DRAFT Remedial Action Work Plan: Supplemental Design Report

Appendix A: Site Management Plan

220 Water Street
Brooklyn, New York

March 2008
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DRAFT REPORT

220 Water Street

Remedial Action Work Plan: Supplemental Design Report Appendix A: *Draft* Site Management Plan

Note: This *Draft* Site Management Plan is being submitted to complete the requirements for a Remedial Action Work Plan for the Site. This is a working draft that does <u>not</u> reflect the results of the remediation scheduled to be performed at the Site and adjacent sidewalks. Following Remedial Action (RA), this *Draft* Site Management Plan will be updated to reflect the completed remediation at the Site and adjacent sidewalks.

220 Water Street

Brooklyn, New York

March 2008

ERM Ref. No. 0022103

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required for the fulfillment of the Remedial Action (RA) at 220 Water Street, Brooklyn, NY (hereafter referred to as the "Site") and adjacent sidewalk areas under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site and adjacent sidewalk areas will be remediated in accordance with the Brownfield Cleanup Agreement (BCA) Index# W2-1042-05-01, Site # C224098, which was issued on 27 January 2005.

1.1.1 General

Hawthorne Village, LLC entered into a BCA with the NYSDEC to develop the Site - an approximately one acre property located in Brooklyn, Kings County, New York City, New York - into a residential/commercial development. This BCA required the Applicant, Hawthorne Village, LLC, to investigate and remediate contaminated media at the Site and adjacent sidewalk areas through implementation of the RA. The boundary of this one-acre BCP Site is more fully described in Appendix A – Metes and Bounds. A map of the Site location is shown in Figure 1-1. The Site boundary and adjacent sidewalk areas are shown in Figure 1-2.

This Site Management Plan (SMP) was prepared to manage the limited contamination that will remain in the subsurface beneath the Site and adjacent sidewalk areas after the implementation of the RA (hereafter referred to as 'residual contamination'). The SMP is intended to address the residual contamination at the Site and adjacent sidewalk areas in perpetuity or until extinguishment of the Environmental Easement in accordance with 6 NYCRR Part 375. Remedial work at the Site and adjacent sidewalk areas, which is described in the NYSDEC-approved Remedial Work Plan (RWP) dated May 2007 is scheduled for Spring/Summer 2008. All reports associated with the Site and adjacent sidewalk areas can be reviewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Environmental Resources Management (ERM), on behalf of the current property owner, Hawthorne Village, LLC (Hawthorne), in accordance with the requirements of 6 NYCRR Part 375,

NYSDEC *Draft* DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC. This SMP addresses the implementation of Institutional Controls (ICs) and Engineering Controls (ECs), which are required by the Environmental Easement for the Site.

1.1.2 Purpose

The Site and adjacent sidewalk areas contain residual contamination that will be left after completion of the RA performed under the BCP. ECs have been incorporated into the remedy for the Site and adjacent sidewalk areas to provide proper management of residual contamination in the future to ensure protection of public health and the environment.

A draft Site-specific Environmental Easement was submitted to the Department in September 2007, and will be finalized and recorded with the Kings County Clerk following completion of the RA. The Environmental Easement will provide an enforceable means to ensure the continued and proper management of residual contamination and protection of public health and the environment. It requires adherence to all ECs and all ICs placed on this Site by NYSDEC by the grantor of the Environmental Easement and any and all successors and assigns of the grantor. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP described the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for residual contamination at the Site. Following approval by the NYSDEC, SMP compliance will be required by the grantor of the Environmental Easement and grantor's successors and assigns as it relates to the Site.

Site management is the last phase of the remedial process and is triggered by the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) by NYSDEC. The SMP continues in perpetuity or until extinguished in accordance with 6NYCRR Part 375. It is the responsibility of the Environmental Easement grantor, and its successors and assigns to ensure that all Site Management responsibilities under this plan are performed.

The SMP provides a detailed description of the procedures to manage residual contamination at the Site and adjacent sidewalk areas following the completion of the RA in accordance with the NYS BCA with the NYSDEC. This includes: (1) development, implementation, and management of all ECs and ICs; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) an Operation and

Maintenance Plan for implementation of remedial collection, containment, or recovery systems; (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP includes four plans: (1) an Engineering and Institutional Control Plan for implementation and management of Engineering Controls and Institutional Controls (EC/ICs); (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site Management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annual, or other specified period approved by NYSDEC.

