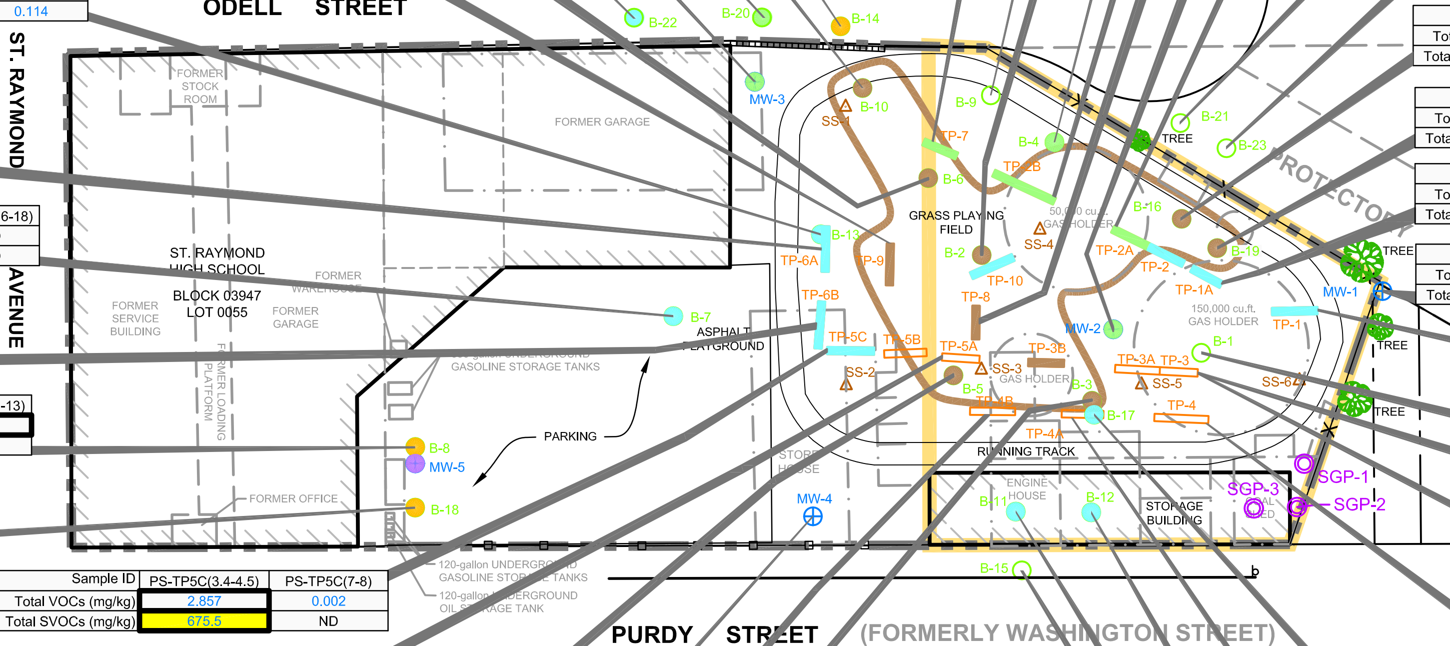
Sample ID	PS-TP6A(3-4)	PS-TP6A(8-9)
Total VOCs (mg/kg)	0.307	0.005
Total SVOCs (mg/kg)	206	3.65

Sample ID	PS-B7(6-8)	PS-B7(12-14)	PS-B7(16-18)
Total VOCs (mg/kg)	ND	0.0007	ND
Total SVOCs (mg/kg)	ND	ND	ND

Sample ID	PS-TP6B(1.5-2.5)
Total VOCs (mg/kg)	ND
Total SVOCs (mg/kg)	17.27

Sample ID	PS-B8(8-10)	PS-B8(10-12)	PS-B8(12-13)
Total VOCs (mg/kg)	34.1	0.014	1.29
Total SVOCs (mg/kg)	31.66	8.66	7.63

Sample ID	PS-B18(8-10)
Total VOCs (mg/kg)	0.117
	1.83



Sample ID	PS-TP5C(3.4-4.5)	PS-TP5C(7-8)
Total VOCs (mg/kg)	2.857	0.002
Total SVOCs (mg/kg)	675.5	ND

