FINAL ENGINEERING REPORT
FOR
WEST 42ND STREET FORMER MGP SITE
Tax Block 1089 Lot 1 – Site ID No. C231024
Tax Block 1089 Lot 3 – Site ID No. C231012

Prepared For:

River Place I LLC
River Place II LLC
Consolidated Edison Company of New York
New York, NY

Prepared By:

Langan Engineering and Environmental Services, P.C.
360 West 31st Street
New York, NY 10001

Joel B. Landes, P.E.

February 9, 2007
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ENGINEERING & ENVIRONMENTAL SERVICES

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ENGINEERING CERTIFICATIONS

In accordance with the Environmental Conservation Law Title 14 Brownfield Cleanup Program certification requirements, Langan hereby certifies that all remedial elements described in this Final Engineering Report were completed in accordance with the approved Remedial Work Plan. Modifications/supplements made to the Remedial Work Plan were based on specific conditions at the Site that were provided to NYSDEC during the remedial action activities, and other agreements reached with NYSDEC, and standard engineering practices.

Specifically, Langan certifies the following:

- All export including transport and disposal of soil, fill, water, or other material from the property was performed in accordance with the approved Remedial Work Plan, and were disposed at facilities licensed to accept this material in full compliance with all federal, state, and local laws;
- All remedial work conformed to the terms defined in the approved Remedial Work Plan;
- All import of soil from off site, including source approval and sampling, was performed in a manner that is consistent with the methodology defined in the Remedial Work Plan. Imported materials used for backfill met the TAGM 4046 RSCOs as required and this Final Engineering Report documents the Due Diligence conducted by Langan on the various import material facilities, analytical results, and weight tickets associated with the imported materials);
- All invasive work during the remediation was conducted in accordance with dust and odor suppression methodologies defined in the Remedial Work Plan;
- The data submitted to the NYSDEC demonstrates that the remediation requirements set forth in the approved Remedial Work Plan and any other relevant provisions of this title have been achieved in accordance with the time frames established in such work plan; and
- Any deviations from the approved Remedial Work Plan are fully described in this Final Engineering Report or have been submitted under separate cover to NYSDEC.

ENGINEERING CERTIFICATIONS (CONTINUED)

Langan also acknowledges the following certifications specifically required by ECL Title 14 Section 27-1419:

- Any use restrictions, institutional controls, engineering controls and/or any operation and maintenance requirements applicable to the site are contained in an environmental easement created and recorded pursuant to title thirty-six of article seventy-one of ECL and that any affected local governments, as defined in title thirty-six of article seventy-one of ECL have been notified that such easement has been recorded;
- A Site Management Plan has been submitted by the Volunteer for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at the site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by the NYSDEC;
- The data submitted to the Department demonstrates that the remediation requirements set forth in the remedial work plan and any other relevant provisions of ECL 27-1419 have been or will be achieved in accordance with the time frames, if any, established in the work plan, and
- Any financial assurance mechanisms required by the NYSDEC pursuant to this title have been executed.

Joel B. Landes, P.E.
Senior Associate, Project Remediation Engineer
Langan Engineering and Environmental Services, P.C.

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LIST OF ACRONYMS

Acronym	Definition
AMS	Air Monitoring Station
ASTM	American Society of Testing and Materials
BEST	Building Enforcement Safety Team
BCA	Brownfield Clean-up Agreement
BCP	Brownfield Clean-up Program
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
bgs	below grade surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CQA/QC	Construction Quality Assurance/Quality Control Plan
CRZ	Contaminant Reduction Zone
CZ	Clean Zone
DER	Department of Environmental Remediation
DUSR	Data Usability Summary Reports
ECO	Environmental Conservation Officer
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
EZ	Exclusion Zone
FER	Final Engineering Report
gpd	Gallons per day
gpm	Gallons per minute
ID	Inside diameter
MGP	Manufactured Gas Plant
MPA	Material Processing Area
MSA	Material Support Area
MSDS	Material Safety Data Sheets
MTA	Metropolitan Transit Authority
MTBE	methyl tertiary butyl ether
NAPL	Non-aqueous phase liquid

LIST OF ACRONYMS
(CONTINUED)

Acronym	Definition
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCRR	NY State Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PBS	Petroleum Bulk Storage
PCB	Polychlorinated Biphenyls
PID	Photoionization detector
PPE	Personal Protective Equipment
ppm	parts per million
RAO	Remedial Action Objectives
RCA	Recycled Concrete Aggregate
RSCO	Recommended Soil Cleanup Objectives
RWP	Remedial Work Plan
SCG	Standards, Criteria, and Guidelines
SCS	Site Characterization Study
SHSO	Site Health and Safety Officer
SMP	Site Management Plan
SOP	Site Operations Plan
SVOC	Semi-Volatile Organic Compound
SZ	Support Zone
TAGM	Technical Administrative Guidance Memorandum (NYSDEC)
TAL	Target Analyte List
TCL	Target Compound List
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Final Engineering Report documents and certifies the completion of the implementation of an approved Remedial Work Plan (RWP) for the West 42nd Street Former Manufactured Gas Plant (the Site), which is located in New York City, New York. The Site is the subject of two Brownfield Cleanup Program Agreements (BCAs) as follows:

- River Place I, LLC and the Consolidated Edison Company of New York, Inc. (Con Edison) as Volunteer and Participant, respectively, entered into BCA No. W2-1017-04-09, Site ID No. C231024 (BCA) with the New York State Department of Environmental Conservation (NYSDEC) for River Place I (Tax Block 1089 Tax Lot 1) on December 23, 2004 and
- River Place II, LLC and Con Edison as Volunteer and Participant, respectively, entered into BCA No. W2-1018-04-09, Site ID No. C231012 with the NYSDEC for River Place II (Tax Block 1089 Tax Lot 3) on January 4, 2005.

The BCAs required the Volunteer and Participant to remediate contaminated soil at the West 42nd Street Former Manufactured Gas Plant (the Site). The Volunteer will construct a new residential high-rise residential building. Refer to the Brownfield Cleanup Program (BCP) application for development details. Metes and Bounds descriptions are included as Appendix A.

In late 2004, the Remedial Work Plan (RWP) for both Tax Lot 1 and Tax Lot 3 was submitted to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) for review. The BCP Agreement and the RWP were submitted for public review on January 5, 2005. No public comments were received within the subsequent 45-day comment period. In March 2005, a final RWP was submitted, which NYSDEC approved on March 31, 2005.

The RWP addressed the excavation and removal of accessible soil to a depth of approximately 20-feet below grade, removal of gasholder and other manufactured gas plant (MGP) facility foundations, and the implementation of institutional and engineering controls to control exposure to the contamination remaining on the Site. Institutional controls included the establishment of an environmental easement. Engineering controls included the use of clean fill soil cover above any remaining contamination. Additionally, the building(s) will be protected from vapor and groundwater intrusion by an impermeable barrier integral to the foundation(s).

The Site Management Plan (SMP) provides the details of the vapor barrier. The SMP is submitted separately.

Langan Engineering and Environmental Services, PC (Langan), a New York State licensed Professional Engineering firm, prepared this Final Engineering Report (FER). The FER documents and certifies that the remedial measures were implemented in accordance with the NYSDEC-approved RWP.

This FER is organized as follows:

- Section 2.0 – Provides the project background including a description of the Site history, use, and prior subsurface and indoor air investigations, and remedial activities that were completed prior to implementation of the RWP; a summary of the extent and nature of Site contamination; and the Technical Approach of the approved RWP remedy.
- Section 3.0 – Describes the mobilization and general site management and controls implemented during the remedial activities.
- Section 4.0 – Presents the soil/waste management plan, including descriptions of the various categories of soil/waste, and procedures for handling, stockpiling, waste characterization, transport, and disposal. This section also presents the post-excavation endpoint sampling frequency, methodology, and results, and a summary of the Data Usability Summary Reports (DUSRs).
- Section 5.0 – Presents the conclusions and recommendation of the Remediation Engineer.

2.0 PROJECT BACKGROUND

2.1 SITE DESCRIPTION AND LOCATION

The Former West 42nd Street MGP site is located between West 41st Street and West 42nd Street, and 11th Avenue and 12th Avenue in the Borough of Manhattan, New York City, New York (Figure 1). The Former West 42nd Street MGP site once occupied approximately 5 acres, including the Hudson River waterfront property designated Tax Block 1107, both tax lots of Tax Block 1089 (Tax Lots 1 and 3, respectively), and a portion of 12th Avenue currently separating Tax Blocks 1107 and 1089. The subject of the RWP and this FER is limited to Tax Block 1089, Lot 1 and Lot 3. The remainder of the Former West 42nd Street MGP is addressed under a Voluntary Cleanup Agreement between Con Edison and NYSDEC.

Tax Block 1089 Tax Lot 1 consists of a high-rise apartment building (River Place I) that occupies approximately 90 percent of the lot. The remaining portion of the lot consists of a landscaped, park area and sidewalks. Vacant retail space is located at the western base of River Place I, while the eastern base is occupied by a small café and flower shop. An aboveground parking lot is located within the second floor of the building. East of the building on Lot 1 is a small landscaped park.

Tax Block 1089 Tax Lot 3 consisted primarily of an asphalt-paved parking lot with series of above ground hydraulic lifts used to store cars along the eastern and southern property boundaries. A small wooden kiosk used by the parking lot attendant was located in the central portion of the lot. Remnants of the Former West 2nd Street MGP including four gasholders, the condenser house, the purifier house and the meter/gate houses underlie Lot 3 and the eastern portion of Lot 1.

Properties in the immediate vicinity of the site consist of commercial and residential properties, restaurants, retail stores, and moorage on the Hudson River for private and commercial vessels. Commercial buildings are present to the east across 11th Avenue. The World Yacht marina is located west of the Site along the Hudson River and across 12th Avenue. The Chinese consulate, a high-rise condominium under construction and an abandoned service station are located to the north of the site across West 42nd Street. The Michael J. Quill bus depot operated by the Metropolitan Transit Authority (MTA) is located south of West 41st Street and occupies the entire block from 11th to 12th Avenues.

The Site is located in an area that maintains a high population density due to the presence of residential high-rises, office buildings, local cultural attractions, and retail facilities as well as the influx of the workforce population on any given day of the workweek.

2.2 SUMMARY OF SITE HISTORY AND USE

Historical records indicate that the majority of the Site is located outbound (west) of the original shoreline of Manhattan, and that the Site was originally part of the Hudson River. The land consisted of a shallow embayment, a tidal creek that discharged into the Hudson River, and associated tidal wetlands. By 1850, this portion of the Hudson River and the associated wetlands had been filled, but appeared to remain undeveloped until construction of the MGP plant in 1860.

The construction of the Metropolitan Gas Light Company's West 42nd Street MGP plant began in 1860. The former MGP site was located on Blocks 1089 and 1107, as well as the portion of 12th Avenue currently separating the two blocks. The former MGP facilities that were located on Block 1089 consisted of two coal storage areas, two retort houses, a vaulted yard, two condensers, an engine room, an office, a purifying house, and four 250,000-cubic foot (ft3) gas holding tanks. Each gasholder consisted of a cylindrical tank approximately 100-feet in diameter that was found to be constructed up to 18 feet below grade.

The MGP operated as a coal gasification plant from 1863 into the early 1920s. Barges delivered anthracite coal to the facility's Hudson River pier. Carts transported the coal to the MGP processing facilities. The coal was stored in two 'coal houses' at the western end of Tax Block 1089 before being transported to one of the two retort houses. One retort house was constructed along West 42nd Street and the other was constructed along West 41st Street. The gas condensers were situated at the eastern end of each retort house. After passing through the condensers, the gas was conveyed to the purifying house, located east of the retort houses. After the purifying house, the gas was pumped to four gasholders located at the eastern end of Tax Block 1089 for storage before distribution. The MGP plant was demolished in approximately 1925.

In 1932, the New York Central Railroad Company acquired the Block 1089 portion of the former MGP site. The site was constructed as a rail yard and configured with a railroad terminal building in the center of the site, a garage on the west side of the site and a gasoline service station occupied the northeast corner of the site.

All site structures were removed in the 1960s and the entire site was converted for use as a parking lot in the early 1970s. The parking lot consisted of concrete and asphalt pavement with a small wooden kiosk located in the central portion of the site to house the parking attendant and a series of hydraulic lifts used to store cars along the eastern and southern property boundaries.

In 1999-2000, the River Place I high-rise apartment building was erected on Tax Block 1089 Tax Lot 1.

2.3 RELEVANT HISTORICAL REPORTS AND SUBMISSIONS

Starting in 1995, the Volunteer conducted a number of environmental investigations and remedial actions. In 1995, the Volunteer removed eighteen (18) underground storage tanks (USTs) from the western side of Tax Block 1089 Tax Lot 1. The Volunteer completed several subsurface investigations subsequent to the removal of the USTs and identified petroleum-related compounds in soil and groundwater within Tax Lot 1 and Tax Lot 3.

The Volunteer performed several additional subsurface investigations within Tax Block 1089 Tax Lots 1 and 3 starting in 1996. These investigations identified petroleum and MGP-related contaminants present in subsurface soil and groundwater in both tax lots. A contaminant transport and fate analysis performed by Woodward-Clyde Associates, L.P. concluded that site-related contaminants were not likely affecting the Hudson River. A human health risk assessment performed by Woodward-Clyde Associates, L.P. concluded that significant exposures to site-related contamination would not be expected after construction of River Place I on Tax Lot 1.

In accordance with Con Edison's Voluntary Cleanup Agreement with NYSDEC, Con Edison prepared a Site History Report in 2002 and conducted a Site Characterization Study in 2003. A detailed description of previous investigations is presented in Section 1.4 of the Site Characterization Report, dated April 2004, prepared by Dvirka and Bartilucci Consulting Engineers. The findings from this report are described in Section 2.5 herein.

A Mobil retail service station was located directly north of Tax Block 1089 Tax Lot 3, across West 42nd Street at the intersection of 11th Avenue, and there are at least three NYSDEC-documented petroleum spills associated with the service station. Roux Associates, Inc. prepared a Subsurface Investigation and Quarterly Monitoring Report documenting data

associated with an environmental monitoring program conducted from May 2003 through July 2003 on behalf of the ExxonMobil Refining and Supply Company (ExxonMobil).

The Roux report identified significant petroleum contamination within and downgradient of the Mobil service station. Additionally, free-phase hydrocarbons, measuring up to 3-feet in thickness, were identified within a Mobil monitoring well, located 50-feet to the north of Tax Lot 3. Based on the Roux investigation, groundwater flows in a southerly direction towards Tax Lot 3. Groundwater data documents a BTEX groundwater plume migrating off the Mobil station to the south that has likely affected Tax Lot 3.

The following is the full list of historical reports and submissions relevant to the Site:

Relevant Report	Consultant	Date Submitted to NYSDEC
UST Closure Report	Woodward-Clyde Associates, L.P.	July 1995
Results of Environmental Field Investigation	Woodward-Clyde Associates, L.P.	July 10, 1995
Results of Environmental Investigations and Plan for Additional Investigations	Woodward-Clyde Associates, L.P.	September 19, 1995
Phase III Environmental Sampling Results	Woodward-Clyde Associates, L.P.	January 30, 1996
Results of 5/14/96 Groundwater Sampling and Completion of Project at Silverstein 42nd Associates, L.P.	Woodward-Clyde Associates, L.P.	June 6, 1996
Fate and Transport Calculations to Determine Benzene Concentrations in Groundwater as it Enters the Hudson River	Woodward-Clyde Associates, L.P.	June 21, 1996
Phase I Environmental Site Assessment	Dames and Moore	October 6, 1996
Analytical Sample Results from the Vault Installation	Con Edison	April 2000
West 42nd Street Manufactured Gas Plant Site History Report	Parsons	August 2002
Subsurface Investigation and Quarterly Monitoring Report (Mobil Station)	Roux Associates, Inc.	August 27, 2003
West 42nd Street Manufactured Gas Plant Site Characterization Report	Dvirka & Bartelucci Engineers	April 2004

2.4 GEOTECHNICAL ENGINEERING STUDY

Langan Engineering, on behalf of the Volunteer, conducted a geotechnical engineering study between March and June 2000 to investigate the subsurface conditions at the site and to develop recommendations for foundation design and construction. Subsurface conditions were investigated by reviewing logs of borings previously drilled for the River Place I tower, and drilling 26 new soil borings (B-1 through B-26) and 26 soil probes (P-1 through P-26). Soil borings B-1 through B-26 were advanced within the on-site area to depths ranging from 38 to 65-feet below the existing ground surface. Soil probes P-1 through P-26 were advanced along the sidewalk adjacent to the site on the north, east, and south sides, each to a depth of 30-feet below surface grade. Site soil exhibiting petroleum-like odors and intermittent soil staining was located mostly along the northeastern corner of Tax Lot 3 and impacted soil was primarily observed at depths ranging from 5 to 27-feet below surface grade. Creosote odors were also noted at boring locations B-17, B-19 and B-25 between 20 and 22-feet below grade. Total volatile organic compound (VOC) concentrations between 1.8 and 716 parts per million (ppm) were detected at boring locations B-5, B-14 and B-25. Total semi volatile organic compound (SVOC) concentrations between 67.81 and 93.52 ppm were detected at boring locations B-6 and B-26 in the central and eastern portions of Tax Lot 3.

Soil borings B-2, B-6 and B-22 were completed as groundwater monitoring wells and were installed within the northwest, northeast, and southwest corners of Tax Lot 3, respectively. A fourth groundwater monitoring well (MW-3) was installed during previous investigations at the site. Groundwater samples from all four monitoring wells exhibited concentrations of BTEX and metals above NYSDEC groundwater standards.

2.5 SITE CHARACTERIZATION REPORT

Dvirka and Bartilucci, on behalf of Con Edison, conducted a Site Characterization Study (SCS) between August and October 2003. The SCS was completed in accordance with a NYSDEC-approved Site Characterization Work Plan, dated June 2003. The primary objectives of the SCS included

- locating the subsurface remnants of MGP structures or other structures that might exist at the site and that may be associated with waste source areas or serve as preferential pathways for the migration of MGP residuals or other contamination,

- delineating the lateral and vertical extent of potential MGP residuals in the soil and groundwater at the site, and
- characterizing site-specific geology and hydrogeology.

The SCS field program consisted of advancing eleven subsurface soil borings within Tax Lot 1, and eighteen soil borings and nine test pits within Tax Lot 3. Additionally, four existing groundwater monitoring wells and six new monitoring wells were sampled in order to characterize site groundwater quality.

The investigation findings regarding Tax Lot 1 show that in general, MGP impacts were not observed in shallow subsurface soil of less than 5 feet in depth. The most significant MGP impacts, including the highest VOCs, SVOCs, and metal concentrations were most prevalent in the Fill Unit below a depth of 10 feet, which places the majority of the impacted soil below the water table. MGP residuals were not observed in the Bedrock Unit within Tax Lot 1. An assessment of indoor and outdoor air quality at Tax Lot 1 concluded that air quality is not being impacted by MGP-related subsurface contamination present at the site.

The investigation findings regarding Tax Lot 3 show that the most significant MGP impacts were observed in the Fill Unit at depths ranging from 17 to 23 feet below ground surface (bgs), and within and adjacent to the former gas holders. Soil below and adjacent to the northwest and northeast former gas holders exhibited sheens and odors to a depth of up to 31 feet bgs. Additionally, evidence of MGP impacts, including light to moderate odors, was observed below the southwest former gasholder up to a depth of 31 feet bgs. The southeast former gasholder exhibited the least amount of MGP impacts with only light to moderate staining and odors observed to 22 feet bgs. In general, MGP impacts were not observed in shallow subsurface soil of less than 5 feet in depth throughout the majority of Tax Lot 3. In addition, the central portion of Tax Lot 3 surrounded by the four former gas holders exhibited little to no evidence of MGP impacts in the subsurface soil throughout its vertical extent.