At the time this report was prepared, this Draft SMP and all Site documents related to Remedial Investigation (RI) and RA are maintained at the NYSDEC Main Office in Albany, NY. At the time of this draft SMP submission March, 2008, the Site documents can also be found in the repositories established for this project, including:

Walt Whitman Library
93 St. Edwards Street, Brooklyn, NY 11205
(718) 935-0244

Repository Hours: Monday 10-6, Tuesday 1-6, Wednesday 1-8, Thursday 1-6, Friday 10-6, Saturday 11-6

1.2 BACKGROUND

1.2.1 Location and Description

The Site is located in the County of Kings, New York City, New York and is identified as Block 41 and Lot 17 on the Borough of Brooklyn Tax Map. The Site is an approximately one-acre area bounded by sidewalk and Water Street to the north, sidewalk and Front Street to the south, sidewalk and Bridge Street to the east, and an adjacent building to the west (see Figure 1-2). The boundary of the Site is more fully described in Appendix A – 220 Water Street Title.

1.2.2 History

The Site is located in a mixed residential/commercial/industrial area. The Site is zoned M1-2, which is designated as a Light Manufacturing District (High Performance). Properties to the south, east, and west of the Site were recently rezoned to accommodate residential development. The Site is covered entirely by a building. Prior to the remedy implementation, there was no exposed soil at the Site with the exception of a two foot by two foot area of missing concrete in the wood building's cellar (described below).

The Site was developed in two phases according to the New York City Building Department records: the eastern portion was constructed in 1893[i] and the western side was constructed in 1905. The lead works facility burned down prior to construction of the existing structures on the Site. The eastern portion of the building is identified as the "wood building" because of its predominant wood frame and flooring, and the western side is referred to as the "concrete building", named for its predominant concrete framing and flooring (KTR Newmark, 2004). Together these buildings form the Site, creating one functional building. Based on review of available historical Sanborn Fire Insurance Maps, the Site has been used for industrial purposes since 1887. In that year, the eastern portion of the Site was occupied by a two-story industrial building housing the Union White Lead Works, which reportedly burned down in the late 1800s. The eastern building then housed the Hanan & Sons Shoe Factory, whose operations ceased between 1915 and 1938. The buildings were then used by a number of manufacturers and commercial distributors (KTR Newmark, 2004).

A Phase II Environmental Site Assessment was conducted in July 2004. The sampling indicated lead in soil as a potential contaminant of concern at the Site and adjacent sidewalk areas . Additionally, previous Site investigations identified asbestos containing building material and lead-based paint present in the building. Following the Phase II, the Brownfield Cleanup Program application was submitted to NYSDEC in October 2004 and accepted December 2004. The Brownfield Cleanup Agreement was executed 27 January 2005. The RI for soil, groundwater, soil vapor, and indoor air was performed November 2005 – March 2006

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[i] Previous reports cited that the eastern portion was constructed in 1905 and the western portion in 1952. Further research of the Site history has provided clarification on the construction dates.

and an additional well was installed and sampled in October 2006 (ERM, December 2006).

1.2.3 Geological Conditions

As stated above, a Phase II Environmental Site Assessment was conducted in July 2004 and evaluated soil conditions beneath the Site and adjacent sidewalks. Subsequent to the BCA, the RI for soil, groundwater, soil vapor, and indoor air was performed November 2005 – March 2006 and an additional well was installed and sampled in October 2006 (ERM, December 2006). The RI conducted by the Volunteer confirmed and delineated the presence of lead in soil, and identified volatile organic compounds (VOCs) in soil vapor and groundwater beneath the Site. The source of the VOCs is suspected to be an off-Site release. As part of the RI, the following environmental samples were collected:

- twenty (20) soil samples from 11 soil borings;
- seven (7) groundwater samples from four (4) monitoring wells;
- four (4) soil vapor samples, two each from two rounds of sub-slab soil gas sampling; and
- four (4) concurrent indoor air samples and one concurrent outdoor air sample during the second round of sub-slab soil vapor sampling.