Sample ID	PS-TP5A(9-10)
Total VOCs (mg/kg)	ND
Total SVOCs (mg/kg)	11.599

Sample ID	PS-B5(14-16)	PS-B5(18-19)	PS-B5(20-22)
Total VOCs (mg/kg)	989.7	314	ND
Total SVOCs (mg/kg)	1337	779.1	6.033

Sample ID	PS-MW4(6-8)	PS-MW4(8-10)	PS-MW4(14-16)
Total VOCs (mg/kg)	ND	0.011	ND
Total SVOCs (mg/kg)	0.541	3.07	0.72

Sample ID	PS-TP4B(4.5-5.5)
Total VOCs (mg/kg)	ND
Total SVOCs (mg/kg)	0.138

Sample ID	PS-B3(6-8)	PS-B3(10-12)	PS-B3(14-16)	PS-B3(22-24)
Total VOCs (mg/kg)	1.92	0.005	ND	ND
Total SVOCs (mg/kg)	478.9	2.111	0.334	0.12

Sample ID	PS-B15(6-8)	PS-B15(10-12)	PS-B15(16-18)
Total VOCs (mg/kg)	0.012	0.0108	0.0138
Total SVOCs (mg/kg)	ND	ND	0.054

Sample ID	PS-B11(3.5-4)	PS-B11(6-8)	PS-B11(8-10)
Total VOCs (mg/kg)	0.059	ND	ND
Total SVOCs (mg/kg)	16.06	0.515	ND

Sample ID	PS-TP1(3-4)
Total VOCs (mg/kg)	ND
Total SVOCs (mg/kg)	7.16

Sample ID	PS-B1(8-10)
Total VOCs (mg/kg)	ND
Total SVOCs (mg/kg)	ND

Sample ID	PS-TP3(7-8)
Total VOCs (mg/kg)	0.38
Total SVOCs (mg/kg)	64.17

Sample ID	PS-TP3A(2.5-3.5)
Total VOCs (mg/kg)	0.0009
Total SVOCs (mg/kg)	93.7

Sample ID	PS-TP4(2)	PS-TP4(3)
Total VOCs (mg/kg)	0.002	0.003
Total SVOCs (mg/kg)	58.7	1.318

Sample ID	PS-B17(10-12)	PS-B17(20-22)
Total VOCs (mg/kg)	0.022	ND
Total SVOCs (mg/kg)	13.164	ND

Sample ID	PS-TP4A(6)
Total VOCs (mg/kg)	0.056
Total SVOCs (mg/kg)	51.49

Sample ID	PS-B12(6-8)	PS-B12(8-10)	PS-B12(12-14)
Total VOCs (mg/kg)	ND	ND	0.003
Total SVOCs (mg/kg)	ND	0.176	0.096

LEGEND

- CURRENT PROPERTY BOUNDARY
- FORMER MGP BUILDING OR STRUCTURE
- CURRENT STRUCTURE
- FORMER STREET
- AREA OF FORMER MGP OPERATIONS
- CHAIN-LINK FENCE
- REPLICA IRON PICKET FENCE
- MW-1 MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION
- SS-1 SURFACE SOIL SAMPLE LOCATION
- SGP-1 SOIL GAS SAMPLE LOCATION
- TP-1 TEST PIT LOCATION
- NAPHTHALENE AND/OR MGP-LIKE ODORS
- FUEL OIL-LIKE ODORS
- NAPL TAR STAINING AND/OR SHEEN
- PETROLEUM STAINING
- NAPL
- NAPL SOURCE AREA

NOTES:

VOCs	VOLATILE ORGANIC COMPOUNDS
SVOCs	SEMIVOLATILE ORGANIC COMPOUNDS
ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
mg/kg	MILLIGRAMS PER KILOGRAM
BLUE	ORGANIC COMPOUNDS DETECTED IN SAMPLE
(yellow)	EXCEEDS RESIDENTIAL USE SOIL CLEANUP OBJECTIVES (SCOs) FROM GROUND SURFACE TO 14 FEET BGS
(pink)	EXCEEDS RESIDENTIAL USE SCOs DEEPER THAN 14 FEET BGS
(black box)	EXCEEDS UNRESTRICTED USE SCOs
(yellow line)	LIMITS OF VOC OR SVOC DETECTIONS EXCEEDING RESIDENTIAL USE SCOs (DASHED LINE APPROXIMATE)
(pink line)	LIMITS OF VOC OR SVOC DETECTIONS EXCEEDING RESIDENTIAL USE SCOs DEEPER THAN 14 FEET

0 80 160

SCALE, FEET

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

NOTES:

1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM NAVD88.

REMEDIAL INVESTIGATION
PURDY STREET STATION
BRONX, NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
NEW YORK, NEW YORK

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SUBSURFACE SOIL TOTAL VOC AND SVOC ANALYTICAL DATA

April 2010 Figure 14

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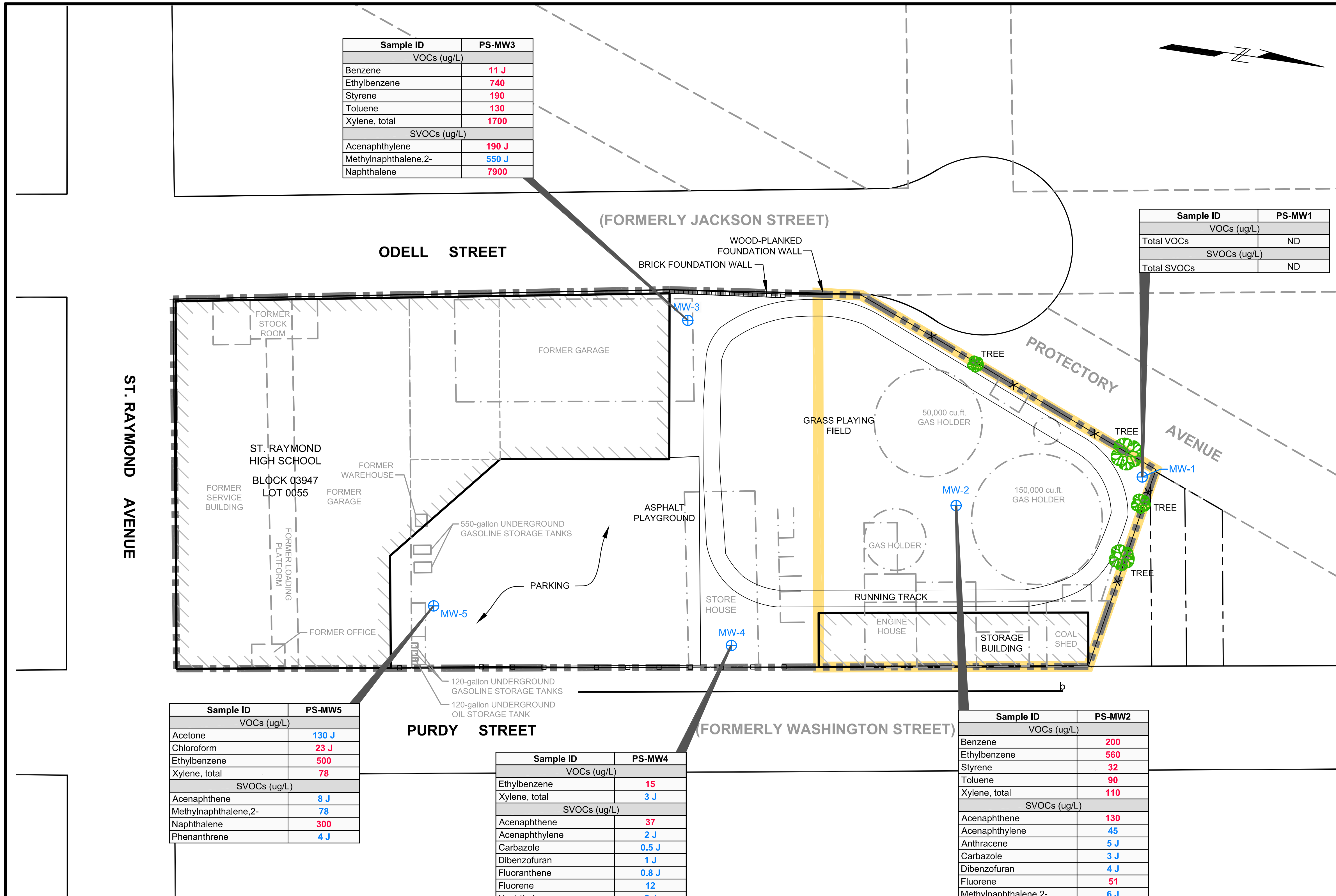