Groundwater characterization did not identify measurable separate-phase non-aqueous phase liquid (NAPL). Groundwater samples collected from monitoring wells apparently located within the former northwest and southwest gasholders (monitoring wells LMW-03 and LMW-04, respectively) exhibited the highest total VOC and SVOC concentrations. Additionally, methyl tertiary-butyl ether (MTBE), a common gasoline additive, was detected at concentrations that exceeded NYSDEC Class GA Groundwater Standards at monitoring well LMW-01, located directly downgradient of an Exxon/Mobil service station. NYSDEC records indicted there have

been at least three petroleum spills at this service station. The site characterization study concluded that the high concentrations of VOCs and SVOCs detected within onsite monitoring wells might actually be associated with the MGP impacted soil that had been identified within and below the former gasholders and not representative of true groundwater quality above the Bedrock Unit. The site characterization study also concluded a petroleum contaminant plume migrating from the upgradient Exxon/Mobil service station, as well as soil vapor, is affecting on-Site groundwater.

2.6 SITE STRATIGRAPHY

Based on the soil borings completed as well as the documented historic filling that occurred at the former MGP site, the upper 15 to 25 feet of soil across the site consists of fill material containing significant quantities of anthropogenic materials such as brick, concrete, metal and wood timbers (Fill Unit). The Fill Unit also contains large blocks of mica schist up to 4 square feet in area. The color of the fill ranges from gray, brown, black and tan, with some yellow and red. All former MGP structures were located within this fill.

Within portions of the site, the Fill Unit transitions into a sand-rich zone between a depth of 4 and 24 feet bgs, consisting of a brown to black stained and poorly sorted coarse to medium sand. The black colorization may be attributed to tar staining near the former gasholders and the Purifying House. Due to this staining, as well as the overall variation in grain size of the shallower fill material, the boundary between the upper and lower fill zones is not obvious at all locations. However, the sand-rich fill zone appears to be present within the vicinity of the former gasholders. The sand-rich fill zone is encountered up to 6 feet thick below the former gasholder foundations. It is possible that the sand-rich fill zone represents fill material placed on top of the clay unit in order to construct the holder foundations, as well as other former MGP structures. Due to the coarse nature of this fill unit, it likely exhibits high porosity.

Immediately below the fill is a continuous clay unit. The clay unit consists of a dense gray to black organic silty clay, containing peat and wood in some areas. In addition, numerous samples of the Clay Unit contained fragments of mollusks and gastropods typical of marine environments. The clay unit ranges in thickness from less than 2 feet at SB-19 to as much as 18 feet at SB-25. Under Tax Lot 3, the clay unit is typically 8 to 14 feet thick. Additionally, the clay unit increases in thickness under Tax Lot 1 towards the Hudson River. Due to its thickness and clay-rich nature, the clay unit likely serves as an effective confining unit, impeding the vertical migration of contaminants.

A relatively thin and discontinuous layer of poorly sorted sand is present at several locations within the site immediately below the Clay Unit. This sand layer also appears to contain a thin zone of weathered bedrock resting directly on competent unweathered bedrock. This sand/weathered bedrock unit contains varying amounts of coarse gravel, along with angular boulders and cobbles of mica schist. This geologic unit is thickest within the eastern portion of Tax Lot 3 but virtually absent in the western portion of Tax Lot 3.

Underlying all the unconsolidated geologic units discussed above is a black to gray crystalline mica schist of the Manhattan Schist Formation. The bedrock, while being competent, contained numerous horizontal and vertical factures, which may serve as secondary porosity or groundwater pathways within the bedrock.

2.7 SITE HYDROGEOLOGY

Groundwater information is limited to the eastern portion of the site within Tax Lot 3. Groundwater within Tax Lot 3 is not tidally influenced and is generally located 8 to 14 feet below grade. Based on available data, groundwater flows in a southerly direction within Tax Lot 3.

2.8 EXTENT OF MGP-RELATED IMPACTS

2.8.1 Shallow Soil - Tax Lot 1

NAPL and/or tar saturated conditions were not observed in shallow subsurface soil (0 to 10 feet bgs) within Tax Lot 1. In addition, no evidence of MGP impacts was observed in shallow soil above a depth of 5 feet. However, several samples recovered below a depth of 7 feet from four borings located on Tax Lot 1 exhibited heavy staining and sheens including,

- B-18 and SB-19 located within the landscaped area, in the vicinity of the former Purifying House,
- SB-22 located within the loading dock, in the vicinity of the former Retort House, and
- SB-26 located on the south sidewalk of West 42nd Street, near the northernmost former condenser.

At boring SB-08 completed in the landscaped area, little to no evidence of MGP impacts were noted in recovered soil samples collected above a depth of 10 feet bgs. Furthermore, soil samples recovered from SB-28, also completed in the landscaped area, exhibited little to no evidence of MGP impacts to a depth of 29 feet where the boring was terminated.

2.8.2 Shallow Soil - Tax Lot 3

NAPL/tar saturated conditions were not observed in the shallow zone within Tax Lot 3. In addition, no evidence of MGP impacts were noted in shallow soil above a depth of 5 feet with the exception of light soil staining observed at SB-05 located in the NW former gas holder and naphthalene-like odors at TP-08 located in the SE former gas holder. Below 5 feet, light to moderate soil staining and/or odors were noted within the former Purifying House (TP-02) and the SW former gasholder (TP-04 and SB-07). Additionally, sheen was noted at TP-06 located in the SE former gasholder. As well, shallow subsurface soil at SB-15 exhibited strong hydrocarbon odors. However, soil boring SB-15 was completed downgradient of the Exxon/Mobil service station, which is a known NYSDEC petroleum spill site. Finally, the shallow soil zone within the central portion of Tax Lot 3, as indicated by soil recovered from TP-07, SB-11 and MW-04, did not exhibit evidence of MGP impacts.

2.8.3 Intermediate Soil -Tax Lot 1

Soil boring SB-23 exhibited NAPL/tar saturated conditions at intervals within the intermediate soil zone (10 to 20 feet bgs). SB-23 was completed within the southernmost former coal pocket along 12th Avenue. MGP-related impacts are most prevalent below a depth of 10 feet within Tax Lot 1, which places the majority of the impacted soil below the water table within this portion of the former MGP. MGP impacts were not observed within the intermediate soil zone in Tax Lot 1 at soil boring SB-28 located within the landscaped area. SB-24, located on 12th Avenue, exhibited only slight naphthalene like odor at 10 to 11 feet bgs in the intermediate soil zone.

2.8.4 Intermediate Soil - Tax Lot 3

Areas of staining and/or odors were observed throughout Tax Lot 3 in the intermediate soil zone, including within and near all four former gasholders. However, NAPL/tar saturated conditions were not observed within the intermediate soil zone. Note that the former holder foundation bottoms are situated within the lower limit of the intermediate soil zone. In general, soil recovered immediately above the former holder foundation bottoms exhibited light to heavy

tar staining, sheens and hydrocarbon and/or naphthalene-like odors. In addition, similar conditions were observed at SB-16, located between and to the east of the NE and SE former gasholders.

2.8.5 Deep Soil - Tax Lot 1

MGP impacts are not present in subsurface soil within the deep soil zone (greater than 20 feet bgs) at soil borings SB-25 and SB-26 both located along the southern sidewalk of West 42nd Street and SB-28 located within the landscaped area. It is important to note that bedrock was encountered at 20 feet during the completion of SB-26. Subsurface soil samples collected from the remaining borings completed at Tax Lot 1 exhibited evidence of MGP impacts within the deep zone with soil staining and/or odors observed as deep as the bedrock/soil interface at SB-18, SB-19, SB-21, SB-22 and SB-23. Soil borings SB-18, SB-19 and SB-21 are located in areas where the Clay Unit is relatively thin or absent.

Similar to the intermediate soil zone, NAPL/tar was observed at saturated conditions in the deep soil zone at SB-23. Furthermore, soil staining, sheens and odors were observed intermittently throughout the Clay Unit at this boring. In addition, NAPL/tar was observed at saturated conditions in the deep zone at SB-24, however, this boring was terminated at 38 feet in order to avoid the vertical migration of this mobile NAPL/tar.

2.8.6 Deep Soil - Tax Lot 3

Note that the deep soil zone within Tax Lot 3 generally includes soil below the foundations of the former gasholders. Soil samples recovered from borings completed in Tax Lot 3 indicate MGP impacts are present within the deep soil zone below and adjacent to former gasholders; however, NAPL/tar was not encountered at saturated levels. The most significant impacts appear to be near the former northwest (NW) and northeast (NE) gas holders. A hydrocarbon-like odor and sheen was observed below the Clay Unit at 30 feet bgs at SB-01 (located immediately northwest of the NW former holder) and a sheen and a moderate naphthalene-like odor was observed at the bottom of the Clay Unit at a depth of 31 feet bgs at SB-27 (located within the NE former holder). In addition, hydrocarbon/naphthalene-like odors were observed below the SW former gasholder up to a depth of 31 feet bgs at SB-07. The SE former gas holder exhibited the least amount of MGP impacts within the deep soil zone with soil staining and odors observed to only 22 feet bgs at SB-14 immediately below the holder foundation bottom. In general, while MGP impacts were observed in the deep soil zone within Tax Lot 3,

these impacts do not appear to exceed 25 feet in depth and do not penetrate the Clay Unit at most boring locations. However, at several boring locations including SB-01, SB-07, SB-09 and SB- 29, evidence of impact, including sheens and odors have been observed up to 39 feet bgs. Finally, the deep soil zone within the central portion of Tax Lot 3, as indicated by soil samples recovered from SB-11, did not exhibit evidence of MGP impacts.

2.9 SUMMARY OF REMEDIAL ACTION APPROACH

The Site Characterization Report documented impacts from previous operations with light- to heavily-stained contaminated soils and NYSDEC determined that the Site posed a significant threat to the environment. The Remedial Action Objectives (RAOs) were:

- Reduce the contaminant mass through the removal of MGP-impacted soil and below-grade MGP structures.
- Protect on-site workers and the surrounding community from exposure to site-related contaminants during the remedial excavation.
- Establish guidelines for the proper management and disposal of soil, water, and other wastes generated during implementation of the remedy.
- Establish general guidelines associated with the operation and maintenance of the existing apartment building located at Tax Lot 1 and for the proposed apartment building to be constructed at Tax Lot 3 in order to reduce the potential for future exposure of workers and the community to remaining site-related contaminants.

The remedial program for the Site was selected after due consideration of the following factors listed in the BCP law, and presented in detail relative to the Site in the Engineering Evaluation of the Remedy section of the RWP:

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

Based on an evaluation of remedial alternatives, the remedy selected for Tax Lot 1 and Tax Lot 3 included excavation and removal of accessible soil above the clay layer, excavation and removal of subsurface MGP structures and establishment of institutional engineering controls. The area of excavation would include the entire property west of 11th Avenue to a parallel line 50 feet east of the River Place I building.

To meet the project objectives, the remedial activities included excavation to a depth of approximately 20 feet below ground surface. The final excavation depth was determined based upon the proposed design and 'footprint' of an apartment building containing a below-grade parking garage and basement area.

Accessibility to subsurface soil determined the boundary of the excavation. The boundary included all of Tax Lot 3 and a portion of the park on Tax Lot 1. The western boundary of the excavation was determined based on the minimum allowable distance for installation of sheet piling in close proximity to the residential tower on Tax Lot 1 (River Place I). A minimum distance of 50-feet from the residential tower to the western perimeter of the sheet piling was necessary to protect the foundation support piles of the existing building from damage. See Appendix B for correspondence with NYSDEC regarding the determination of the sheeting location. Installed sheeting will remain in place indefinitely with the intention of minimizing the potential for migration of contaminants into Tax Lot 3 and the remediated portion of Tax Lot 1.

Excavation included the removal of subsurface structures such as MGP holder foundations and the foundation and walls of the former Purifying House. Excavation also included the off-site disposal of urban fill, MGP-impacted soil/fill, and concrete/brick/asphalt/rock debris, located within the excavation boundary. All contaminated soil/fill removed during excavation was ultimately disposed as a regulated waste at permitted, approved disposal facilities.

Post-excavation soil samples were collected at the end-point (bottom) of the excavation. The purpose of the end-point sampling was to document the characteristics of the soil left in place and provide a record of conditions in the subsurface below the clean fill cover and new concrete building foundation. The endpoint sampling was not intended for use in evaluating the necessity for further remedial action.

Soil containing compounds in excess of the NYSDEC TAGM 4046 RSCOs (contaminated soil) was not removed from the inaccessible portion of Tax Lot 1; therefore, institutional controls will be required to restrict use of the property and disturbances of the subsurface soil. Institutional

controls will also be required for Tax Lot 3 since contaminated soil remains onsite. The institutional controls include establishment of an easement that would:

1. Ensure appropriate future use/control of the Site that would protect human health and the environment;
2. Include a restriction prohibiting use of groundwater to ensure there would not be any future exposures to groundwater;
3. Include required notifications prior to any ground-intrusive activities that may encounter contaminated materials (notification of NYSDEC and onsite workers);
4. Include a soil management plan identifying requirements in the event of excavation, which would be included as part of the Site Management Plan (SMP);
5. Include a health and safety plan and community air monitoring plan for use during future ground-intrusive activities;
6. Include a provision for continued periodic soil vapor intrusion monitoring on River Place I property;
7. Include a provision for groundwater monitoring to evaluate changes in groundwater contaminant concentrations and to ascertain the level of natural attenuation which may occur;
8. Include an annual inspection program to ensure appropriate use of the Site and to minimize the potential for exposures;
9. Include an annual certification program requiring the owner to certify that the institutional and/or engineering controls are in place, have not been altered and are still effective.

Engineering controls for the period between the completion of remediation and the construction of the new building include the placement of a clean cover fill within the footprint of the excavation to provide a barrier between the excavation bottom and construction workers who will be onsite post remediation. Additionally, an impermeable barrier will be installed beneath and around the new building foundation(s) in accordance with the Site Management Plan. This impermeable barrier will prevent intrusion of soil vapors and groundwater, thereby eliminating potential exposure to building occupants.

3.0 MOBILIZATION, GENERAL SITE MANAGEMENT, AND SITE CONTROL

3.1 INTRODUCTION

The Volunteer contracted with Seasons Industrial Contracting, Inc. (SIC) to be the General Contractor and Construction Manager and GCI Environmental Advisory, Inc. (GCI) to implement the Community Air Monitoring Plan (CAMP). SIC contracted with and managed the Remediation Contractor bid process, construction of the fencing and obtaining NYC Department of Buildings and Department of Transportation permits. The bidding process resulted in the selection of Blue Water Environmental, Inc. (BWE) as the Remediation Contractor. Langan Engineering and Environmental Services, PC (Langan) was retained as the Remediation Engineer.

3.2 MOBILIZATION AND SITE PREPARATION ACTIVITIES

Mobilization and site preparation activities completed prior to the remedial activities at the Site included:

1. Preparation/review of pre-remediation contractor submittals;
2. Obtaining street closing and excavation permits;
3. General mobilization activities;
4. Surface demolition;
5. Installation of erosion control measures and perimeter security fencing;
6. Construction of entrance/exit roadways, truck wash, and truck scale; and
7. Installation and calibration of air monitoring stations;

A description of each activity follows.

3.2.1 Pre-Remediation Submittals

With assistance from SIC and Langan, the Volunteer contracted with Blue Water Environmental Inc. (BWE), a qualified, experienced Remediation Contractor with experience at contaminated urban sites. The Remediation Contractor maintained a full staff and complement of equipment to conduct the mass excavation.

SIC and BWE submitted the following documents to Langan for review:

1. Site Operations Plan (SOP);
2. Construction Health and Safety Plan (CHASP);
3. Construction Quality Assurance/Quality Control Plan (CQA/QC);
4. Sheet pile and sealant Details; and
5. Documentation for proposed waste disposal facilities, testing requirements, permits/approvals, and commitments from the facilities to receive the waste generated during the remedial activities.

Remediation Engineer approved these submittals and submitted them to NYSDEC for their records and approval, as required.

3.2.2 Permitting

A New York City Department of Transportation (NYCDOT) permit for the required lane closings was received prior to mobilization as well as a New York City Department of Building (NYCDOB) excavation permit. Permits were renewed as required and kept valid throughout the duration of the remedial activities. Permits for dewatering, fencing and fire hydrant access were also obtained. All permits are included as Appendix C.

3.2.3 General Mobilization Activities

General mobilization activities included:

1. Identifying aboveground and underground utilities (e.g., power, gas, water, sewer, telephone, etc.), equipment, and structures;
2. Mobilizing necessary remediation personnel, equipment, and materials to the Site;
3. Installing traffic controls, closing park area, setting up of trailers, and preparing any required electric and water connections;
4. Clearing the areas that could obstruct/limit the soil excavation activities; and
5. Kickoff health and safety training briefings with the Volunteer's and Participant's representatives, the Remediation Contractor, and Remediation Engineer.

3.2.4 Surface Demolition

Mobilization included demolition of the existing parking lot kiosk, demolition of the existing park area and of an existing concrete and chain-link fence. A 12-foot plywood fence was

constructed around the site and plywood tree barriers were constructed around the trunks of the trees to protect several mature trees located around the perimeter of the Site.

3.2.5 Erosion Control Measures and Site Perimeter Security Fencing

Storm water pollution prevention and erosion control measures included:

1. covering temporary stockpiles of contaminated soil with plastic liners to prevent erosion;
2. maintenance of the perimeter fencing;
3. protecting existing storm water collection structures by keeping storm water runoff drains free of debris;
4. directing onsite storm water accumulation towards the open excavation for collection by the dewatering system; and
5. construction and maintenance of stabilized construction entrance/exit pads.

3.2.6 Stabilized Construction Entrance/Exit and Truck Wash

Under Langan's supervision, BWE constructed stabilized construction entrances and exits of clean gravel roadways at Gate #1, located on West 42nd Street and at Gate #2 and Gate #4, both located along West 41st Street. Erosion and sedimentation control measures were constructed and maintained in the decontamination area in accordance with the provisions of the Storm Water Management, Soil Erosion and Sediment Control section presented in the RWP.

Additionally, a truck wash/decontamination pad was assembled in the northwest corner of the Site in front of Gate #1, the only entrance and egress onto West 42nd Street. All trucks exiting the Site were inspected to detect any spillage or accretion of soil onto the truck body. Any soil accumulations were swept from the truck body using a handheld broom. This inspection and pre-cleaning were performed over an area that was filled with ¾-inch crushed stone aggregate. After any soils were swept clean from the truck carriage, the trucks were routed through the truck wash/decontamination pad where their tires and undercarriages were pressure washed. The decontamination pad was designed with a collection sump to contain and collect wash waters, which were periodically pumped into a "frac" tank. The drainage sump also was utilized to collect and contain any sediment that was washed off the trucks. When sediments

had accumulated within the sump structure, they were removed with hand held implements and managed as an MGP-impacted material.

Truck decontamination operations were revamped and moved to an alternate location at the Site in January 2006 as material load-out operations were reconfigured in response to general site conditions and space limitations. Trucks being loaded-out began exiting the Site via Gate #2 (southwest gate onto West 41st Street) instead of Gate #1 (northwest gate onto West 42nd Street) due to icy or slippery conditions and truck turning radius requirements. Trucks were staged for load-out on a gently inclined stone haul road covered with steel plates constructed adjacent to the western sheeting line. Once the trucks were loaded, they proceeded up the haul road and stopped just before advancing on to another set of steel plates positioned inside of Gate #2. The trucks were then washed down manually with high-pressure hoses. Trucks were positioned so that any wastewater generated from decontamination activities was contained within the excavation footprint and was ultimately processed through the dewatering wells and associated treatment system. After being washed and decontaminated, the trucks proceeded onto the steel plates positioned immediately inside of Gate #2 whereupon they would tarp up and then exit onto West 41st Street. Before and after each respective truckload the steel plates on the haul road and in front of Gate #2 were washed down with the hose as well as the portion of West 41st Street in front of Gate #2 (See Section 3.3.4). Truck traffic control measures are further discussed in Section 3.3.1.