The subject property is approximately 5 feet above mean sea level (msl) as interpreted from the United States Geologic Survey topographic map, with a relatively flat topography. The local topography has a northerly slope toward the East River, which is located approximately 331 yards north of the subject property and flows in a westerly direction. Surface drainage at the Site is via sheet flow across the adjacent sidewalks towards on-street municipal drains.

The area is located on the southern slope of the Harbor Hill Moraine, which is the terminal moraine of the late stage Wisconsin glaciation. This material is undifferentiated till, clays, sand, gravels, and boulders that is approximately 100 feet thick overlying a wedge, that is 80 feet thick, of the Cretaceous Raritan Formation which was deposited as a marine clay with a basal sand. The Raritan is in turn deposited upon Paleozoic schists and gneisses. The overall transport properties of this sequence are poor. The glacial tills and clays in the Harbor Hill Moraine serve to effectively seal the upper reaches of the subsurface. The most permeable unit in the

sequence is the Lloyd Sand, which is basal to the Raritan Formation at a depth of approximately 170 feet below grade.

The near surface native moraine material has subsequently been covered with undifferentiated urban land. Urban land characteristically has 0 to 8 percent slopes. The soils and foundation material are highly variable, but because urban structures and works cover so much of this land type, identification of the soils is not practical. Most areas have been graded, and the original soil material has been disturbed, filled over, or otherwise destroyed prior to construction. Approximately the first ten to 15 feet of material beneath the Site and adjacent sidewalks is considered fill material.

Groundwater flow at the Site is to the north towards the East River. A groundwater flow map is shown in Figure 1-3. The depth to groundwater ranges from approximately 25 feet below grade along the northern boundary of the Site to 35 feet below grade along the southern boundary of the Site. The maximum depth of borings/monitoring wells installed in adjacent sidewalk areas was approximately 57 feet below grade. Bedrock was not encountered at this depth.

1.3 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The SMP and all Site documents, including the RI and RWP, are maintained by the NYSDEC (or successor agency). At the time of publication, these reports could be found at the NYSDEC Main Office in Albany, New York.

1.3.1 Summary of Remedial Investigation Findings

There was one remedial investigation report completed for the Site and adjacent sidewalk areas under the BCP, entitled "Remedial Investigation Report" (RI Report) dated December 2006. The RI Report contained a qualitative exposure assessment (QEA) for on-Site and off-Site contamination. The QEA identified chemicals potential of concern (COPC) present on-Site and beneath adjacent sidewalks. These COPCs consist of polycyclic aromatic hydrocarbons (PAHs), metals and VOCs. PAHs (benzo(a)anthracene, benzo(a)pyrene, chrysene, and dibenzo(a,h) anthracene and benzo(b)fluoranthene) and metals (arsenic, cadmium, lead, cobalt, copper, iron, mercury, nickel, and zinc) are present at concentrations above the Part 375 Soil Cleanup Objectives (SCOs); however, their concentrations, with the exception of lead, are generally consistent with those found in urban fill. Nonetheless, the proposed

remedy for the Site and adjacent sidewalk areas is designed to prevent direct contact with PAHs and metals concentrations that are above applicable SCOs.

VOCs, specifically trichloroethene (TCE) and tetrachloroethene (PCE), are present in groundwater above the NYS Class GA groundwater quality standard both upgradient and downgradient of the Site, and also in soil vapor beneath the Site and indoor air in the unoccupied wood cellar. The presence of TCE and PCE at detectable concentrations in both upgradient and downgradient wells indicate an upgradient source of contamination. In addition to VOCs, metals (magnesium, manganese, and sodium) are present in groundwater sampled from wells within the adjacent sidewalk. These chemicals are consistent with saline influenced groundwater bodies. Due to the close proximity of the East River, which is an estuary, Site groundwater is likely saline influenced.

Soil containing chemicals at concentrations in excess of the SCOs are present beneath the Site and adjacent sidewalk. Groundwater containing VOCs and metals is present upgradient and downgradient of the Site. The following sub-sections provide a brief summary of the RI findings.