Sample ID	PS-MW3
VOCs (ug/L)	
Benzene	11 J
Ethylbenzene	740
Styrene	190
Toluene	130
Xylene, total	1700
SVOCs (ug/L)	
Acenaphthylene	190 J
Methylnaphthalene,2-	550 J
Naphthalene	7900

Sample ID	PS-MW1
VOCs (ug/L)	
Total VOCs	ND
SVOCs (ug/L)	
Total SVOCs	ND

Sample ID	PS-MW5
VOCs (ug/L)	
Acetone	130 J
Chloroform	23 J
Ethylbenzene	500
Xylene, total	78
SVOCs (ug/L)	
Acenaphthene	8 J
Methylnaphthalene,2-	78
Naphthalene	300
Phenanthrene	4 J

Sample ID	PS-MW4
VOCs (ug/L)	
Ethylbenzene	15
Xylene, total	3 J
SVOCs (ug/L)	
Acenaphthene	37
Acenaphthylene	2 J
Carbazole	0.5 J
Dibenzofuran	1 J
Fluoranthene	0.8 J
Fluorene	12
Naphthalene	2 J
Phenanthrene	0.9 J
Pyrene	0.9 J

Sample ID	PS-MW2
VOCs (ug/L)	
Benzene	200
Ethylbenzene	560
Styrene	32
Toluene	90
Xylene, total	110
SVOCs (ug/L)	
Acenaphthene	130
Acenaphthylene	45
Anthracene	5 J
Carbazole	3 J
Dibenzofuran	4 J
Fluorene	51
Methylnaphthalene,2-	6 J
Naphthalene	180
Phenanthrene	32 J

LEGEND

- CURRENT PROPERTY BOUNDARY
- FORMER MGP BUILDING OR STRUCTURE
- CURRENT STRUCTURE
- FORMER STREET
- AREA OF FORMER MGP OPERATIONS
- CHAIN-LINK FENCE
- REPLICA IRON PICKET FENCE
- MW-1 MONITORING WELL LOCATION

NOTES:

ug/L	MICROGRAM PER LITER
J	ESTIMATED VALUE
UJ	NOT DETECTED TO THE LIMIT SHOWN, THE LIMIT IS ESTIMATED
ND	NOT DETECTED - NO COMPOUNDS IN THE LISTED CATEGORY WERE DETECTED IN THE SAMPLE
NE	CLEANUP OBJECTIVE NOT ESTABLISHED
BLUE	COMPOUNDS DETECTED IN SAMPLE
RED	CONCENTRATION EXCEEDS NYS AWQS

SOURCES:

1. BRONX TAX ASSESSOR'S MAP.
2. SANBORN FIRE INSURANCE MAPS DATED 1898, 1908, 1919, AND 1929.
3. SERVICE BUILDING & STORAGE YARD, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; BOROUGH OF THE BRONX, N.Y. CITY, N.Y.; 1955 PURDY ST. & ST. RAYMOND AVE.; SCALE: 1"=50'; OCT. 1945.
4. AERIAL PHOTOGRAPH, GLOBEXPLORER, AIRPHOTO USA, 2002.
5. SITE SURVEY PERFORMED BY GEI CONSULTANTS, INC. IN AUGUST 2004 AND MARCH 2006.

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1. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE, NORTH AMERICAN DATUM NAD83.
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REMEDIAL INVESTIGATION
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NEW YORK, NEW YORK

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VOCs AND SVOCs DETECTED IN GROUNDWATER

April 2010 Figure 15

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