The Remediation Engineer inspected the stabilized construction entrance and exit daily for evidence of off-site sediment tracking and to maintain and clean the adjacent city streets as needed. Remediation Contractor personnel continuously swept clean and hosed down with potable water, public roadways in front of the Site as needed to prevent the offsite migration of contaminants.

There was one isolated non-conformance issue in connection with truck washing. Inclement weather caused shut down the truck washing station on December 5 and 6, 2005. Low temperature caused water to freeze in the wash lines, the ground surface and on the truck bodies. During this period, the Remediation Contractor decontaminated trucks using brooms.

During the course of the remedial activities, two complaints regarding debris in the streets were called into New York City's public service number"311".

1. On January 5, 2006, at approximately 1:30PM, a NYSDEC Environmental Conservation Officer (ECO) arrived at the Site to investigate an anonymous complaint about tracking

dirt into West 41st Street. After inspecting the Site, the ECO noted that he was pleasantly surprised at the overall cleanliness of the Site. He was expecting to see large piles of dirt and poor maintenance. The ECO did not see any dirt in the street and felt there was no need to pursue this further.

2. On January 5, 2006, at approximately 2:00PM, an officer from the NYC Building Enforcement Safety Team (BEST) arrived to inspect the Site and review permits after receiving an anonymous complaint about debris in West 42nd Street. After inspecting the Site, the BEST officer left saying the Site looked fine.

3.2.7 Air Monitoring Stations

In accordance with the CAMP, GCI established fixed air monitoring stations (AMS) at five separate locations along the property boundary perimeter to monitor for non-methane hydrocarbons and particulates (dust) using direct-reading and recordable instruments. One AMS was positioned at each the north, south, and east boundaries of the project site. These boundaries were adjacent to public sidewalks and roads that were contiguous with the neighboring commercial and industrial properties. Two AMS locations were positioned along the western boundary of the site. This western boundary is contiguous with property containing a high-rise residential structure. The doubling of the monitoring stations along the western boundary provided increased sensitivity, and therefore, a higher level of protection for the adjoining residential structure and its occupants.

Additionally, a meteorological station was installed along the northern boundary of the site to record daily parameters of barometric pressure, temperature, humidity, wind speed, and wind direction.

The AMSs were operational during the remedial activities. With the exception of the north AMS, the locations of individual stations were fixed throughout the remedial activities. The north AMS was relocated further east to be closer to drilling operations that were required to clear subsurface sheetpile obstructions.

The ASMs were intermittently taken off-line or were non-functioing for short periods due to various reasons, such as weather conditions, during the project.

3.3 GENERAL SITE MANAGEMENT AND CONTROL ACTIVITIES

The general site management and controls conducted during the remedial activities included:

1. Truck traffic control;
2. Maintenance of site security;
3. Community Air monitoring;
4. Dust suppression;
5. Odor suppression;
6. Work zone demarcation;
7. Equipment decontamination and residual waste management; and
8. General health and safety protocols

Each of these activities is described below.

3.3.1 Truck Traffic Control

Traffic routing and signage changes were coordinated with the NYSDOT and all appropriate permits were received prior to commencing fieldwork. Only trucks possessing a valid NYSDEC Part 364 Permit were allowed to enter the Site for purposes of transporting contaminated materials. Truck entrances were made via one of two security checkpoints along West 41st Street (Gates #2 and #4) and egress via one security checkpoint along West 42nd Street (Gate # 1). A third gate (Gate #3) was located along West 41st Street but was never utilized during the course of the remedial activities and was secured and locked at all times. The Site is fenced and there were no other means of entrance or egress.

One deviation from the approved protocol for material transport occurred. On July 29, 2005, seven trucks not listed on the Part 364 permit were loaded with MGP-impacted material. To keep non-permitted trucks offsite, a guard was posted at the entrance to the Site (Gate #2) to check each truck license and registration against the permit list before they were allowed entry. Trucks traveling to the Site proceeded from the Lincoln Tunnel, turned left onto Dyer Avenue, and then proceeded one block to West 41st Street. Truck traffic on to and off the Site moved in accordance with the two routes specified in the Site Operation Plan, referred to as Route A and Route B. Route A involved queuing trucks along West 41st Street, entering the Site through Gate #2 on West 41st Street, and exiting the Site through Gate #1 on West 42nd Street after proceeding through the truck wash/decontamination pad. Route B was utilized

towards the conclusion of remedial activities and was implemented as a contingency route when the excavation had resulted in significant surface relief and limited workable space. Route B involved queuing trucks along West 41st Street, having trucks enter the Site through Gate #2 and subsequently exit the Site via Gate #2, after proceeding through the alternate truck wash/decontamination setup (See Section 3.2.6).

The truck route between the Site and the nearest major highway was as described in the SOP. Due to relatively large size of the Site and coordinated sequencing of excavation, soil loading and hauling by the Remediation Contractor generally avoided the need to queue trucks along the adjacent public roadways. When queuing was required, trucks positioned themselves along West 41st Street.

One incident occurred in regards to having the trucks queued along West 41st Street. On January 5, 2006, a NYSDEC ECO arrived at the Site to investigate a complaint about dirt from the Site tracking onto the street (See Section 3.2.6). The ECO issued tickets to several truck drivers for idling too long along West 41st Street. No other incidents occurred with respect to truck traffic control.

3.3.2 Site Security

The Site security during the remedial activities included:

1. Perimeter security fencing (12-foot high plywood fence painted blue) and access gates with locks installed at the boundary of the Site to prevent access by unauthorized persons, in accordance with NYC construction and building code requirements. The blue perimeter fencing was the primary security feature for the Site. Signage was posted every 200 linear feet on the fence stating "Restricted Area – No Unauthorized Entry". Additionally at the Site entrance and egress points, signage was posted stating "Proper Personal Protective Equipment Must Be Worn", and "No Eating, Drinking, or Smoking".
2. Warning tape and/or barricades placed around open excavations, the exclusion zone boundary in the process of remediation, and other potentially dangerous areas as determined by the Health and Safety Coordinator;
3. Sign-In/Sign-Out Sheets were maintained at the guard shack located just inside Gate #1. All personnel and visitors were required to sign in and sign out upon arrival and departure.
4. Safe Work Practices included:

- Parking heavy equipment in a designated area each night and removing keys;
- Maintaining an organized work area, including the proper storage of tools, equipment, and fuels;
- Conducting regular health and safety meetings. A Health and Safety Officer was present onsite during the day throughout the course of remedial activities.

5. 24-Hour, 7-day security personnel.

3.3.3 Community Air Monitoring

GCI implemented the May 3, 2005 CAMP. The CAMP was developed in accordance with the requirements of NYSDEC Technical Administrative Guidance Memorandum # 4031 and with the provisions of the New York State Department of Health (NYSDOH) Community Air Monitoring Plans in order to deal with the downwind, real-time monitoring of volatile organic compounds (VOCs), odors and particulates (i.e., dust) during intrusive field activities.

The CAMP was implemented in accordance with the approved RWP for the duration of remedial activities to protect the health and safety of site workers and the surrounding community, and to address potential nuisance dust and/or odors. The CAMP established a measure of protection for off-site receptors including residences and businesses from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The CAMP was not intended for use in establishing action levels for worker respiratory protection but rather for determining when increased monitoring, corrective actions to abate emissions, and/or work shutdown is required.

Minor modifications to the approved CAMP were proposed in a letter to the Volunteer dated August 10, 2005. The modifications were designed to improve the overall effectiveness of the CAMP and to streamline chain-of-command issues related to odor and odor migration. Modifications included collecting and analyzing ambient air via gas chromatography to identify the source of elevated VOC readings that are not readily identifiable and discontinuing the use of the ASTM Method E544-99 for odor detection in favor of an 'odor complaint' trigger which was determined in the field by the Remediation Engineer.

GCI's summary of CAMP implementation, a summary of instances of air monitoring exceedances, with actions taken, and the air monitoring data collected throughout the course of the project is included in Appendix D.

3.3.4 Dust Suppression

The Remediation Engineer and Construction Manager monitored the remediation and construction activities for dust generation and the need for dust suppression. Nuisance dust was controlled with engineering controls as required. Examples of standard preemptive dust suppression techniques included routinely applying water on haul roads, hauling materials in properly tarped/covered containers, restricting vehicle speeds to 10 miles per hour (mph), covering excavation fronts after the excavation activities ceased for the day, placing gravel beds at vehicle entrance and egress points, and applying a foam surfactant to exposed soil surfaces.

Additional dust suppression techniques included wetting equipment, stockpiles, and excavation faces with potable water, and spraying potable water on excavator buckets during excavation and dumping. Dust suppression techniques utilizing water were employed conservatively so as not to create standing water that would exacerbate Site conditions.

In certain areas of the Site, MGP-impacted soil/fill required onsite dilution mixing with Calciment/kiln dust due to excess moisture. Stabilization using Calciment/kiln dust had high dusting potential and required dust suppression techniques prior to initiation. These included delivering kiln dust early in the morning and pumping the kiln dust from the delivery truck into a tarped/covered pit via a corrugated, flexible hose.

On September 11, 2005, a truck trailer tipped over while on-site delivering kiln dust. This accident resulted in a CAMP exceedance of fugitive dust emissions. The incident prompted a complaint by the Metropolitan Transit Authority, which operates the Michael J. Quill Bus Depot across West 41st Street to the south of the Site. As a result, a representative from the MTA and three industrial hygienists investigated the outside perimeter of the Site with dust and vapor monitors. The MTA did not report any exceedances and no further action was initiated with regard to this incident.

3.3.5 Odor Suppression

The Remediation Engineer monitored the remediation and construction activities for odor generation and the need for odor suppression. Originally, odor control and suppression, as defined in the CAMP, was based on the use of the n-butanol scale adapted from ASTM Method E544-99. The CAMP was revised in August 2005 in order to simplify the odor detection and

mitigation process (See Section 3.3.3). Subsequently, odor control and suppression was initiated based upon odor intensity and "odor complaints". The Remediation Engineer was the offensive odor detector. If odors were detected or if a complaint was lodged, then the Site Safety Officer was required to evaluate VOC concentrations at the source of the odors and take appropriate action per the Site CHASP. A determination as to wind speed and direction was made and the downwind area of the exclusion zone and the entire perimeter of the Site were inspected to ensure that odors were not migrating offsite. If odors were detected at the exclusion zone downwind of the odor source, then a Condition Yellow was implemented as per the CAMP. If odors were detected at the perimeter of the Site, then a Condition Red was implemented as per the CAMP and work was temporarily halted until the odor situation had been addressed.

Standard odor suppression techniques included the deployment of a Piian odor control system that was installed on the inside wall of the blue security fencing that surrounded the Site perimeter. The Piian system pumped a mixture of water and odor neutralizer concentrate at 1000-psi pressure through a manifold tube, where it was released through highly specialized flow atomization nozzles to form a mist of 10-micron sized droplets. The droplets were so fine that they remained suspended in the air where they attach to and mitigate odorous compounds. The Piian system was operated continuously throughout the workday for the duration of the remedial activities, with allowances for weather conditions (freezing conditions).

Additional odor suppression techniques involved the application of foam suppressants to the excavation and/or stockpiles. Foam was applied at the discretion of the Remediation Engineer who utilized a combination of CAMP monitoring data, personnel air monitoring data, and subjective olfactory sense to determine when the application was required.

One incident was documented regarding the use of odor suppression techniques. On December 16, 2005, the Fire Department arrived at the Site to investigate and respond to an anonymous complaint. The complaint stated that 'chemicals' were sprayed onto the complainant's face and that was causing a burning sensation. After surveying the Site for dangerous activities or situations, the Fire Chief was provided with all appropriate Material Safety Data Sheets (MSDS). The Fire Department left the Site without further action.

3.3.6 Work Zone Demarcation

In order to control the handling and processing of material and the decontamination of equipment and personnel the Site was divided into four operable zones; the Exclusion Zone (EZ), the Support Zone (SZ), the Contaminant Reduction Zone (CRZ), and the Clean Zone (CZ). The EZ was located adjacent to the excavation front and was reconfigured continuously as the excavation proceeded. The SZ was located along the western border of the Site and was further divided into two areas – the Material Processing Area (MPA) and the Material Support Area (MSA). The MPA was the area where materials were loaded onto transport vehicles for off-site disposal. The MPA was also used as the designated area for adding stabilization media such as kiln dust. The MSA (or lay down area) was used to store equipment used in the remedial operations. The CRZ was located in the northwest corner of the Site near Gate #1. The CRZ was used to decontaminate trucks, hydraulic equipment, and personnel. The CZ was a contaminant-free area designated for visitors and/or remediation staff not wearing personal protective equipment. The office trailers were located within the CZ.

Personnel and visitors entering the EZ or the CRZ were required to have OSHA 40-hour HAZWOPER training. Personnel leaving the EZ were required to proceed through the CRZ before entering the SZ or CZ.

3.3.7 Decontamination and Waste Management

Vehicle Decontamination

Vehicle cleaning was conducted on the decontamination pad in the truck wash area. Each transport vehicle was manually inspected along the truck fenders, tires, and mud flaps for accumulated soil/fill. If soil/fill was found to be present on the truck then it was removed using hand tools (brushes, brooms, scrapers). Each truck was then pressure washed and inspected prior to leaving the Site. Equipment, such as excavator buckets and tracks, were cleaned within the contaminant reduction zone (CRZ) using hand held implements and/or potable water supplied from a hose.

Personal Protective Equipment Decontamination

In general, personal protective equipment (PPE) decontamination involved washing with potable water and a scrub brush followed by a clean water rinse. Decontamination of equipment (boots, Tyvek suits, gloves) was performed within the CRZ. Boots were washed and scrubbed free of contaminants within shallow, self-contained pools of potable water. If

Tyvek suits were worn, they were removed upon leaving the exclusion zone and disposed of in a dry container (garbage can). Gloves were either scrubbed and washed similarly to boots or were disposed of if grossly contaminated. Respirators were disinfected between uses with a towlette or other sanitary method, as required by the HASP. Potable water was available at the Site so that personnel could thoroughly wash hands and face after leaving the point of operations.

Miscellaneous Wastes

Miscellaneous waste generated during the remedial activities, including general refuse, construction materials, perimeter and temporary fencing, and used disposable sampling equipment, were managed and disposed as a non-hazardous solid waste.

Unanticipated Subsurface Structures/Conditions

Unanticipated subsurface structures/conditions such as USTs and concrete debris were handled in accordance with applicable federal, state, and local ordinances and regulations. Visually clean debris was transported per 6 NYCRR Part 360-7 to a licensed construction and demolition (C&D) facility. Six (6) USTs were encountered during excavation as described in Section 4.5. The tanks were decommissioned, removed, and disposed of in accordance with the applicable NYSDEC tank closure regulations. A discussion of remedial activities associated with the discovery of unanticipated subsurface structures is presented in Section 4.6.

During the course of remedial activities, there was one incident recorded regarding decontamination protocol. On September 14, 2005, an Occupational Safety and Health Administration (OSHA) notice was received indicating a complaint was reported that no decontamination shower was available onsite. Although not required in the approved CHASP, a full decon shower was set up. The shower was installed next to the eyewash station, which was located in the Clean Zone (CZ).

The OSHA notification also stated that the Remediation Contractor did not implement an effective respiratory protection program at the Site because workers were fit tested to wear half face respirators but were being provided with full face respirators. To correct this incident remediation workers were fit tested for full face respirators by Clarity Testing Services.

3.3.8 Groundwater Monitoring Well Abandonment

Moretrench American Corporation of Yonkers, NY, contracted to BWE, abandoned existing onsite groundwater monitoring wells LMW-02 and LMW-04 on August 24, 2005, prior to initiation of the remedial activities. Monitoring wells LMW-01 and LMW-03 could not be located. Well abandonment was conducted in accordance with NYSDEC groundwater monitoring well decommissioning procedures. Well abandonment documentation including a location sketch is provided in Appendix E.

3.3.9 General Health and Safety Protocols

A Site Health and Safety Officer (SHSO) was onsite at all times during the course of remedial activities and was responsible for the implementation of the CHASP. Specific duties of the SHSO included monitoring Site personnel to ensure the proper use of personal protective equipment (PPE), routinely inspecting PPE to ensure that it was in good, working condition, and monitoring personnel who enter and exit the Site and all controlled access points. The SHSO maintained documents recording the appropriate training of each individual onsite including medical fit for duty forms, OSHA training certificates, respirator fit test certificates, and any other training certificates (e.g. CPR/First Aid, etc.).

Specific health and safety protocols included monitoring ambient air conditions in the worker breathing zone, installing fall protection where required, maintaining exclusion zone boundaries, maintaining decontamination zones (decon pools, decon shower, eyewash station), and conducting weekly tailgate meetings to disseminate new information if available or to reinforce established procedures.

During excavation, waste handling, transport, and sampling, the ambient air within the Site property line was monitored for organic vapors to ensure that appropriate levels of respiratory protection were employed at all times during the course of the remedial activities. Protection level determinations were made as per the CHASP. Ambient air monitoring was conducted by a member of the Site safety team who used a real-time organic vapor instrument (photo ionization detector/PID) to monitor the concentration of VOCs in the air in the work areas. The Site Health and Safety Officer never identified workspace conditions that required Level C PPE.

3.4 IN-SITU WASTE CHARACTERIZATION

In-situ waste characterization was conducted in accordance with the RWP from February 5-18, 2005, to classify subsurface soil and fill ("overburden") at the Site for purposes of disposal in accordance with the RWP. SIC implemented the in-situ waste characterization program. The Remediation Engineer supervised field sample collection.

The RWP for the Site required that an average of 20 feet of overburden be excavated and managed offsite as a non-hazardous solid waste. Previous environmental investigations identified that only the lower fifteen feet of the targeted media is impacted with MGP related substances. The upper 5 feet was thought to be consistent with typical urban fill.

To properly characterize the urban fill, the top 5 feet of soil at the Site was divided into six sampling grids measuring 110 feet in length by 110 feet in width by 5 feet in depth (identified as Grids #1 through #6). Four grab samples were obtained from random locations within each grid utilizing a Geoprobe hydraulic probing tool. The samples were laboratory analyzed for the acceptance criteria provided by Clean Earth, Inc. for their facility that accepts urban fill (FDP Multimodal).

To characterize the MGP-impacted overburden, one composite and one grab sample was collected for every 300 cubic yards (cy) of in-situ material. This was accomplished by creating sampling quadrants measuring 23 feet in length by 23 feet in width by 15 feet in depth. Samples were again obtained utilizing a Geoprobe hydraulic probing tool. Sampling of MGP-impacted overburden was initiated at a depth of no less than 5 feet below ground surface. The samples were laboratory analyzed for the acceptance criteria provided by Clean Earth Inc. for their facility that accepts MGP-impacted media (Clean Earth of Philadelphia).

SIC's Waste Characterization Assessment report concluded that the top 5-feet of the overburden contained low concentrations of homogenously distributed VOCs, SVOCs, and heavy metals consistent with urban areas. Beneath the urban fill to the required excavation elevation, is a mixture of soil and construction debris that has been impacted with hazardous substances associated with the operation of a manufactured gas plant. This material contained moderate to high concentrations of heterogeneously distributed VOCs, SVOCs, and heavy metals consistent with MGP related wastes.

The Remediation Contractor divided the excavated materials into three categories (Urban Fill, MGP Impacted Soil/Fill, and Concrete/Brick/Asphalt/Rock Debris) depending on known or suspected levels of the contaminants of concern. The three categories of material were separately managed and/or stockpiled to avoid co-mingling of potentially contaminated and contaminated materials with clean soil, and to handle, characterize, and off-load the contaminated materials. The three categories are described below.