1.3.1.1 *Soil*

The RI identified chemicals in soil at concentrations above Part 375 SCOs. These chemicals consisted primarily of metals and PAHs. The below table summarized the range and maximum concentrations of chemicals that were detected above the Part 375 restricted-residential Soil Cleanup Objectives (SCOs). Tables 1-1A through 1-5A provide a full summary of all chemicals detected at concentrations above the Track 1 Unrestricted SCOs for all soil/fill at the Site and beneath the adjacent sidewalk areas prior to the remedy. These tables (Tables 1-1B through 1-5B) also present a comparison of all soil/fill analytical results compared to the Part 375 restricted-residential SCOs, as well as results for composite soil samples.

Chemical	*Concentration (mg/kg)*	*Restricted-Residential SCO*	*Location of Maximum Concentration*
Arsenic	2.08 – 54	16	SB2
Barium	3.4 – 1,160	400	SB-9
Cadmium	<0.5 – 13	4.3	SB-10
Copper	27.1 – 466	270	SB-9
Lead	3.2 – 8,940	400	SB-6
Mercury	0.1 – 1.51	0.81	SB2-2

Benzo(b)fluoranthene	< 0.34 – 1.2J	1.0	SB-9
Indeno(1,2,3-cd)pyrene	0.049 – 0.65J	0.5	SB-9

Note: A J qualifier indicates that the concentration is an estimated value. The compound was detected at a concentration below the minimum detection limit but greater than zero, or the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.

Soil containing chemical concentrations above the restricted-residential SCO will either be excavated or covered during the RA.

1.3.1.2 *Groundwater*

Figure 1-3 presents a groundwater flow map for the Site. Table 1-6 presents a summary of groundwater analytical results compared to NYS Class GA groundwater quality criteria. SVOCs, pesticides, and PCBs were not detected in the groundwater samples. VOCs (TCE and PCE) were detected in both upgradient and downgradient monitoring wells. TCE was detected in the downgradient well, MW-3, at a maximum concentration of 15 ug/L, above the NYS Class GA groundwater standard of 5 ug/L. TCE was also detected above the NYS groundwater quality standard in the upgradient well MW-4 at 6.3J ug/L and in MW-2 at 5.4 ug/L. PCE was detected below the NYS groundwater quality standard of 5 ug/L in the upgradient well MW-1 at 4.6J ug/L and above the NYS groundwater quality criteria in the downgradient well MW-3 at a maximum concentration of 7.4 ug/L. All other VOCs were either not detected or below their NYS Class GA groundwater quality standard. The presence of TCE and PCE at detectable concentrations in both upgradient and downgradient wells indicate an upgradient source of contamination.

Magnesium, manganese, and sodium were the only inorganic constituents detected above their NYS Class GA groundwater quality standards in all three wells. These exceedances are consistent with groundwater quality near saline waters.

A groundwater use restriction for the Site will be implemented through the Environmental Easement.

1.3.1.3 *Soil Vapor*

Tables 1-7 and 1-8 present a summary of soil gas and indoor air sample results from the RI, prior to the remedy. TCE and PCE were detected in soil gas samples taken during both rounds of sampling. TCE values ranged from 3,600 $\mu g/m^3$ beneath the wood cellar to 7,500 $\mu g/m^3$ beneath

the concrete cellar, both during the second round of sampling. PCE values ranged from 350 µg/m^3 beneath the wood cellar to 560 µg/m^3 beneath the concrete building, both during the second round of sampling.

In the cellars, which are planned to be filled and sealed during the Site redevelopment, indoor air concentrations of TCE were 7.0 ug/m^3 in IA-01 (concrete cellar) and 28 ug/m^3 in IA-02 (wood cellar), the highest concentration being within the wood cellar, an unoccupied area. PCE was also detected in one indoor air sample (IA-02) at 5.6 ug/m^3, also in the wood cellar. PCE was not detected at a detection limit of 1.1 ug/m^3 in the remaining three indoor air samples.

Generally, TCE and PCE were either not detected or detected at low levels in indoor air, with the exception of TCE in the cellars. Most VOCs detected in indoor air were not detected in sub-slab soil vapor, indicating that there are other sources of these compounds.