3.4.1 Urban Fill

Some areas of the shallow on-site fill were documented to contain contaminants above TAGM RSCOs. These materials were identified as "Urban Fill" based on prior field sampling conducted during the Site Characterization and Waste Characterization Assessment. It was identified that the top 5-feet of overburden consisted of urban fill. The urban fill contained low concentrations of homogeneously distributed VOCs, SVOCs, and heavy metals.

Urban fill material from Grids # 1, 2, 4, 5 and the eastern half of Grid #3 was approved for acceptance at the FDP Multimodal facility in a letter dated June 24, 2005 (Approval # 062405.01A). As per a June 14, 2005 letter from Impact Environmental to Allied Waste Group, urban fill material from Grid #6 and the western half of Grid #3 was not suitable for disposal at the FDP Multimodal based on the disposal criteria, boring data, and visual observations. Urban fill material from Grid #6 and the western half of Grid #3 was handled as MGP-impacted material.

3.4.2 MGP Impacted Soil/Fill

Beneath the urban fill to the bottom extent of the excavation is fill and soil impacted with substances associated with the operation of the former MGP. These materials were identified as MGP Impacted Soil/Fill based on prior field sampling conducted during the Site Characterization and Waste Characterization Assessment. The MGP materials contained moderate to high concentrations of heterogeneously distributed VOCs, SVOCs, and heavy metals.

MGP impacted material was accepted for thermal processing at Clean Earth of Philadelphia and Clean Earth of Delaware in a letter dated April 8, 2005.

3.4.3 Concrete/Brick/Asphalt/Rock Debris

Recognizable concrete, brick, asphalt, and rock debris that had a dimension greater than three-inches and that did not contain any liquid or solid residue was managed as solid construction and demolition waste (C&D). C&D was stockpiled onsite, as it accrued during excavation activities, and was loaded for off-site disposal as required. C&D material was disposed of at a facility registered with the NYSDEC pursuant to 6 NYCRR Part 360 (Evergreen Recycling of Corona, Flushing, NY).

3.5 SCHEDULE

Implementation of remedial excavation activities commenced in June 2005 and ended on February 10, 2006. Remediation was completed within an 8-month period that exceeded the schedule presented in the RWP (90 days) by approximately 5 months. However, the implementation schedule was re-evaluated to 5.5 months upon receipt of remediation bids and selection of contractors. Therefore, the actual delays resulting from site conditions and other factors was approximately 2.5 months. The delay was wholly due to the following events:

1. A strike initiated by the Remediation Contractor employees, which began on July 1, 2005. Workers returned to the Site on July 13, 2005;
2. Clearing the subsurface obstructions located along the northern perimeter and in the northeast corner of the Site required specialized, long-lead drilling equipment and delayed the installation of sheeting and subsequently the rate of excavation (See Section 4.6.1). This delay was compounded due to the limited access of other areas of the Site and sequencing requirements; and to lesser degrees
3. The discovery of six USTs in the northeast portion of the Site (See Section 4.6); and
4. A 3-day strike by the Transit Workers Union Local 100 shut down subway and bus services for the city and forced the city to implement contingency plans for roadways, bridges, and tunnels. No deliveries to or from the Site were possible from December 20, 2005 to December 22, 2005.

Reduced intrusive activities at the Site during the delays minimized potential impacts on the community.

3.6 PROGRESS REPORTS

Monthly progress reports were submitted to the Volunteer, NYSDEC, and NYSDOH by electronic media during the remedial activities. The progress reports generally included:

- Specific site remedial activities completed during the reporting period and those anticipated for the next reporting period;
- Description of deviations, approved modifications to the work scope and/or schedule;
- A update of the schedule of remedial actions and activities to be completed in the following month;
- The types and amounts of waste generated and transported for disposal.

Any unanticipated conditions at the Site were promptly communicated to NYSDEC's and NYSDOH's project managers. Necessary modifications to the work scope and additional remedial plans developed to address specific conditions encountered at the Site were communicated verbally and via e-mail with NYSDEC, and NYSDEC concurrence was obtained as appropriate. In addition, during implementation of the Remedial Action, weekly meetings were held and attended by NYSDEC, the Construction Manager, the Remediation Contractor, the Volunteer, the Partcipant, and the Remediation Engineer. Copies of the monthly progress reports and the Langan daily field reports are included in Appendix F.

4.0 SOIL/WASTE MANAGEMENT

4.1 INTRODUCTION

This section presents the general soil and waste management methodologies followed during site remediation, from initial screening upon breaking ground in an area, through handling, stockpiling, characterizing, and ultimately transporting and disposing or beneficially reusing the excavated material. The Remediation Engineer provided representatives for full-time oversight of all remedial activities performed under the approved RWP.

4.2 SHEETING AND SHORING

Sheeting installation commenced in July 2005. Installation of sheeting was required to support the excavation walls along the perimeter of the excavation footprint. The sheeting was installed and continuously interlocked with a waterproof sealant to provide a cut-off wall and impede the lateral movement of groundwater. The sheeting element was designed to be installed ± 3-feet-2 and ¾-inches outside of the property line along the eastern, northern, and southern perimeter. On the western portion of the Site, the distance of the sheeting from the residential tower present on Lot 1 was 50-feet. This distance was necessary to protect the foundation support piles of the existing building from potential damage due to tieback installation. The general top-of-sheeting elevation was el +13 feet. Sheeting design, testing results and as-built documentation is provided in Appendix G.

4.2.1 Preparation

To prepare for the installation of the sheeting, it was necessary to pre-trench to remove the construction debris that overlies the natural soil overburden. Accordingly, the Remedial Contractor excavated approximately 8-feet of urban fill to clear the Site for sheeting. The sheeting was installed using a vibratory hammer. A water-resistant sealant (Adeka Ultra Seal A-50) was applied within the sheeting interlocks to render the sheeting system watertight.

The sheeting was designed to penetrate a horizontally continuous formation of overburden clay. All sheets were driven into the underlying clay or to refusal on rock. Where the sheeting terminated in rock, toe-pins were drilled into the rock to provide lateral resistance at the tip of the sheeting. Typical toe-pins installation consisted of advancing a 4-inch diameter borehole immediately adjacent to the inside wall of sheeting. The boreholes were advanced at least 5-

feet into competent rock. A section of #11 rebar was then installed into the borehole and grouted in place.

Horizontal walers beams in conjunction with tiebacks anchored sheet pile walls to provide resistance against hydrostatic and lateral earth pressures. Steel waler beams were welded onto the sheet piles around the full extent of the sheeting perimeter. Four-inch diameter Tieback boreholes were then drilled through the sheeting at approximately 45-degree angles. Each respective tie-back borehole was advanced approximately 35 linear feet into the bedrock. Tieback anchor tendons, consisting of a 0.6-inch diameter, 7-wire stress relieved strand were then inserted into the borehole and grouted solid with Portland cement to anchor the cable in the bedrock.

4.2.2 Tie-Back Testing

When the tie-backs were installed, they were tested (proof or performance), tensioned, locked into place, and subsequently cut to length at the exposed terminus. The tie-backs were designed to have an ultimate tensile strength of 270 KSI. Proof testing was conducted by tensioning each tie-back to 133% of design load (292.6 Kips), holding the tension for 10 minutes, and then locking-off the tie-back at 80% of design load. The anchor was considered acceptable if the measured elongation at the full test load did not exceed 0.040-inches during the 10-minute period. Anchor elongations were measured by means of a dial indicator mounted on an independent reference frame.

Performance testing was conducted on four of the tie-backs. Performance testing consisted of incrementally tensioning and relaxing the tie-backs up to 133% of design load, holding the incremental test loads for specified durations, and then relaxing the test load to 75% (165.0 Kips) whereupon the tie-back was locked off and set in place. The anchor was considered acceptable if the measured elongation at the full test load did not exceed 0.040-inches during the 10-minute period.

4.2.3 Subsurface Obstruction Clearance

Significant difficulties and delays were encountered while installing the interlocking sheet piles along the north perimeter, near the northeastern corner of the Site. BWE initially attempted to install the sheet piles in the northeast corner of the Site using a conventional vibratory hammer. However, underground obstructions severely impeded progress to the extent that the sheets penetrated only a few feet into the subsurface before refusal was met. BWE attempted to

remove the underground obstructions by pre-excavation. Pre-excavation efforts revealed large boulder-sized rock pieces stacked and mortared together along the northern perimeter of the Site fronting West 42nd Street. The boulders were present below the entire width of the sidewalk and extended into the property to the south and below West 42nd Street to the north. Excavation of these boulders would have potentially undermined the West 42nd Street roadway.

A trench box was used to clear subsurface obstructions from the majority of the northern perimeter. The average depth of excavation utilizing the trench box was approximately 24-feet below ground surface. The trench box excavation proceeded from the east towards the west and concluded approximately 50-feet east of the western sheeting line. Trench box excavation was not employed for the westernmost 50-feet along the northern perimeter because bedrock was encountered at increasingly shallow depths towards the northwest corner of the Site. Trench box activities were conducted from September 10, 2005 to October 6, 2005.

Subsurface obstruction clearance along the northern perimeter of the Site began on November 2, 2005 and proceeded in a west-to-east fashion towards the northeast corner. In total, 21, 24-inch diameter boreholes were advanced by Underpinning and Foundation/Skanska, of Maspeth, NY, utilizing an ABI-TM1215 air rotary drill rig. Boreholes were generally advanced to approximately 27-feet below grade. Hard drilling conditions were encountered from approximately 12 to 20-feet below grade. Clean, imported sand was used to infill the resultant boreholes. The subsurface obstruction clearance work was completed on November 10, 2005 and sheeting installation was subsequently completed on November 16, 2005.

4.3 DEWATERING

The water table was observed to be between 6 and 10 feet bgs. Therefore, dewatering of the excavation footprint was required to facilitate material handling, provide for observation of the excavation bottom, and to provide appropriate conditions for backfilling. Dewatering was accomplished through the construction of perimeter well points and the use of mobile sump pumps. Moretrench, Inc., of Rockaway, NJ (Moretrench) was contracted by BWE to obtain the necessary permit and to construct and operate the dewatering system.

4.3.1 Groundwater Discharge Permit

Prior to activating the dewatering system, a sample of groundwater was collected for laboratory analysis. The results of this analysis were submitted to the New York City Department of Environmental Protection (NYCDEP) to obtain the necessary discharge permit. Groundwater

discharge approval was granted from the NYCDEP Division of Permitting and Connections, Bureau of Water and Sewer Operations on August 23, 2005. The permit (File Case # C-3853) authorized the conditional discharge of up to 995,300 gallons per day (gpd) for a period of one year, to a combined sewer manhole located along 11th Avenue at the Site. Permission was conditional based on the requirement to remediate the groundwater through a four-tier treatment system prior to discharge to the combined sewer.

4.3.2 Dewatering Wells and Sumps

Dewatering wells were constructed August 16-18, 2005, by Moretrench, Inc., of Rockaway, NJ, using a Watson 3-1678 track mounted drill rig. The drill rig utilized a 30-inch diameter auger from the ground surface to approximately 12-feet bgs and then advanced a 24-inch diameter auger from approximately 12-feet bgs to the total depth of each respective well.

In total, four dewatering wells were constructed, one in each corner of the excavation footprint. Well #1 was located in the northeast corner of the Site and was completed to a depth of 20-feet bgs. Well #2 was located in the southeast corner of the Site and was completed to a depth of 30-feet bgs. Well #3 was located in the southwest corner of the Site and was completed to a depth of 27-feet bgs. Well #4 was located in the northwest corner of the Site and was completed to a depth of 27-feet bgs.

All four dewatering wells were constructed of 12-inch inside diameter (ID), Schedule 40 PVC casing and were screened from the total depth of each respective well to the ground surface with 0.30-slot screening. Casing joints were flush-threaded, and no glues, chemical cements, or solvents were used to join the casing sections. The annular space in each well was backfilled with No. 2 filter sand. Each dewatering well housed an electric submersible pump that conveyed the groundwater from the well to a perimeter header.

In addition to the wells, multiple mobile sump pumps were used in conjunction with the dewatering well points to provide additional dewatering capacity. The sumps were used in areas where surface water accumulation was present or in areas outside of the radius of influence of the wells. The sumps conveyed groundwater directly into the top of casings of the dewatering wells where it was subsequently pumped via the electric submersible pump positioned downhole within the well.

4.3.3 Groundwater Treatment System

The treatment system was located along the eastern boundary of the Site. It consisted of an oil/water separator/settlement tank, a duplex pumping system, a dual filter bag secondary treatment system, and a liquid phase carbon tertiary treatment system. The capacity of the pumping and treatment system was 200 gallons per minute (gpm), however, the system typically operated with a combined volume of less than 10,000 gpd or 7 gpm.

Influent and effluent samples were collected from the dewatering treatment system on September 30, 2005, to test the efficacy of the treatment. The samples were submitted to Severn Trent Laboratories (STL) of Shelton, CT, and analyzed for Total Petroleum Hydrocarbons, TAL Metals, TCL VOCs, and TCL SVOCs. Results for the effluent sample were compared to the NYCDEP Bureau of Wastewater Treatment's Limitations for Effluent to Sanitary or Combined Sewers. No analytes were detected at concentrations equal to or greater than the prescribed discharge limits.

4.3.4 Groundwater Effluent Metering

An effluent flow meter was positioned at the outfall of the carbon units. The initial dewatering meter reading, observed on August 22, 2005, prior to initiating dewatering activities, was 6,867,600 gallons. At the conclusion of remedial activities at the Site on February 9, 2006, the effluent flow meter reading was 7,959,500 gallons. Therefore, during the course of remedial activities, a total of 1,091,900 gallons of groundwater were extracted from the Site, treated, and discharged to the combined sewer.

4.3.5 Dewatering System Operations

A representative of Moretrench, Inc. performed the daily operation and maintenance of the dewatering system. The dewatering system was operated concurrent with the hours of operation of the Site with the following exceptions:

1. The dewatering system was operational 24-hours a day during the week of October 11, 2005 thru October 17, 2005 due to a weather pattern that dropped more than 10-inches of rain. The excessive rainfall totals created a pool of standing water within the excavation that was approximately 2 to 3 feet deep.

2. The dewatering system was shut down during the first few days of February 2006. The dewatering system was reactivated on February 8, 2006.

The NYCDEP discharge permit, influent and effluent laboratory analytical sampling results, and a compilation of effluent meter readings are presented in Appendix H.

4.4 SOIL EXCAVATION

Soils were excavated in a systematic approach to avoid commingling of waste streams, to avoid the generation of nuisance dust and/or odors, and in a manner mindful of the health and safety of Site workers, the surrounding community, and the environment. Soil was excavated from the entire footprint of the Site within the boundaries of the sheeting line to remove urban fill, MGP-impacted soil/fill, and C&D materials that required off-site disposal. Excavation reached depths of 15 to 20 feet bgs (elevation -8 to -13) using conventional hydraulic excavation equipment (excavators, backhoes, bulldozers, etc.). Depending on the designated category, soil was either dynamically loaded for direct transport off the Site (urban fill, MGP impacted soil/fill) or was excavated and stockpiled to be transported off-site as required (C&D).

In general, excavation proceeded as outlined in the RWP:

- Excavation of shallow subsurface soil for direct loading of urban fill for off-site transport and disposal, including trenching for installation of sheeting;
- Field determination that the boundary between urban fill material and MGP impacted soil/fill was reached based on visual and olfactory observations;
- Excavation of MGP impacted soil/fill (i.e. material deeper than 5-feet bgs) for direct loading, transport, and disposal, including the removal of gas holder foundations and substructures associated with the former MGP plant to the observed water table;
- Continuous dewatering followed by excavation of subsurface material from the observed water table to the final excavation depths;
- Collection of end-point soil samples; and
- Placement of clean fill.

Specifically, soil excavation commenced in the southeast corner of the Site and generally proceeded towards the northwest corner. Soils were loaded out in 'phases' which were defined by material type and the depth of the resultant excavation. Excavation progress was also controlled by the necessity to maintain suitable access and stable working platforms for

the installation of sheeting, walers, tie-backs, and toe-pins. MGP gas holders and existing subsurface structures were demolished and removed when encountered.

A significant amount of wood debris was observed across the majority of the Site. The wood was predominantly present at a depth of approximately 15 to 18-feet below ground surface. The wood appeared to be a multi-level deck/platform comprised of cribbing and planking. Wood debris was broken down to the extent possible and transported offsite along with MGP material.

Excavation progress was temporarily interrupted in the northeast portion of the Site due to the discovery of six underground storage tanks (USTs) (See Section 4.6) and along the northern perimeter due to the presence of subsurface obstructions that impeded the installation of sheet piles (See Section 4.2.3). Excavation resumed once the USTs were decommissioned appropriately and once the sheeting installation was completed.

The last portion of the Site excavated within the sheeting line was located along the western perimeter. This last portion served as the load-out area and haul road when trucks began exiting through Gate #2 (See Sections 3.2.6 and 3.3.1). During excavation of the western perimeter, the foundation walls and floors of the former Purifying House were demolished and the material was managed as C&D if it was free of liquid and/or solid residue.

The final depth of excavation was approximately elevation minus 13 (el -13) across the extent of the excavation footprint except for a 35-foot wide swath located against the full length of the western sheeting wall. The final depth of excavation in this area ranged from el -8 in the southwestern corner to el -9 in the northwestern corner. Additionally, at a specified point along the western sheeting wall located 50-feet south of the northwest corner, an area approximately the width of the excavator bucket was spot graded for bottom of excavation to elevation minus 18 (el -18).

The final depth of excavation was completed in accordance with the elevations provided and labeled as "Bottom of Excavation and Interim Grading" within the specifications and drawings prepared by Langan dated February 17, 2005 (Drawing ENV-1). Drawing ENV-1 is included as Appendix I.

At the conclusion of remedial excavation activities within the sheeting line, a 25-foot swath of the landscaped area (measured from the western sheeting line to the west onto Tax Lot 1) was

excavated to the underlying filter fabric that was emplaced prior to constructing the truck wash/decontamination area. The excavation extended laterally from Gate #1 to Gate #2 (less the sidewalk aprons present at each Gate). The excavation was completed to a depth of approximately 2 feet below grade.

Langan was responsible for providing direction in the field to the Remediation Contractor for identifying the total depth of the excavation, categorizing the excavated material, collecting end-point samples for confirmation, and reviewing the waste profiles for the off-site disposal facilities. The progress across the Site was monitored and communicated to NYSDEC.

Excavation progress was mapped using precision survey equipment including laser levels and transits. Survey measurements were transferred to a Master Excavation Progress Map. Survey measurements were referenced to the Borough President of Manhattan Datum. The bottom elevation contour map of the remedial excavation is included as Figure 2.

4.5 SOIL/WASTE MANAGEMENT

Under Langan's supervision, the Remediation Contractor arranged for transportation of C&D material, Urban Fill and MGP Impacted Soil/Fill for off-site disposal in accordance with applicable federal, state, and local regulations, including New York City DOT road permit procedures. Only transporters and transport vehicles with proper 6 NYCRR Part 364 permits were used to haul the excavated soil to the designated treatment/disposal or reuse facilities. Copies of the waste hauler Part 364 permit for the transporters that were utilized are included in Appendix J.

The Remediation Engineer inspected the load-out of all excavated materials. Once the loading of any container, dump truck, or trailer was completed, the material was immediately transported to the off-site disposal facility. Transport of materials was performed by licensed haulers in accordance with appropriate local, state, and federal regulations. Loaded vehicles leaving the Site were securely covered, manifested, and placarded in accordance with appropriate federal, state, local, and New York State Department of Transportation (NYSDOT) requirements. Egress points for truck and equipment transport from the Site were kept clean of dirt and other materials during remediation and development of the Site.

Measures to mitigate dust during loading and transport are summarized in Section 3.3.4 of this report. In accordance with the dust suppression plan, the Remediation Engineer was

responsible for ensuring that the trucks and equipment leaving the Site were pressure washed at the truck wash to remove contaminated soil from the tires and undercarriage.

Three incidents occurred throughout the course of remedial activities where the protocol established for material transport and disposal was not followed or interrupted. The incidents are as follows:

1. On July 29, 2005, seven trucks not listed on the Part 364 permit were loaded-out with MGP-impacted material. To keep non-permitted trucks offsite, a guard was posted at the entrance to the Site (Gate #2) to check each truck license and registration against the permit list.
2. On September 8, 2005, five trucks of MGP material loaded-out towards the end of the day did not arrive at the disposal facility in time to off-load. These five trucks attempted to off-load at the facility the following morning and were subsequently denied permission because the material was 'too wet'. The trucks all returned to the Site with the MGP material still contained within the truck beds. In response, BWE sent a letter to Allied Environmental Group requesting a formal contingency plan to address disposition of loaded trucks that do not make it to the disposal site (for unloading) during operating hours.
3. On September 9, 2005, seven trucks of MGP material were rejected at the disposal facility for being 'too wet' and were returned to the Site. The 'wet' material was mixed at the Site with 'drier' MGP material and reloaded-out. No further problems were associated with this.

4.5.1 Urban Fill

The general procedure for managing the Urban Fill layer consisted of, whenever possible, dynamically loading this material for direct transport off the Site and disposal at the approved disposal facility. Under some circumstances, it was necessary to stockpile Urban Fill material on the Site pending the scheduling of truck trips. In this case, the Urban Fill was temporarily stockpiled within the EZ. All Urban Fill taken off the Site was handled as municipal solid waste as per 6 NYCRR Part 360-1.2 and was treated as contaminated material.

Approximately 8,525 tons of Urban Fill was transported off the Site by permitted haulers to the FDP Intermodal Transport Facility in Jersey City, New Jersey. The Urban Fill facility permits, load summaries, representative manifests, and approval letters are included in Appendix K.

4.5.2 MGP Impacted Soil/Fill and Brick

The MGP-impacted soil/fill and any visibly stained brick debris, primarily from gas holders, was managed as a non-hazardous industrial waste. The general procedure for managing the MGP layer consisted of, whenever possible, dynamically loading this material for direct transport off the Site and disposal at the approved disposal facility. Under some circumstances, it was necessary to stockpile MGP material on the Site pending the scheduling of truck trips, or in preparation for trucking activity the following workday. In this case, the MGP material was temporarily stockpiled within the EZ and covered with a foam surfactant to prevent nuisance dust and/or odor emissions. The stockpile was then cordoned off within the EZ using caution tape. If precipitation was expected in the weather forecast, the stockpile was also covered with plastic sheeting to alleviate the potential for erosion.

Due to the heterogeneous chemical and physical nature of the MGP Impacted Soil/Fill, some of this material required stabilization on-site and rendering at the disposal facility.

Stabilization

Stabilization with kiln dust was required for areas that contained excess moisture. These specially managed areas were identified from data that was compiled during the waste characterization assessment. Stabilization with kiln dust was achieved when the material met the 13% moisture content acceptance criteria for the disposal facility.

Rendering

Rendering was required for specially managed areas where elevated SVOC concentrations were identified during the waste characterization assessment. A disposal facility representative identified material excavated from areas requiring rendering with either a 'Type 1' or 'Type 2' on the manifest. Rendering involved 'blending' the material at the disposal facility in order to comply with the facilities process air permit. Rendering was performed at the sole discretion of the disposal facility.

MGP material was transported to one of two permitted, approved facilities, specifically:

1. 67,343 tons of MGP-impacted material was transported to Clean Earth Inc., of Philadelphia, PA (used from project inception through November 4, 2005; resumed and used from January 1, 2006 through the conclusion of remedial activities on February 9, 2006). 1,232 tons of MGP-impacted material was transported to Clean Earth Inc. of

Delaware. MGP material disposed of at the Clean Earth facilities was transported offsite by A.B. Recycling, LLC, of Wayne, NJ and Leticia Inc., of Hillside, NJ.

2. 11,982 tons of MGP-impacted material was transported to Casie Protank (Casie) of Vineland, NJ (used from November 17, 2005 through December 5, 2005). MGP material disposed of at the Casei facility was transported offsite by Shamrock Materials Corporation of Staten Island, NY and Rebco Contracting Corporation of Clifton, NJ.

The MGP facility permits, load summaries, manifests, and approval letters are included in Appendix L.

4.5.3 Construction and Demolition Debris

The following materials were handled and disposed of as a non-hazardous construction and demolition material:

- Solid concrete foundation elements that were broken with a hoe ram, separated from MGP soil/fill,
- Brick wall structures not associated with gas holders,
- Asphalt and concrete pavement, the concrete perimeter wall and surface structures removed during the initial demolition of the parking lot, and
- Crushed stone imported to the Site for use as roadway.

The general procedure for managing the C&D consisted of stockpiling material on the Site pending the scheduling of truck trips. Generally, the C&D was temporarily stockpiled within the Material Processing Area (MPA) within the Support Zone (SZ) and was kept segregated from Urban Fill or MGP-impacted material.

Approximately 4,900 cubic yards of C&D material was transported off the Site for beneficial reuse at Evergreen Recycling, of Corona, Flushing, NY. The facility permits, load summaries, manifests, and approval letters are included in Appendix M.

4.6 HOT SPOT AND SPILL RESPONSE AND REMEDIATION

When an undocumented UST or spill condition was discovered, the bulk remedial excavation operation was immediately halted in the area and diverted to another portion of the Site until the UST was properly decommissioned or the spill was remediated. NYSDEC was notified via

electronic mail and telephone. When appropriate, spills were reported to the NYSDEC petroleum spills hotline during on-site operations. The following three spills were reported:

- Spill No. 0505659, August 6, 2005 – Discovery of 5 USTs. USTs were encountered in the northeast portion of the Site during excavation of urban fill and MGP-impacted soil. The USTs were identified at a depth of approximately 7-feet below grade.
- Spill No. 0505792, August 11, 2005 – Hydraulic Oil Spill. Approximately 5 to 10 gallons of hydraulic fluid spilled on to urban fill material from Grid #6. Urban fill material from Grid #6 was not accepted for landfill disposal but was required to be disposed as MGP-impacted soil (See Section 4.2). Excavated soil affected by the spill and the absorbent pads used to contain the hydraulic fluid were disposed of with MGP waste.
- Spill No. 0510066, November 18, 2005 – Discovery of one UST approximately 7-feet below grade in the northeast portion of the Site during excavation of MGP impacted soil.

Pending mobilization of the required crew/equipment and/or consultation and agreement with NYSDEC on the specific remedial plan, the contaminated areas were cordoned off and the uncovered USTs were secured such that leakage could not occur. The hot spot areas remained secured until the USTs could be vacuumed, cleaned, and disposed of in accordance with NYSDEC and New York City Petroleum Bulk Storage Tank closure regulations (6 NYCRR Parts 613 and 614).

All soil that could have been potentially impacted by leakage from the USTs, or from the hydraulic oil spill was removed and properly disposed of in accordance with the approved RWP activities. UST Closure Reports including removal and disposal documentation, a figure showing the approximate locations of the USTs and the NYSDEC Spill Closure letters are included in Appendix N.

4.7 POST-EXCAVATION (BOTTOM) ENDPOINT SAMPLING

After reaching the final remediation depth, endpoint soil samples were collected from the bottom of the excavation in accordance with the project RWP and CQA/QC Plan. The purpose of the sampling was to document the characteristics of soil left in place (i.e. material remaining in the subsurface below the clean imported fill cover and new concrete building foundation). Endpoint soil samples were collected only from the bottom of the excavation and not from the sidewalls. Sidewall samples were not possible to collect due to the presence of sheet piling

surrounding the excavation footprint. Additionally, sheet pile walls on the north, south and east sides of the excavation are located beyond the Site property boundaries.

4.7.1 Endpoint Sampling Frequency

The excavation footprint is approximately 64,000 square feet in area and has a perimeter of approximately 1,040 linear feet. As per the NYSDEC Draft DER-10 Technical Guidance, sampling frequency may be determined by the NYSDEC if the excavation exceeds a perimeter of 300 feet. Accordingly, it was determined that sampling data collected every 2,000 square feet was appropriate for the Site. Therefore, 32 endpoint soil samples were collected for laboratory analysis. To facilitate collecting the requisite number of sample endpoints, the footprint of the excavation was divided into 32 distinct sample grids, each with a dimension of 38-feet by 52-feet. Sample grids and their respective endpoint sample locations are presented on Figure 3.

Endpoint soil samples were collected as sample grid areas were excavated to their respective final remediation depth and before the grids were prepared for backfilling with clean imported material. In total, there were five different sampling events required to collect all 32 samples. Twenty-eight endpoint samples (sample IDs: EP-1B thru EP-1H, EP-2B thru EP-2H, EP-3B thru EP-3H, and EP-4B thru EP-4H) were collected from approximately elevation minus thirteen (el -13). The remaining four endpoint soil samples (sample IDs: EP-1A, EP-2A, EP-3A, and EP-4A) were collected from approximately elevation minus eight (el -8) to minus nine (el -9).

4.7.2 Endpoint Sampling Methodology

All endpoint samples were collected from the approximate center of each respective grid where available. Samples were collected from approximately 6 to 12 inches below the exposed excavation surface. This was done to obtain the most representative sample possible - one that has not potentially volatilized due to being in contact with the ambient atmosphere, and to alleviate the potential for collecting silt/runoff washed onto the floor of the excavation by precipitation events. Sample collection was facilitated utilizing clean nitrile gloves and a spaded shovel that was decontaminated with fresh water supplied from a fire hose prior to and between collecting each respective sample. This methodology eliminated the potential for cross-contamination between samples and was agreed to verbally by the NYSDEC during the weekly meetings as an acceptable alternative to sample collection using dedicated equipment. Soil samples were immediately placed directly into pre-cleaned, laboratory-prepared glass sample jars. Care was taken to obtain representative soil samples and to fill the sample jars to

capacity to minimize loss of volatile constituents. The threads of the sample jars were wiped clean of soil particles that might interfere with an airtight seal, and a Teflon-lined screw closure lid was immediately placed on the jars.

One duplicate sample was collected during each sampling event and was assigned a non-identifying name (example: Duplicate 1 - 110405). Additionally, a matrix spike sample and matrix spike duplicate sample were collected for each sampling event in accordance with the QA/QC program. Finally, a laboratory prepared trip blank sample was included and a field blank rinsate sample was collected at the conclusion of each respective sampling event by pouring distilled water across the face of the decontaminated shovel blade and allowing it to decant into the laboratory provided field blank sample bottles.

All sample containers were uniquely labeled to identify the sample number, project name, sample locale and depth, and the date and time of collection. All samples were immediately placed into an insulating cooler with ice and submitted under standard chain-of-custody protocol to Severn Trent Laboratory (STL), of Shelton, CT, a NYS-certified laboratory.

End-point soil samples, duplicate samples, matrix spike samples, matrix spike duplicate samples, and the field blank samples (aqueous) were submitted for analyses of VOCs per EPA Method 8260, SVOCs per EPA Method 8270, PCBs per EPA Method 8080, TAL Metals per EPA Methods 6010/7470,7471/7841, and Cyanide per EPA Method 9010B. Trip blank samples were submitted for analysis by EPA Method 8260 only.

4.7.3 Endpoint Sampling Results

Severn Trent Laboratories, Inc. of Shelton, CT (NYS Certification #10602) conducted laboratory analyses of end-point soil samples. Laboratory analyses were conducted in accordance with USEPA SW-846 methods and NYSDEC ASP Category B deliverable format. Tables 1A and 1B summarize analytical results. Only detections are included in these tables.

Alpha Geoscience, of Clifton Park, NY reviewed and validated the laboratory data in accordance with the USEPA validation and NYSDEC data usability guidelines. Validation included the following:

- Verification of 100% of all QC sample results
- Verification of the identification of 100% of all sample results (both positive hits and non-detects);

- Recalculation of 10% of all investigative sample results

Data Usability Summary Reports (DUSRs) were prepared for each sample delivery group. DUSRs are provided in Appendix O along with the Form1s for each sample. The tabulated data provided in this report includes the data qualifiers added by data validation. The complete laboratory data reports are provided in electronic format in Appendix P.

4.7.4 IMPORT OF BACKFILL MATERIALS

Recycled Concrete Aggregate (RCA), certified clean sand and virgin crushed #4 quarry stone were imported onto the Site. These materials were used as excavation backfill, clean fill cover, and roadway cover. Documentation, including sampling data for these materials is included in Appendix Q.

RCA

RCA was utilized as clean cover above the excavation surface to minimize the potential for exposure of construction workers involved in Site development during subsequent construction activities. Durante Brothers Construction Corp., of Flushing, NY, a NYSDEC Registered Construction and Demolition Debris processing facility, provided approximately 14,000 tons of RCA. In accordance with the RWP, sampling of this material was not required. The RWP states that sampling of this materal is not required because it is a product and not a regulated waste.

Prior to beginning importing RCA material to the Site, the surface of the excavation was prepared by emplacing Mirafi 500 geotextile fabric. The geo-textile fabric was used for separation between the fill material and the excavation subgrade to prevent the fill material from compacting into the native soils due to settling or extraneous surface pressures. The geotextile fabric will also provide a visible demarcation indicating the limits of the remedial excavation if subsurface intrusive work is required in the future.

On November 7, 2005, the import of RCA material for backfill from Durante Brothers commenced through Gate #4 located along West 41st Street. The RCA was stockpiled directly onto the emplaced Mirafi 500 geotextile fabric in the southeast portion of the Site. The RCA was kept segregated from MGP material at all times.

On January 23, 2006, a bulldozer began spreading the RCA material from the stockpile over the full extent of the excavation within the sheeting line. The excavation surface elevation was mapped using precision survey equipment including laser levels and transits. Figure 2 shows the bottom of the excavation and final approximate thickness of RCA.

Certified Clean Sand

Certified clean sand was used to provide a clean fill cover within the landscaped portion of Tax Lot 1, located immediately west of the western extent of the excavation. This area is where the Contaminant Reduction Zone (CRZ) and the Clean Zone (CZ) were located and included the truck wash/decontamination pad area. The clean fill cover sand was used to prevent exposure to the Urban Fill. New York Sand and Stone, of Brooklyn, NY provided approximately 800 tons of the sand, referred to as 'bank run' material. The Remediation Engineer sampled this material for VOCs, SVOCs, PCBs, herbicides, pesticides, and metals at the source on January 20, 2006, prior to import.

Virgin Crushed Stone

Virgin crushed quarry stone was used to build haul roads on the Site. Approximately 5,600 cubic yards of this stone was imported onto the Site.

4.7.5 DEMOBILIZATION

Upon the conclusion of remedial activities on February 10, 2006, all waste, labor, equipment, and materials (except for dewatering equipment and personnel and a security guard) were decontaminated and removed from the Site. The Site was secured in anticipation of future construction as follows:

1. All areas located in between the blue Site perimeter security fencing and the sheeting walls were temporarily (pending building construction) filled with RCA material to match existing grade and alleviate potential tripping hazards;
2. Areas along 11th Avenue, West 41st Street, and West 42nd Street were filled with crushed stone/gravel where the curb had pulled away from the roadway;
3. Concrete Jersey-barriers were positioned along the full length of the western sheeting wall and were extended to the blue wall at both the northern and southern ends to prevent access into the excavation area. Orange snow fencing plus steel cables (at 42-inches height) was installed in conjunction with the snow fencing;
4. Fall protection was installed on the north and east sides of the excavation as per OSHA requirements. Fall protection on the south side of the excavation consisted of a

Jersey-barrier positioned at Gate #2 (See item above) and steel cabling installed immediately adjacent to both sides of Gate #4;

5. The dewatering wells and dewatering treatment system components were readied for continued operation;
6. Sheeting was cut to grade around the perimeter of the excavation and the scrap metal was disposed of at Hugo Neu Schnitzer East, in Jersey City, NJ;
7. One fiberglass ladder was left extended against the northern sheeting wall for excavation egress;
8. Garbage was picked up off the Site and the streets were swept clean in front of all of the Gates; and
9. All four Gates and a door built into the blue fencing along the eastern side to access the dewatering system were locked and secured.

4.7.6 PHOTOGRAPHIC DOCUMENTATION

Photographs were taken throughout the implementation of the RWP. RWP photos are provided in electronic format in Appendix R.

4.7.7 COST OF REMEDIATION

Implementation of the RWP cost $18,185,947. Table 2 provides a detailed accounting.

4.8 REMOBILIZATION FOR ADDITIONAL EXCAVATION TO ACCOMMODATE FINAL BUILDING DESIGN

The Volunteer's revised design for the proposed new construction required additional excavation and soil removal within the confines of the RWP excavation in order to accommodate new subcellar features. Notification of the proposed additional excavation was made to NYSDEC pursuant to the approved Site Mangemant Plan for the West 42nd Street, Former Manufactured Gas Plant Site. The Volunteer committed to conducting the additional excavation in accordance with the procedures outlined in the approved RWP. NYSDEC approved the additional excavation. The Remediation Engineer of record oversaw all aspects of the additional excavation, which was completed January 19, 2007. A remedial action implementation report will be provided to NYSDEC upon receipt of all outstanding documentation. During implementation of the additional excavation, two issues arose and were resolved. The reports describing the issues and their resolution are provided in new

Appendix R. We have summarized these issues below.

The Buried Metal Object

In June 2006, the Remediation Engineer conducted pre-excavation sampling to provide waste classification data to allow us to load out the contaminated soil directly to a disposal facility. Geoprobe boring BR-1 met refusal at approximately 2 feet below the unexcavated material (approximately 7 feet below the top of the RCA. We suspected that the buried object might be a metal UST due to our experience finding unanticipated USTs during the RWP implementation, but we had no evidence of its nature.

The Remediation Engineer directed the Remediation Contractor to excavate the area surrounding boring location BR-1. Approximately 400 square feet of soil was excavated around BR-1 to a depth of 3.5 to 4 feet. The excavation encountered numerous timber piles, all coated with a tarry material that had a naphthalene odor. The timber piles supported the timber platform upon which the gas holders were constructed. We did not find any metal objects or USTs. Photos of the excavation and maps are include in the report in Appendix S.

We concluded that a timber pile caused the boring refusal. Our search for the metal object was comprehensive and further excavation around this area also found not metal obstructions. We believe that this closes the buried object, suspect UST issue.

Northwest Corner Seepage Repair

On August 22, 2006, the Remediation Engineer observed a viscous, black liquid seeping up to the surface in the northwest corner of the excavation. To temporarily manage the seepage, the Remedial Engineer instructed the Remediation Contractor to channel the liquid, via a trench, to one of the dewatering wells for treatement and disposal.

On November 30, 2006, the Remediation Engineer directed the Remediation Contractor to excavate an exploratory test pit to identify the source of groundwater influx. The investigation identified a single source of the seepage: a gap between the bedrock and a section of sheet pile number 133, approximately 10 feet east of the excavation's northwest corner. The gap was approximately 4-inches wide and was located 29 inches below the existing grade at that time (approximately el. -8). The location of the leak was marked on the sheet pile above the existing grade and the excavation was filled with the material that had been excavated.

The gap in the sheeting was sealed on January 12, 2006, after several attempts, by grout injection from shafts drilled from surface grade outside the sheet pile wall. Six borings were completed, the last on January 3, 2007. Approximately 4 cubic yards of grout was pumped into the area between the bottom of the sheet piles and the rock.

The grout was allowed to cure and the repair was confirmed to be successful on January 16 after excavation of impacted fill. Ther Remediation Engineer visually observed that the seepage had stopped. Approximately 170 cubic yards of soil was excavated from a 30 by 40 feet area adjacent to the sheet pile gap and from the water channel that transported the contaminated groundwater to the dewatering pump. Photos and maps illustrating the repair work are provided in the report included in Appendix S. We believe that this closes the northwest seepage issue.

4.9 SITE MANAGEMENT PLAN

The Volunteer submitted a Site Management Plan (SMP) to NYSDEC as required by the RWP. The SMP includes provisions for

- management of the site during the period between the completion of remediation and the construction of the proposed building foundation,
- installation of an impermeable barrier beneath and around the proposed new building foundation(s),
- annual inspection of engineering controls,
- a Groundwater Monitoring Plan, including a QAPP and data validation requirements,
- indoor air monitoring;
- a Soil Management Plan, including a CHASP and CAMP, and
- reporting and organizational requirements.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made based on the remedial activities conducted at the Site:

- All objectives of the RWP were achieved.
- The implementation of remedial activities was conducted in accordance with the RWP. Contaminants associated with the former MGP plant were removed to the final excavation depth and disposed of at appropriate permitted facilities.
- The results of post-excavation end-point soil sampling provide documentation of the contaminant concentration levels remaining within the limits of the excavation.
- All Spill Numbers reported during implementation of the Remedial Action, and were closed by NYSDEC:
  1. Spill No. 0505659, August 6, 2005 – Discovery of 5 USTs.
  2. Spill No. 0505792, August 11, 2005 – Hydraulic Oil Spill.
  3. Spill No. 0510066, November 18, 2005 – Discovery of 1 UST.
- All issues identified after implementation of the RWP were addressed to the satisfaction of NYSDEC.

Langan recommends no further action with respect to the subsurface conditions at the Site. The post-excavation endpoint sample analyses confirm and document the contaminants of concern in the soil remaining at the Site. Additionally, Langan recommends that NYSDEC issue a Certificate of Completion for the Site.

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TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	1A			1B			1C			1D			1D			1E			1F		
Client ID	EP-1A (-9)			EP-1B (-13)			EP-1C (-13)			EP-1D (-13)			DUPLICATE-3-012006			EP-1E (-13)			EP-1F (-13)		
Date Sampled	1/26/2006			1/26/2006			1/26/2006			1/20/2006			1/20/2006			1/20/2006			1/20/2006		
Units	ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg		
VOCs																					
2-Butanone (MEK)	<	12	U	<	13	U	<	12	U	<	18	U	<	17	U	<	18	U	<	18	U
4-Methyl-2-pentanone (MIBK)	<	12	U	<	13	U	<	12	U	<	18	U	<	17	U	<	18	U	<	18	U
Acetone	<	25	UV	<	43	UV	<	8.4	UV	<	17	JUV	<	11	JUV	<	16	JUV	<	11	JUV
Benzene		11			260			150			14			2.8	J		25		<	9	U
Carbon disulfide	<	6.2	U	<	6.7	U	<	6.2	U		12			5.8	J		4.2	J		2.8	J
Ethylbenzene		15			160			3	J	<	9.2	U	<	8.3	U		27		<	9	U
Methylene chloride	<	5.9	JUV	<	4	JUV	<	25	U	<	4.1	UB	<	33	U	<	4.5	JUV	<	4	UB
Toluene	<	1	UB		55	B	<	1	UB	<	9.2	U	<	8.3	U		4.7	J	<	9	U
Xylenes (total)		31			250		<	6.2	U		25	JV		15	JV		240		<	9	U
SVOCs																					
Phenol	<	400	U	<	440	U	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Naphthalene		9700			24000	AD[5]	<	400	U	<	1200	U	<	550	U		1400		<	570	U
2-Methylnaphthalene		180	J		2700		<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Acenaphthylene	<	400	U		480		<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Acenaphthene	<	400	U		3500	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Dibenzofuran	<	400	U	<	440	U	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Fluorene	<	400	U		2900	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Phenanthrene		68	J		10000	AD[5]	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Anthracene	<	400	U		3000	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Carbazole	<	400	U		1200	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Fluoranthene	<	400	U		6000	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Pyrene	<	400	U		4900	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Butyl benzyl phthalate	<	400	U	<	440	U	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Benzo(a)anthracene	<	400	U		2300	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Chrysene	<	400	U		2100	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Bis(2-ethylhexyl)phthalate	<	400	U	<	440	U	<	400	U		300	J	<	550	U		410	J		300	J
Benzo(b)fluoranthene	<	400	U		2200	M	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Benzo(k)fluoranthene	<	400	U		950	M	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Benzo(a)pyrene		230	JH		2300	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Indeno(1 2 3-cd)pyrene	<	400	U		1500	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Dibenzo(a h)anthracene	<	400	U		460	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U
Benzo(ghi)perylene	<	400	U		1700	H	<	400	U	<	1200	U	<	550	U	<	560	U	<	570	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
D# - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samples.
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	1G			1H			2A			2A			2B			2C		
Client ID	EP-1G (-13)			EP-1H (-13)			EP-2A (-9)			DUPLICATE-5-020306			EP-2B (-13)			EP-2C (-13)		
Date Sampled	1/20/2006			1/20/2006			2/3/2006			2/3/2006			1/26/2006			1/26/2006		
Units	ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg		
VOCs																		
2-Butanone (MEK)	<	17	U	<	890	U	<	20	UJV	<	17	UJV	<	16	U	<	85	U
4-Methyl-2-pentanone (MIBK)	<	17	U	<	890	U	<	20	UJV	<	17	UJV	<	16	U	<	85	U
Acetone	<	33	JUV	<	2200	U	<	35	JUV	<	33	JUV	<	26	JUV	<	110	JUV
Benzene		20			1400			550	JD[100]		660	JD[100]		1.5	J		180	
Carbon disulfide		16		<	890	U		3.7	JJV		3	JJV		2.2	J		7.5	J
Ethylbenzene		110			3800		<	9.9	UJV	<	8.3	UJV		2.6	J		13	J
Methylene chloride	<	5.1	JUV	<	71	UB	<	14	JUV	<	11	JUV	<	3.7	JUV	<	58	JUV
Toluene		11			180	J		170	JV		140	JV		1.9	JB	<	7.1	UB
Xylenes (total)		79			3900			1700	JV		1100	JV		5.3	J		45	
SVOCs																		
Phenol	<	550	U	<	560	U	<	1300	U	<	530	U	<	510	U	<	540	U
Naphthalene	<	550	U		73000	AD[10]		47000	AD[4]		16000	AD[4]		100	J		110	J
2-Methylnaphthalene	<	550	U		820			4000			360	JJV	<	510	U	<	540	U
Acenaphthylene	<	550	U	<	560	U		2600	JV	<	530	UJV	<	510	U	<	540	U
Acenaphthene	<	550	U	<	560	U		5900	JV	<	530	UJV	<	510	U	<	540	U
Dibenzofuran	<	550	U	<	560	U		4700		<	530	UJV	<	510	U	<	540	U
Fluorene	<	550	U	<	560	U		5300	JV		71	JJV	<	510	U	<	540	U
Phenanthrene	<	550	U		160	J		22000	AD[4]		220	JJV	<	510	U	<	540	U
Anthracene	<	550	U	<	560	U		10000	JV	<	530	UJV	<	510	U	<	540	U
Carbazole	<	550	U	<	560	U		2100		<	530	UJV	<	510	U	<	540	U
Fluoranthene	<	550	U		96	J		26000	AD[4]		200	JJV	<	510	U	<	540	U
Pyrene	<	550	U		90	J		14000	JV		200	JJV	<	510	U	<	540	U
Butyl benzyl phthalate	<	550	U	<	560	U		380	J	<	530	U	<	510	U	<	540	U
Benzo(a)anthracene	<	550	U	<	560	U		8900	JV		93	JJV	<	510	U	<	540	U
Chrysene	<	550	U	<	560	U		8200	JV		71	JJV	<	510	U	<	540	U
Bis(2-ethylhexyl)phthalate		160	J	<	560	U	<	1300	U	<	530	U	<	510	U	<	540	U
Benzo(b)fluoranthene	<	550	U	<	560	U		11000	JV	<	530	UJV	<	510	U	<	540	U
Benzo(k)fluoranthene	<	550	U	<	560	U		3500	JV	<	530	UJV	<	510	U	<	540	U
Benzo(a)pyrene	<	550	U	<	560	U		9400	JV	<	530	UJV	<	510	U	<	540	U
Indeno(1 2 3-cd)pyrene	<	550	U	<	560	U		3600	JV	<	530	UJV	<	510	U	<	540	U
Dibenzo(a h)anthracene	<	550	U	<	560	U		970	J	<	530	U	<	510	U	<	540	U
Benzo(ghi)perylene	<	550	U	<	560	U		3700	JV	<	530	UJV	<	510	U	<	540	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
D# - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samples
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	2D		2D		2E		2F		2G		2H	
Client ID	EP-2D (-13)		DUPLICATE-2-120705		EP-2E (-13)		EP-2F (-13)		EP-2G (-13)		EP-2H (-13)	
Date Sampled	12/7/2005		12/7/2005		12/7/2005		12/7/2005		12/7/2005		12/7/2005	
Units	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
VOCs												
2-Butanone (MEK)	< 820	U	< 790	U	< 710	U	< 840	U	< 830	U	170	
4-Methyl-2-pentanone (MIBK)	< 820	U	< 790	U	< 710	U	< 840	U	< 830	U	16	
Acetone	< 890	JUV	< 560	JUV	< 1100	JUV	< 640	JUV	< 530	JUV	< 59	UV
Benzene	13000		14000		1100		2200		18000		6	J
Carbon disulfide	< 820	U	< 790	U	< 710	U	< 840	U	< 830	U	14	
Ethylbenzene	3000		2800		2300		8800		11000		18	
Methylene chloride	< 710	JUV	< 880	UV	< 620	JUV	< 940	UV	< 830	JUV	7.4	J
Toluene	130	J	60	J	990		280	J	290	J	< 7.6	U
Xylenes (total)	3300		3000		9100		11000		13000		18	
SVOCs												
Phenol	< 540	U	< 500	U	< 930	U	< 550	U	< 530	U	< 470	U
Naphthalene	540		250	J	150000	AD[20]	7800		16000	AD[5]	< 470	U
2-Methylnaphthalene	< 540	U	< 500	U	11000		< 550	U	< 530	U	< 470	U
Acenaphthylene	< 540	U	< 500	U	1400		< 550	U	< 530	U	< 470	U
Acenaphthene	< 540	U	< 500	U	1500		< 550	U	< 530	U	< 470	U
Dibenzofuran	< 540	U	< 500	U	3200		< 550	U	< 530	U	< 470	U
Fluorene	< 540	U	< 500	U	3700		< 550	U	< 530	U	< 470	U
Phenanthrene	< 540	U	< 500	U	15000		< 550	U	< 530	U	< 470	U
Anthracene	< 540	U	< 500	U	4200		< 550	U	< 530	U	< 470	U
Carbazole	< 540	U	< 500	U	1500		< 550	U	< 530	U	< 470	U
Fluoranthene	< 540	U	< 500	U	8200		< 550	U	< 530	U	< 470	U
Pyrene	< 540	U	< 500	U	12000		< 550	U	< 530	U	< 470	U
Butyl benzyl phthalate	< 540	U	< 500	U	< 930	U	< 550	U	< 530	U	< 470	U
Benzo(a)anthracene	< 540	U	< 500	U	4500		< 550	U	< 530	U	< 470	U
Chrysene	< 540	U	< 500	U	3800		< 550	U	< 530	U	< 470	U
Bis(2-ethylhexyl)phthalate	< 540	U	< 500	U	< 930	U	< 550	U	< 530	U	< 470	U
Benzo(b)fluoranthene	< 540	U	< 500	U	3800	M	< 550	U	< 530	U	< 470	U
Benzo(k)fluoranthene	< 540	U	< 500	U	1300	M	< 550	U	< 530	U	< 470	U
Benzo(a)pyrene	< 540	U	< 500	U	3500		< 550	U	< 530	U	< 470	U
Indeno(1 2 3-cd)pyrene	< 540	U	< 500	U	2200		< 550	U	< 530	U	< 470	U
Dibenzo(a h)anthracene	< 540	U	< 500	U	660	J	< 550	U	< 530	U	< 470	U
Benzo(ghi)perylene	< 540	U	< 500	U	2500		< 550	U	< 530	U	< 470	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
D# - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samp
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	3A			3B			3B			3C			3D			3D		
Client ID	EP-3A (-8.5)			EP-3B (-13)			DUPLICATE-4-012606			EP-3C (-13)			EP-3D (-13)			DUPLICATE-1-110405		
Date Sampled	2/3/2006			1/26/2006			1/26/2006			1/26/2006			11/4/2005			11/4/2005		
Units	ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg		
VOCs																		
2-Butanone (MEK)	<	17	U	<	16	U	<	16	U	<	16	U	<	3100	U	<	4000	U
4-Methyl-2-pentanone (MIBK)	<	17	U	<	16	U	<	16	U	<	16	U	<	3100	U	<	4000	U
Acetone	<	32	JUV	<	26	JUV	<	29	JUV	<	34	UV	<	3100	U	<	4000	U
Benzene		21		<	7.9	U	<	7.9	U		9.4			16000	$D^{1.97}$		19000	$D^{2.46}$
Carbon disulfide		2.1	J		2	J		2.8	J		2.1	J	<	770	U	<	990	U
Ethylbenzene		12		<	7.9	U	<	7.9	U	<	7.8	U		5800			5000	
Methylene chloride	<	12	JUV	<	3.5	JUV	<	3.6	JUV	<	31	U	<	770	U	<	990	U
Toluene		15		<	1.3	UB	<	1.3	UB	<	1.3	UB	<	770	U	<	990	U
Xylenes (total)		62		<	7.9	U	<	7.9	U	<	7.8	U		5700		<	5200	U
SVOCs																		
Phenol	<	540	U	<	500	U	<	520	U	<	510	U		390	J		350	J
Naphthalene		4700			2200			140	J		3100			16000	AD^{5}		15000	AD^{4}
2-Methylnaphthalene		600			230	J	<	520	U		450	J	<	530	U	<	520	U
Acenaphthylene		110	J	<	500	U	<	520	U	<	510	U	<	530	U	<	520	U
Acenaphthene		350	J	<	500	U	<	520	U		110	J	<	530	U	<	520	U
Dibenzofuran		300	J		120	J	<	520	U		89	J	<	530	U	<	520	U
Fluorene		290	J		160	J	<	520	U		120	J	<	530	U	<	520	U
Phenanthrene		1100			680	H	<	520	U		370	JH	<	530	U	<	520	U
Anthracene		380	J		170	J	<	520	U		150	JH	<	530	U	<	520	U
Carbazole		120	J	<	500	U	<	520	U	<	510	U	<	530	U	<	520	U
Fluoranthene		1100			500		<	520	U		330	JH	<	530	U	<	520	U
Pyrene		940			460	J	<	520	U		290	J	<	530	U	<	520	U
Butyl benzyl phthalate	<	540	U	<	500	U	<	520	U	<	510	U	<	530	U	<	520	U
Benzo(a)anthracene		490	J		260	JH	<	520	U		130	JH	<	530	U	<	520	U
Chrysene		410	J		230	J	<	520	U		120	J	<	530	U	<	520	U
Bis(2-ethylhexyl)phthalate	<	540	U	<	500	U	<	520	U	<	510	U	<	530	U		75	J
Benzo(b)fluoranthene		600			190	J	<	520	U	<	510	U	<	530	U	<	520	U
Benzo(k)fluoranthene		200	J	<	500	U	<	520	U	<	510	U	<	530	U	<	520	U
Benzo(a)pyrene		510	J		180	JH	<	520	U		100	JH	<	530	U	<	520	U
Indeno(1 2 3-cd)pyrene		280	J		98	JH	<	520	U		66	JH	<	530	U	<	520	U
Dibenzo(a h)anthracene		72	J	<	500	U	<	520	U	<	510	U	<	530	U	<	520	U
Benzo(ghi)perylene		280	J		120	J	<	520	U		79	J	<	530	U	<	520	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
$D^{\#}$ - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more sample
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	3E			3F			3G			3H			4A			4B		
Client ID	EP-3E (-13)			EP-3F (-13)			EP-3G (-13)			EP-3H (-13)			EP-4A (-8)			EP-4B (-13)		
Date Sampled	11/4/2005			11/4/2005			11/4/2005			11/4/2005			2/3/2006			2/3/2006		
Units	ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg		
VOCs																		
2-Butanone (MEK)	<	330	U	<	1700	U	<	1300	U	<	5500	U	<	6.9	JUV	<	16	U
4-Methyl-2-pentanone (MIBK)	<	330	U	<	1700	U	<	1300	U	<	5500	U	<	15	U	<	16	U
Acetone	<	330	U	<	1700	U	<	1300	U	<	5500	U	<	77	UV	<	37	UV
Benzene		150			3900			1000			30000	$D^{3.32}$		7.8			170	
Carbon disulfide	<	82	U	<	420	U	<	320	U	<	1400	U		1.4	J		1.6	J
Ethylbenzene		3000	D^{10}		4200			560			6500			17		<	7.8	U
Methylene chloride	<	82	U	<	420	U	<	320	U	<	1400	U	<	14	JUV	<	11	JUV
Toluene	<	82	U	<	420	U		1500		<	1400	U		2.9	J	<	7.8	U
Xylenes (total)		930			6000			4200			11000			110			4.5	J
SVOCs																		
Phenol	<	550	U	<	520	U	<	7600	UD^{20}	<	550	U	<	940	U	<	490	U
Naphthalene		2400			2400			510000	AD^{200}		1500			260	J	<	490	U
2-Methylnaphthalene		160	J	<	520	U		87000	D^{20}	<	550	U	<	940	U	<	490	U
Acenaphthylene	<	550	U	<	520	U		13000	D^{20}	<	550	U	<	940	U	<	490	U
Acenaphthene	<	550	U	<	520	U		10000	D^{20}	<	550	U	<	940	U	<	490	U
Dibenzofuran	<	550	U	<	520	U		26000	D^{20}	<	550	U	<	940	U	<	490	U
Fluorene	<	550	U	<	520	U		31000	D^{20}	<	550	U	<	940	U	<	490	U
Phenanthrene		330	J	<	520	U		100000	D^{20}	<	550	U	<	940	U	<	490	U
Anthracene	<	550	U	<	520	U		28000	D^{20}	<	550	U	<	940	U	<	490	U
Carbazole	<	550	U	<	520	U		7200	JD^{20}	<	550	U	<	940	U	<	490	U
Fluoranthene		290	J	<	520	U		56000	D^{20}	<	550	U	<	940	U	<	490	U
Pyrene	<	550	U	<	520	U		57000	D^{20}	<	550	U	<	940	U	<	490	U
Butyl benzyl phthalate	<	550	U	<	520	U	<	7600	U	<	550	U	<	940	U	<	490	U
Benzo(a)anthracene		130	J	<	520	U		22000	D^{20}	<	550	U	<	940	U	<	490	U
Chrysene		110	J	<	520	U		20000	D^{20}	<	550	U	<	940	U	<	490	U
Bis(2-ethylhexyl)phthalate		110	J	<	520	U	<	7600	UD^{20}	<	550	U	<	940	U	<	490	U
Benzo(b)fluoranthene	<	550	U	<	520	U		18000	MD^{20}	<	550	U	<	940	U	<	490	U
Benzo(k)fluoranthene	<	550	U	<	520	U		6100	JMD^{20}	<	550	U	<	940	U	<	490	U
Benzo(a)pyrene	<	550	U	<	520	U		16000	D^{20}	<	550	U	<	940	U	<	490	U
Indeno(1 2 3-cd)pyrene	<	550	U	<	520	U		11000	D^{20}	<	550	U	<	940	U	<	490	U
Dibenzo(a h)anthracene	<	550	U	<	520	U		3500	JD^{20}	<	550	U	<	940	U	<	490	U
Benzo(ghi)perylene	<	550	U	<	520	U		13000	D^{20}	<	550	U	<	940	U	<	490	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
$D^{\#}$ - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samp
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1A
SUMMARY OF VOC and SVOC DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	4C			4D			4E			4F			4G			4H		
Client ID	EP-4C (-13)			EP-4D (-13)			EP-4E(-13)			EP-4F(-13)			EP-4G(-13)			EP-4H(-13)		
Date Sampled	2/3/2006			11/4/2005			11/4/2005			11/4/2005			11/4/2005			11/4/2005		
Units	ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg			ug/Kg		
VOCs																		
2-Butanone (MEK)	<	15	U	<	2300	U	<	1600	U	<	1400	U	<	4300	U	<	24	U
4-Methyl-2-pentanone (MIBK)	<	15	U	<	2300	U	<	1600	U	<	1400	U	<	4300	U	<	24	U
Acetone	<	21	JUV	<	2300	U	<	1600	U	<	1400	U	<	4300	U	<	24	U
Benzene		3.6	J		12000	D[1.42]		900			960			22000	D[2.82]		61	
Carbon disulfide		1.7	J	<	570	U	<	400	U	<	350	U	<	1100	U	<	5.9	U
Ethylbenzene	<	7.6	U		4400			2800			2400			5300			170	
Methylene chloride	<	12	JUV	<	570	U	<	400	U	<	350	U	<	1100	U		8	
Toluene	<	7.6	U	<	570	U	<	400	U	<	350	U	<	1100	U	<	5.9	U
Xylenes (total)	<	7.6	U		6100			2000			720			9700			220	
SVOCs																		
Phenol	<	500	U	<	480	U	<	510	U	<	470	U	<	490	U	<	380	U
Naphthalene	<	500	U		14000	AD[5]		2600			14000	AD[5]		69000	AD[10]		570	
2-Methylnaphthalene	<	500	U		450	J	<	510	U		870			4600		<	380	U
Acenaphthylene	<	500	U	<	480	U	<	510	U	<	470	U		550		<	380	U
Acenaphthene	<	500	U		150	J	<	510	U		140	J		680		<	380	U
Dibenzofuran	<	500	U		150	J	<	510	U		260	J		1300		<	380	U
Fluorene	<	500	U		190	J	<	510	U		270	J		1600		<	380	U
Phenanthrene	<	500	U		610		<	510	U		1000			6000		<	380	U
Anthracene	<	500	U		230	J	<	510	U		310	J		1700		<	380	U
Carbazole	<	500	U		250	J	<	510	U		140	J		680		<	380	U
Fluoranthene	<	500	U		640		<	510	U		850			4700		<	380	U
Pyrene	<	500	U		520		<	510	U		630			3700		<	380	U
Butyl benzyl phthalate	<	500	U	<	480	U	<	510	U	<	470	U	<	490	U	<	380	U
Benzo(a)anthracene	<	500	U		220	J	<	510	U		370	J		1900		<	380	U
Chrysene	<	500	U		200	J	<	510	U		300	J		1700		<	380	U
Bis(2-ethylhexyl)phthalate	<	500	U	<	480	U	<	510	U		76	J	<	490	U	<	380	U
Benzo(b)fluoranthene	<	500	U	<	480	U	<	510	U	<	470	U		1900		<	380	U
Benzo(k)fluoranthene	<	500	U	<	480	U	<	510	U	<	470	U		690		<	380	U
Benzo(a)pyrene	<	500	U	<	480	U	<	510	U		270	J		1700		<	380	U
Indeno(1 2 3-cd)pyrene	<	500	U	<	480	U	<	510	U		130	J		910		<	380	U
Dibenzo(a h)anthracene	<	500	U	<	480	U	<	510	U	<	470	U		240	J	<	380	U
Benzo(ghi)perylene	<	500	U	<	480	U	<	510	U		140	J		890		<	380	U

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
A - Concentration exceeds the instrument calibration range or below the reporting limit
D# - Dilution was performed, # indicates the dilution factor
B - Compound was found in the blank
H - Alternate peak selection upon analytical review
M - Manually integrated compound
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samp
ug/kg - micrograms per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1B
SUMMARY OF METAL DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	1A		1B		1C		1D		1D		1E		1F	
Client ID	EP-1A (-9)		EP-1B (-13)		EP-1C (-13)		EP-1D (-13)		DUPLICATE-3-012006		EP-1E (-13)		EP-1F (-13)	
Date Sampled	1/26/2006		1/26/2006		1/26/2006		1/20/2006		1/20/2006		1/20/2006		1/20/2006	
Units	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Metals														
Aluminum	8600		7560		9050		13400	*JV	9660	*JV	11100	*JV	11700	*JV
Antimony	< 1.4	UNJV	< 1.5	UNJV	< 1.5	UNJV	< 1.8	UNJV	< 1.8	UNJV	< 2.3	UNJV	< 2	UNJV
Arsenic	2.2	B	3.8	B	3.1	B	14.5	NJV	10.5	BNJV	12.8	BNJV	15.1	NJV
Barium	35.8		44		30		25.9	*JV	19.3	*JV	25.3	*JV	25.3	*JV
Beryllium	< 0.61	UN	< 0.64	UN	< 0.68	UN	0.89	B	< 0.8	U	< 1	U	< 0.89	U
Cadmium	< 1.2	U	< 1.3	U	< 1.4	U	< 1.6	UNJV	< 1.6	UNJV	< 2	UNJV	< 1.8	UNJV
Calcium	564		2560		403		3050	*NJV	2120	*NJV	4020	*NJV	3420	*NJV
Chromium	21.6	NJV	18.7	NJV	27.3	NJV	30.2	*JV	21.6	*JV	< 26.8	*JV	29.6	*JV
Cobalt	7.8		7.3		7.5		11.9	*JV	9.1	*JV	10.3	*JV	11.8	*JV
Copper	9.8		15		11.1		19.4	*JV	13.5	*JV	18.2	*JV	23.4	*JV
Cyanide (Total)	< 0.616	UJV	0.554	BJV	< 0.61	UJV	< 0.91	UJV	< 0.822	UJV	< 0.872	UJV	< 0.866	UJV
Iron	13200		17800		11800		37600	*JV	27400	*JV	31000	*JV	36200	*JV
Lead	7.6	BNJV	39.8	NJV	6	BNJV	14.1	B*NJV	10.3	B*N	12.5	B*NJV	15.2	B*NJV
Magnesium	3010		3310		2370		6570	*NJV	4790	*NJV	5420	*NJV	6030	*NJV
Manganese	142		206		66.3		914	JV	588		670		870	
Mercury	0.015	B	0.096		0.027	B	0.045	BJV	0.034	B	0.036	B	0.047	B
Nickel	14		16.2		15.5		29.1	*JV	22	*JV	25.2	*JV	27.8	*JV
Potassium	833		1200		661		2010	*JV	1340	*JV	1640	*JV	1810	*JV
Selenium	< 1.9	U	< 2.1	U	< 2.2	U	< 2.6	UNJV	< 2.6	UNJV	< 3.2	UNJV	< 2.8	UNJV
Silver	< 0.39	U	< 0.41	U	< 0.43	U	< 0.51	UJV	< 0.52	UJV	< 0.65	UJV	< 0.57	UJV
Sodium	960	NJV	889	NJV	290	NJV	1800	*JV	1060	*JV	957	*JV	1170	*JV
Thallium	< 5.1	U	< 5.3	U	< 5.6	U	< 6.7	UNJV	< 6.7	UNJV	< 8.4	UNJV	< 7.4	UNJV
Vanadium	24.9	NJV	23.2	NJV	26.2	NJV	39	*JV	26.5	*JV	36.6	*JV	37.6	*JV
Zinc	30.5		46.6		26.3	B	80.5	*NJV	62	*NJV	68.6	*NJV	77.7	*NJV

QUALIFIERS:

U - Analyte was not detected at or above the reporting limit.
B - Result is less then the Reporting Limits, but greater than or equal to the Method Detection Limit.
* - Batch QC exceeds the upper or lower control limits.
J - Result is an estimated value below the reporting limit or tentatively identified compound (TIC)
N - Spike Recovery exceeds the upper or the lower control limits.
R - Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.
V - Validated

NOTES:

Only compounds shown are limited to those detected in one or more samples.
mg/kg - milligrams per kilograms
< = Laboratory verifies that the compound is not detected at or above the reporting limit.

TABLE 1B
SUMMARY OF METAL DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	1G			1H			2A			2A			2B			2C		
Client ID	EP-1G (-13)			EP-1H (-13)			EP-2A (-9)			DUPLICATE-5-020306			EP-2B (-13)			EP-2C (-13)		
Date Sampled	1/20/2006			1/20/2006			2/3/2006			2/3/2006			1/26/2006			1/26/2006		
Units	mg/Kg			mg/Kg			mg/Kg			mg/Kg			mg/Kg			mg/Kg		
Metals																		
Aluminum		9700	*JV		7200	*JV		11800			10700			13900			12100	
Antimony	<	1.7	UNJV	<	1.8	UNJV		1.6	UNRV		1.6	UNRV	<	2.2	UNJV	<	2.1	UNJV
Arsenic		9.8	BNJV		7.2	BNJV		10.6	B		10.6	B		11.8	B		13.2	B
Barium		17.6	*JV		17.4	*JV		110	JV		22.2	JV		33			25.6	
Beryllium	<	0.73	U	<	0.79	U		0.78	B	<	0.71	U	<	0.95	UN	<	0.91	UN
Cadmium	<	1.5	UNJV	<	1.6	UNJV	<	1.4	U	<	1.4	U	<	1.9	U	<	1.8	U
Calcium		2350	*NJV		2330	*NJV		26500	*JV		8890	*JV		3990			3990	
Chromium		22.8	*JV		18	*JV		23.3			26.1			32	NJV		29.3	NJV
Cobalt		9	*JV		7	*JV		13.9			10.3			14.6			12.7	
Copper		14.8	*JV		12.1	*JV		39.6	JV		15	JV		15.7			15.6	
Cyanide (Total)	<	0.855	UJV	<	0.878	UJV		2.72	JV	<	0.835	URV	<	0.797	UJV	<	0.846	UJV
Iron		27800	*JV		20500	*JV		31200			30400			36100			32700	
Lead		11.9	B*NJV		8.2	B*NJV		154	JV		12.1	BJV		15.5	BNJV		13.9	BNJV
Magnesium		4630	*NJV		3300	*NJV		5610			6040			7260			6410	
Manganese		461			509			589	JV		901	JV		637			659	
Mercury		0.043	B		0.047	B		0.088	B		0.052	B		0.03	B		0.031	B
Nickel		22	*JV		16.8	*JV		26.7			23.6			30.7			27.1	
Potassium		1340	*JV		1060	*JV		1820			1850			2110			1840	
Selenium	<	2.3	UNJV	<	2.5	UNJV	<	2.3	U	<	2.3	U	<	3	U	<	2.9	U
Silver	<	0.47	UJV	<	0.5	UJV	<	0.46	U	<	0.45	U	<	0.61	U	<	0.58	U
Sodium		1050	*JV		489	*JV		1730			2120			1860	NJV		1800	NJV
Thallium	<	6.1	UNJV	<	6.6	UNJV	<	6	UNJV	<	5.9	UNJV	<	7.9	U	<	7.6	U
Vanadium		28.8	*JV		21	*JV		40.4			30.4			35.2	NJV		38.6	NJV
Zinc		60.6	*NJV		45.4	*NJV		104	JV		67.5	JV		87.3			77.5	

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TABLE 1B
SUMMARY OF METAL DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	2D		2D		2E		2F		2G		2H	
Client ID	EP-2D (-13)		DUPLICATE-2-120705		EP-2E (-13)		EP-2F (-13)		EP-2G (-13)		EP-2H (-13)	
Date Sampled	12/7/2005		12/7/2005		12/7/2005		12/7/2005		12/7/2005		12/7/2005	
Units	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Metals												
Aluminum	9800		10900		8910		11500		11700		11500	
Antimony	< 2.2	UNJV	< 1.7	UNJV	< 1.7	UNJV	< 2.1	UNJV	< 1.7	UNJV	< 1.6	UNJV
Arsenic	10.5	B	10.8	B	8.3	B	13.9	B	11.4	B	11.5	
Barium	21		22.7		63		24.9		23.6		31.8	
Beryllium	< 0.97	U	< 0.74	U	< 0.74	U	< 0.93	U	0.78	B	0.81	B
Cadmium	< 1.9	U	< 1.5	U	< 1.5	U	< 1.9	U	< 1.5	U	< 1.4	U
Calcium	6150	JV	3940	JV	9750		3140		3450		2270	
Chromium	23.8		24.9		20.2		27.5		27.1		28.2	
Cobalt	9.5		10.4		9.1		11.2		10.5		11	
Copper	14.3		15.7		20.9		17.6		15.1		17.5	
Cyanide (Total)	0.173	BJV	< 0.791	UJV	10	JV	< 0.84	UJV	< 0.826	UJV	< 0.756	UJV
Iron	28300		30200		23800		33200		32600		34100	
Lead	12.4	B	13.9		91.7		14.7	B	13.8		14.7	
Magnesium	5370		5860		4420		5390		5810		5230	
Manganese	745		762		455		734		720		594	
Mercury	0.04	B	0.036	B	0.28		0.042	B	0.037	B	0.038	B
Nickel	21.6		24.1		20.8		25.2		25		25.2	
Potassium	1540		1740		1630		1680		1930		1640	
Selenium	< 3.1	U	< 2.4	U	< 2.4	U	< 3	U	< 2.4	U	< 2.2	U
Silver	< 0.62	U	< 0.48	U	< 0.47	U	< 0.59	U	< 0.49	U	< 0.44	U
Sodium	1470		1540		696		725		1330		953	
Thallium	< 8.1	UNJV	< 6.2	UNJV	< 6.2	UNJV	< 7.8	UNJV	< 6.4	UNJV	< 5.7	UNJV
Vanadium	31.7		30.5		30.4		35.6		31.9		35.1	
Zinc	64		69.6		79.7		74.4		73.2		73.2	

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TABLE 1B
SUMMARY OF METAL DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	3A		3B		3B		3C		3D		3D	
Client ID	EP-3A (-8.5)		EP-3B (-13)		DUPLICATE-4-012606		EP-3C (-13)		EP-3D (-13)		DUPLICATE-1-110405	
Date Sampled	2/3/2006		1/26/2006		1/26/2006		1/26/2006		11/4/2005		11/4/2005	
Units	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Metals												
Aluminum	9680		13100		13600		12200		9640		11200	
Antimony	2.3	UNRV	< 2.1	UNJV	< 1.7	UNJV	< 2.1	UNJV	< 1.6	UNJV	< 2.1	UNJV
Arsenic	11	B	16.6		12.7		9.5	B	10.9	B*JV	9.5	B*JV
Barium	20.8		27.6		29.9		30.1		24.1		28.6	
Beryllium	< 1	U	< 0.92	UN	0.82	BN	< 0.92	UN	< 0.72	UNJV	< 0.92	UN
Cadmium	< 2.1	U	< 1.8	U	< 1.5	U	< 1.8	U	< 1.4	U	< 1.8	U
Calcium	8850	*JV	8580	JV	5370	JV	4450		3770		3970	
Chromium	24.7		32.9	NJV	32	NJV	28.6	NJV	25.7	NJV	28.6	NJV
Cobalt	9.7		14		13.6		12.9		10		11	
Copper	14.2		16.9		17.6		15.2		13.3		14.7	
Cyanide (Total)	< 0.829	URV	< 0.78	UJV	< 0.78	UJV	< 0.774	UJV	< 0.763	UJV	< 0.782	UJV
Iron	28900		38500		36500		32600		28000	*	30700	*
Lead	12.8	B	16.4	BNJV	18.1	NJV	19.2	NJV	12.2	B	14.7	B
Magnesium	5520		7310		7410		6480		5030		5660	
Manganese	742		888		898		858		897		1210	
Mercury	0.083		0.035	B	0.031	B	0.056		0.038	B	0.041	B
Nickel	23.8		30.4		30.3		27.2		22.5		24.8	
Potassium	1610		2150		2150		1790		1370	NJV	1660	NJV
Selenium	< 3.3	U	< 2.9	U	< 2.4	U	< 2.9	U	< 2.3	UNJV	< 3	UNJV
Silver	< 0.66	U	< 0.59	U	< 0.48	U	< 0.59	U	< 0.46	U	< 0.59	U
Sodium	1180		1870	NJV	1780	NJV	980	NJV	1240		1480	
Thallium	< 8.6	UNJV	< 7.7	U	< 6.3	U	< 7.7	U	< 6	UNJV	< 7.7	UNJV
Vanadium	28.6		37.5	NJV	34.3	NJV	30.4	NJV	30.1		34.3	
Zinc	61.5		85.2		85.8		79.3		63.1		71.5	

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TABLE 1B
SUMMARY OF METAL DETECTIONS IN ENDPOINT SOIL SAMPLES
RIVER PLACE II
NEW YORK, NEW YORK

Sample Location		3E			3F			3G			3H			4A			4B	
Client ID		EP-3E (-13)			EP-3F (-13)			EP-3G (-13)			EP-3H (-13)			EP-4A (-8)			EP-4B (-13)	
Date Sampled		11/4/2005			11/4/2005			11/4/2005			11/4/2005			2/3/2006			2/3/2006	
Units		mg/Kg			mg/Kg			mg/Kg			mg/Kg			mg/Kg			mg/Kg	
Metals																		
Aluminum		11700			10700			4610			12600			12800			10300	
Antimony	<	2	UNJV	<	1.9	UNJV	<	1.2	UNJV	<	1.9	UNJV		1.6	UNRV		1.9	UNRV
Arsenic		13.4	B*JV		11.8	B*JV		4.4	B*JV		11.8	B*JV		5	B		9.4	B
Barium		25.1			22.2			108			28.5			35.4			20.1	
Beryllium	<	0.89	UN	<	0.83	UN	<	0.53	UN	<	0.85	UN	<	0.72	U	<	0.84	U
Cadmium	<	1.8	U	<	1.7	U	<	1.1	U	<	1.7	U	<	1.4	U	<	1.7	U
Calcium		4060			2790			2660			2130			2040	*JV		2830	*JV
Chromium		29.7	NJV		26.7	NJV		12	NJV		29.8	NJV		21.3			23.1	
Cobalt		11			10.7			20.9			12.4			10			10.8	
Copper		13.3			13.1			142			14.6			28.3			15.2	
Cyanide (Total)	<	0.813	UJV		0.999	JV		14.8	JV	<	0.816	UJV	<	0.729	URV	<	0.784	URV
Iron		33300	*		29900	*		33900	*		33900	*		25800			28200	
Lead		13.3	B		12.7	B		340			15.9			48.2			10.9	B
Magnesium		6050			5060			2420			5700			5170			5650	
Manganese		705			772			213			559			296			822	
Mercury		0.03	B		0.038	B		0.17			0.04	B		0.19			0.069	
Nickel		26.2			24.6			17.5			27.9			23			22.8	
Potassium		1780	NJV		1690	NJV		1430	NJV		1890	NJV		1360			1560	
Selenium	<	2.8	UNJV	<	2.7	UNJV	<	1.7	UNJV	<	2.7	UNJV	<	2.3	U	<	2.7	U
Silver	<	0.57	U	<	0.53	U	<	0.34	U	<	0.55	U	<	0.46	U	<	0.54	U
Sodium		911			968			160			1150			486			1080	
Thallium	<	7.4	UNJV	<	6.9	UNJV	<	4.4	UNJV	<	7.1	UNJV	<	6	UNJV	<	7	UNJV
Vanadium		48			29.4			16.1			34.3			26.8			27.9	
Zinc		75.4			69.5			66.2			82.4			68.1			66.1	

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TABLE 1B
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RIVER PLACE II
NEW YORK, NEW YORK

Sample Location	4C		4D		4E		4F		4G		4H	
Client ID	EP-4C (-13)		EP-4D (-13)		EP-4E(-13)		EP-4F(-13)		EP-4G(-13)		EP-4H(-13)	
Date Sampled	2/3/2006		11/4/2005		11/4/2005		11/4/2005		11/4/2005		11/4/2005	
Units	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Metals												
Aluminum	9560		10800		10300		8600		9160		9240	
Antimony	1.9	UNRV	< 2	UNJV	< 1.9	UNJV	< 2.1	UNJV	< 1.9	UNJV	< 1.7	UNJV
Arsenic	9.7	B	8.5	B*JV	10.1	B*JV	13.1	B*JV	11.6	B*JV	14.7	*JV
Barium	20.5		24.4		21.5		24.7		36.1		39.6	
Beryllium	< 0.85	U	< 0.87	UN	< 0.82	UN	< 0.91	UN	< 0.82	UN	< 0.76	UN
Cadmium	< 1.7	U	< 1.7	U	< 1.6	U	< 1.8	U	< 1.6	U	< 1.5	U
Calcium	2730	*JV	3430		2500		2710		1900		610	
Chromium	22.2		26	NJV	25.7	NJV	23.8	NJV	25.3	NJV	29.7	NJV
Cobalt	9		11		10.9		8.8		9.1		6.3	
Copper	11.6		12.4		13.2		14.9		13.6		19.6	
Cyanide (Total)	< 0.75	URV	16.7	JV	< 0.8	UJV	< 0.691	UJV	0.397	BJV	< 0.58	UJV
Iron	26000		28800	*	28200	*	25300	*	25600	*	19000	*
Lead	11.4	B	14.7	B	13	B	11.5	B	12.5	B	8.2	B
Magnesium	4940		5460		4880		4100		4280		3230	
Manganese	641		678		620		682		405		92.7	
Mercury	0.039	B	0.034	B	0.04	B	0.036	B	0.041	B	0.017	B
Nickel	20.6		24.2		23.2		19.9		21.1		18.6	
Potassium	1470		1510	NJV	1510	NJV	1420	NJV	1510	NJV	1320	NJV
Selenium	< 2.7	U	< 2.8	UNJV	< 2.6	UNJV	< 2.9	UNJV	< 2.6	UNJV	< 2.4	UNJV
Silver	< 0.54	U	< 0.56	U	< 0.53	U	< 0.58	U	< 0.53	U	< 0.49	U
Sodium	427		884		858		591		1010		191	
Thallium	< 7.1	UNJV	< 7.2	UNJV	< 6.8	UNJV	< 7.6	UNJV	< 6.9	UNJV	< 6.3	UNJV
Vanadium	26.7		29.4		31		32.2		31.4		25.3	
Zinc	59.4		73.1		68.6		59.3		60.7		32.4	

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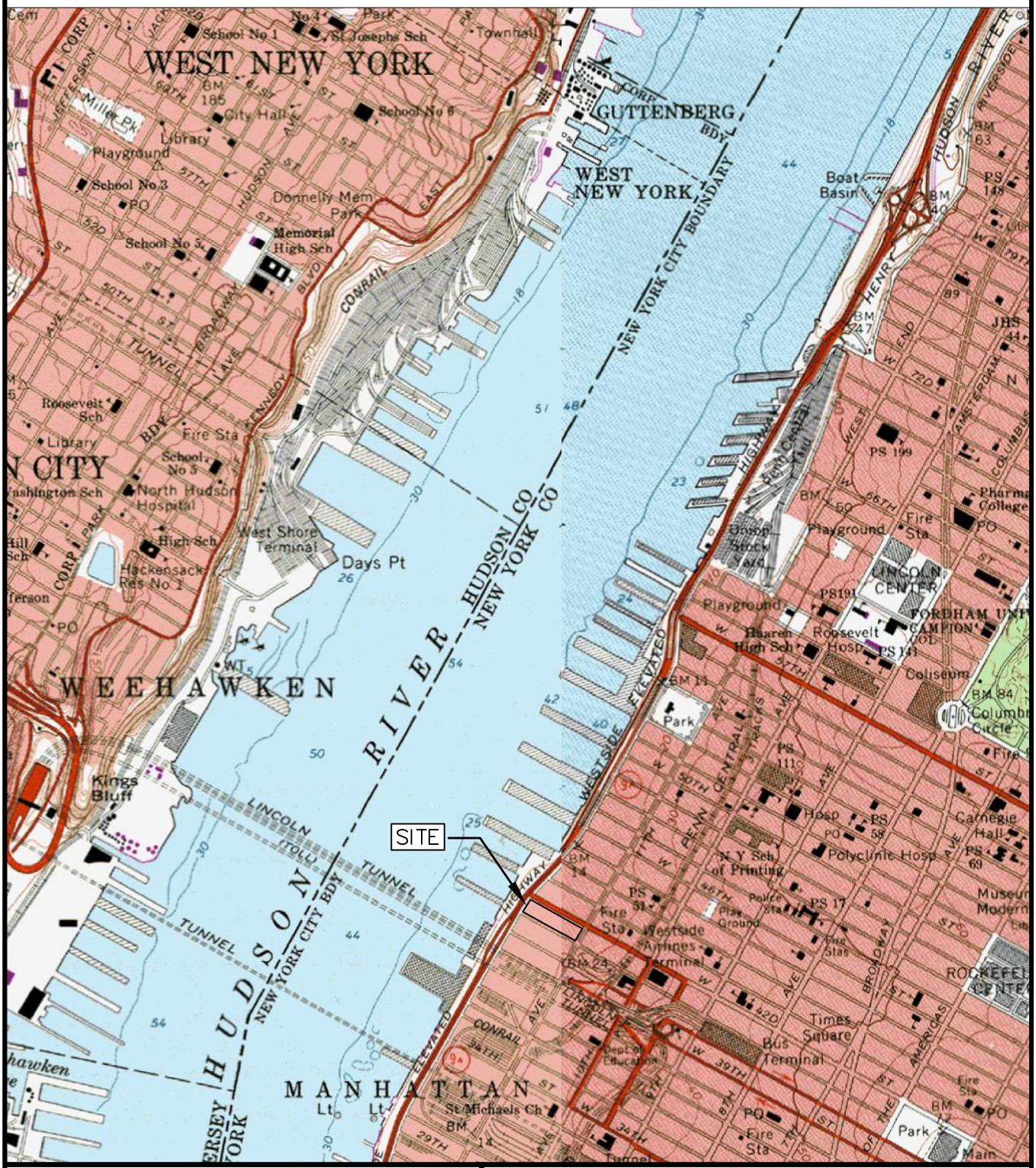
TABLE 2
RWP Implementation Cost
Former West 42nd Street MGP
Langan Project No. 5582403
BCP Site ID Nos. C231012 and C231024

Item No.	Description	Quantity	Unit Price	Actual Cost
Costs for Completed Remediation Items				
1	**Preliminary Waste Characterization**		**Lump Sum**	**$200,000**
	Included sample collection and analysis as required in the RWP			
1	**Mobilization and Demobilization**		**Lump Sum**	**$540,200**
	Mobilization and demobilization of labor, equipment, and materials necessary to excavate, transport, treat (if necessary) and dispose offsite the targeted soil in the excavation area. Permit and fees associated with this project are assumed to be part of the mobilization cost.			
2	**Permits**		**Lump Sum**	**$23,000**
	Permits were required for the fence, consumer affairs, building demolition, hydrant acess, dewatering, excavation sheeting and lane closing			
2	**Facilities and Utilities**		**Lump Sum**	**$2,180,000**
	Facilities and Utilities includes cost of General Construction Management including, personnel, administration, trailers, household waste mangement, guard service, phone/fax, office supplies, insurance, connections to utilities, utility bills, maintaining the site roadways, entrances, exits, site control (e.g., fencing, bridges), and installation and operation of dust and odor control equipment.			
	Truck Washdown Station		**Lump Sum**	**$285,000**
	A truck washdown station was constructed and operated throughout the project in order to prevent off-site migration of soil by trucks leaving the site.			
4	**Perimeter Excavation Support**		**Lump Sum**	**$3,814,600**
	Perimeter excavation support inlcudes the Mobilization, demobilization, labor and materials for installation of sheet pile walls, walers, tiebacks and toe pins, and the additional cost ($148,400) due to clearance of subsurface obstructions.			
	Soil Excavation to 5 feet below grade (cubic yards)	**5400**	**$20**	**$108,000**
5	**Soil Excavation to final elevation (cubic yards)**	**47000**	**$28**	**$1,316,000**
	Soil Excavation cost includes labor and equipment to complete the excavation and loadout of all soil including urban fill, MGP residuals and C&D. In addition, it includes demolition of surface and subsurface structures, and disposal of demolition debris.			
6	**Transportation and Disposal of Urban Fill (tons)**	**8052.25**	**$60**	**$483,135**
7	**Transportation and Disposal of MGP-Impacted Waste (tons)**	**80000**	**$95**	**$7,600,000**
	Includes all transportation and disposal to permitted facilities.			
8	**UST Closure (includes 6 tanks)**		**Lump Sum**	**$15,000**
	Includes removal of 6 USTs.			
9	**Dewatering and Treatment**		**Lump Sum**	**$211,000**
10	**NYCDEP Discharge Fee (Gallons)**	**1,091,900**	**$0.0034**	**$3,712**
	Includes installation and operation of dewatering wells and sumps, and treatment of all dewatering fluids through a settlement and carbon filtration system. All water was discharged to the DEP sewer per a sewer discharge permit.			
11	**Endpoint and Characterization Sampling**		**Lump Sum**	**$21,300**
	Endpoint and Characterization costs includes sample collection and analysis of end-point samples.			
12	**Backfill (cubic yards)**	**14000**	**$60**	**$840,000**
	Backfill cost includes material, placement and compaction.			
13	**Dust, Odor, and Organic Vapor Control and Monitoring (includes CAMP)**			**$200,000**
	Dust, Odor, and Organic Vapor Control and Monitoring cost includes cost for the monitoring and suppression equipment as well as full time labor to monitor and maintain the equipment. Includes perimeter and on-site monitoring.			
14	**Remedial Engineering Oversight**			**$295,000**
	Includes cost of engineering oversight, engineering design review, attendance at project meetings, progress reporting, contractor submittal review, interaction with NYSDEC and NYSDOH, and appropriate personal protective equipment (PPE).			
15	**Final Engineering Report**			**$50,000**
	TOTAL			**$18,185,947**

NOTE: EXISTING MAP INFORMATION TAKEN FROM USGS MAPS WEEHAWKEN, N.J.–N.Y. #40074–G1–TF–024 AND CENTRAL PARK, N.Y.–N.J. #40073–G8–TF–024.



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NEW JERSEY PENNSYLVANIA **NEW YORK** CONNECTICUT FLORIDA

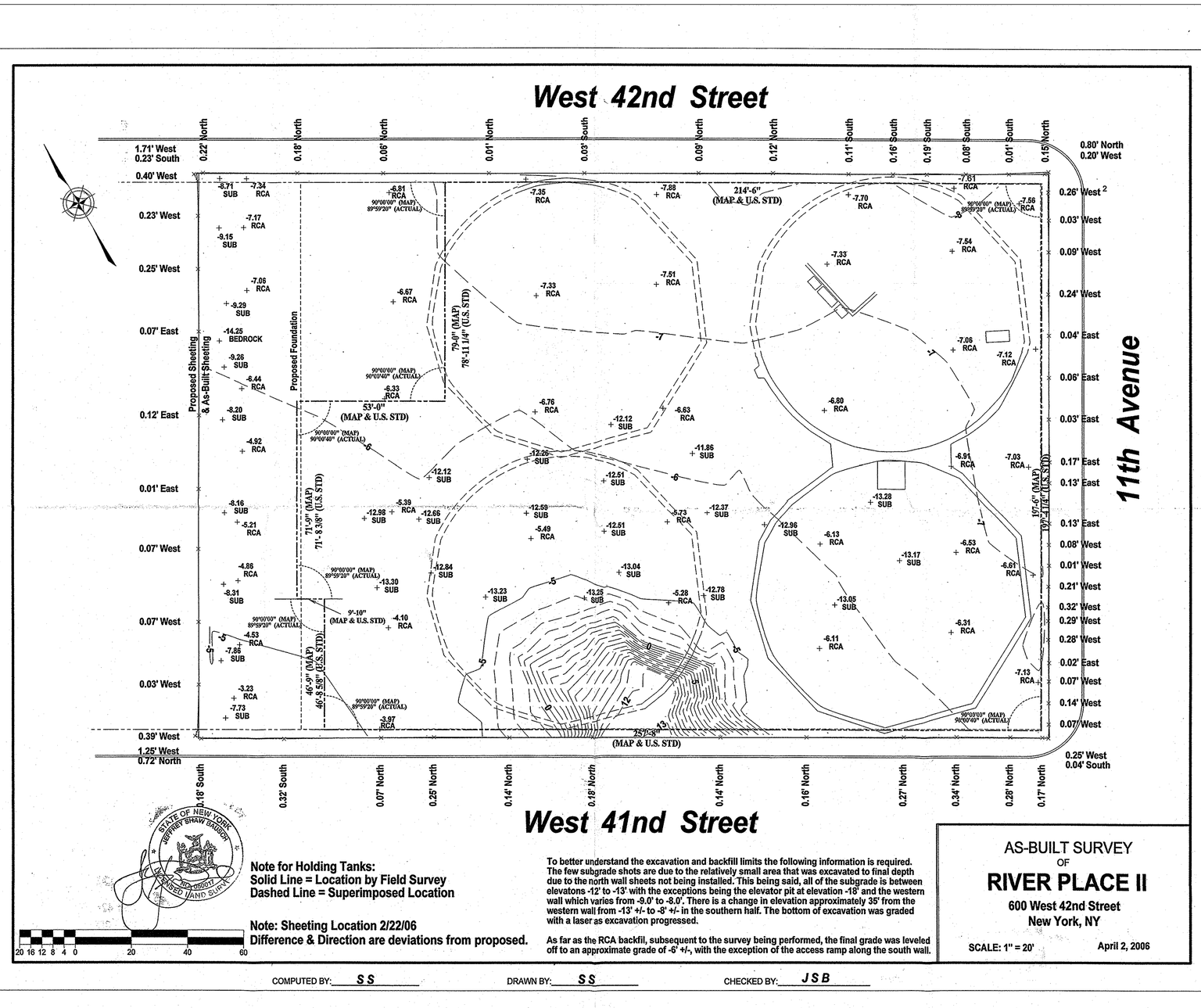
RIVER PLACE II
FORMER WEST 42ND STREET MGP

SITE LOCATION MAP

NEW YORK NEW YORK

Project No.	Date	Scale	Dwg. No.
5582403	3/27/06	NTS	1

Filename: U:\Data4\5582403\Cadd Data – 5582403\Dwg\River Place II\Figure 1 Site Location Map(google).dwg Date: 2/12/2007 Time: 11:17 User: emuller Style Table: Langan.stb Layout: Figure 1



STATE OF NEW YORK
JEFFREY SHAW BRANSON
050207
LICENSED LAND SURVEYOR

Note for Holding Tanks:
Solid Line = Location by Field Survey
Dashed Line = Superimposed Location

Note: Sheeting Location 2/22/06
Difference & Direction are deviations from proposed.

To better understand the excavation and backfill limits the following information is required. The few subgrade shots are due to the relatively small area that was excavated to final depth due to the north wall sheets not being installed. This being said, all of the subgrade is between elevatons -12' to -13' with the exceptions being the elevator pit at elevation -18' and the western wall which varies from -9.0' to -8.0'. There is a change in elevation approximately 35' from the western wall from -13' +/- to -8' +/- in the southern half. The bottom of excavation was graded with a laser as excavation progressed.

As far as the RCA backfil, subsequent to the survey being performed, the final grade was leveled off to an approximate grade of -5' +/-, with the exception of the access ramp along the south wall.

AS-BUILT SURVEY
OF
RIVER PLACE II
600 West 42nd Street
New York, NY

SCALE: 1" = 20' April 2, 2006

COMPUTED BY: SS DRAWN BY: SS CHECKED BY: JSB

Date	Description	No.
Revisions		

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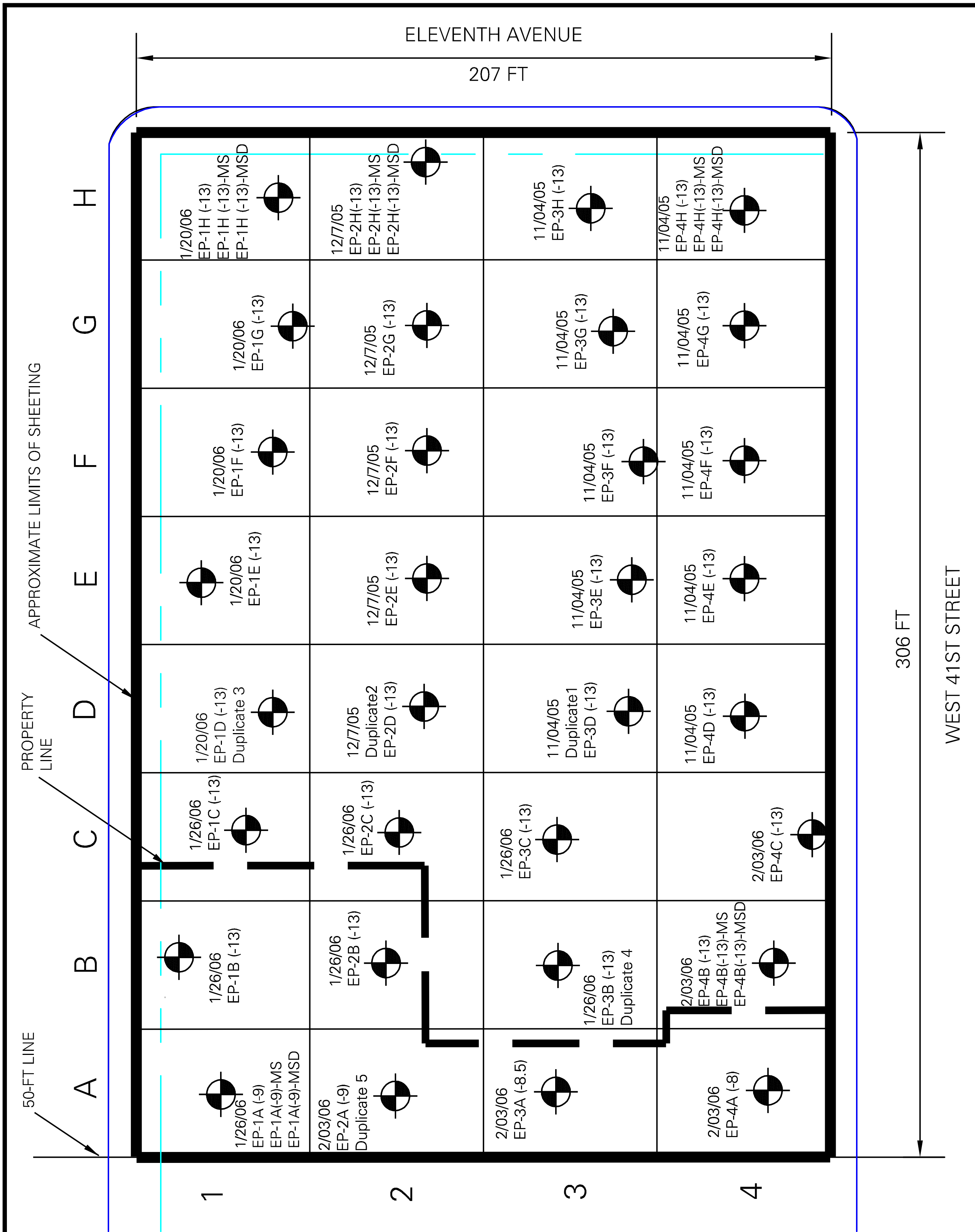
Project	RIVER PLACE II
	NEW YORK NEW YORK
Drawing Title	BOTTOM ELEVATION CONTOUR MAP OF REMEDIAL EXCAVATION
Project No.	5582403
Date	2/9/2007
Scale	AS SHOWN
Drn. By	NA
Last Revised	NA
Drawing No.	2



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RIVER PLACE II

POST–EXCAVATION END–POINT SOIL SAMPLE LOCATION PLAN

NEW YORK NEW YORK

Project No.	Date	Scale	Dwg. No.
5582403	12/20/2005	NTS	3