1.4 DESCRIPTION OF REMEDIAL ACTIONS

The Site and adjacent sidewalk areas will be remediated in accordance with the scope of work presented in the NYSDEC-approved RWP dated May 2007 and the Supplemental Remedial Design Report dated March 2008. The approved remedy to be implemented at the Site and adjacent sidewalk areas is summarized below:

- Excavation and disposal of approximately 711 cubic yards (cy) of soil from beneath the adjacent sidewalk beyond the building footprint, as depicted in Figure 2-1, with a remedial goal of 400 mg/kg for lead;

- Excavation and disposal of approximately 44 cy of soil from beneath the building footprint through the boiler room floor, as depicted in Figure 2-1, with a remedial goal of 1,000 mg/kg for lead;

- Sample collection and analysis of appropriate end point documentation/confirmation soil samples at approximately 28 locations from both the adjacent sidewalk areas and below the Site building, consistent with the frequency of sampling established in the *Draft* DER-10 guidance document (NYSDEC, 2002);

- There are currently no vegetated areas at the Site. The remedy provides for construction and maintenance of a soil cover over all new vegetated areas (i.e., curb boxes for trees or other plantings within the adjacent sidewalk) to prevent exposure to contaminated soils. In the

event the Site owner places plantings are installed in the adjacent sidewalk area, a minimum two-foot thick cover shall consist of clean soil underlain by an indicator layer such as orange plastic snow fence to demarcate the cover soil from the subsurface soil beneath the adjacent sidewalks. The top six inches of soil would be of sufficient quality to support vegetation. Clean soil will constitute soil that meets the 6 NYCRR Part 375-6.7(d) criteria for backfill. The final cover in excavated sidewalk areas will be a minimum six-inches total thickness of aggregate/clean fill and concrete. Sidewalk areas that are not excavated will remain in place. If existing sidewalk is demolished in any location where soil excavation is not currently planned, the final cover will be a minimum six-inches total thickness of aggregate/clean fill and concrete.

- The Site will be covered by the existing building's structural foundation and slab, and in areas where excavation is performed, a concrete system at least 6 inches thick will be installed. An indicator layer will be placed to demarcate between native soils and backfill material. A map showing the Site cover is shown in Figure 2-2;

- Installation of an active SSD system at the Site to restrict soil vapors from entering the building;

- Imposition of an institutional control in the form of an Environmental Easement that will require: (a) limiting the use and development of the Site to restricted-residential use, which would also permit commercial or industrial uses; (b) compliance with the approved SMP; (c) restricting the use of groundwater at the Site as a source of potable or process water, without the necessary water quality treatment as determined by NYSDOH; and (d) the Site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls;

- An SMP for long term management of residual contamination as required by the Environmental Easement, which includes plans for: (1) Institutional Controls/Engineering Controls (ICs/ECs), (2) monitoring, (3) operation and maintenance and (4) reporting;

- The Site owner will provide a periodic certification of ICs/ECs, prepared and submitted by a qualified environmental professional acceptable to NYSDEC, until the NYSDEC notifies the Site owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the ICs/ECs put in place are still in place and are either unchanged from the previous certification or are

compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the Site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC;

- The operation of the components of the remedy will continue until the NYSDEC determines that operation is no longer required, is technically impracticable or is not feasible.

Remedial activities completed at the Site and adjacent sidewalk areas will be conducted in accordance with the NYSDEC-approved RWP for 220 Water Street, Brooklyn, NY (May, 2007) and the Supplemental Remedial Design Report (March 2008). The approved RWP is included in Appendix B. Any deviations from the RWP during implementation of the remedy will be noted in the final version of this SMP below:

- Items will be listed here following RA in the final version of this SMP document.

1.4.1 *Removal of Contaminated Materials from the Site and Adjacent Sidewalk Areas*

This section in the final SMP shall describe the following after completion of the RA:

- Track 4 SCOs.
- Materials removed.
- Quantities removed.
- Locations of material removed:
  - Maps of excavation and materials removed.

1.4.2 *SSD Systems*

This section in the final SMP shall describe the following after completion of the RA:

- The SSD system that is installed.
- Materials employed.

- Locations of SSD system:
    - Maps of system.

1.4.3 Residual Contamination

This section in the final SMP shall describe:

- A summary of all contaminated soil and structures left on-Site and beneath adjacent sidewalk areas after RA is complete:
    - Table of exceedances Track 1 SCOs (Part 375-6) after Remedial Action;
    - Map of exceedances Track 1 SCOs (Part 375-6) after Remedial Action;
    - Table of exceedances Track 4 SCOs (Part 375-6) after Remedial Action;
    - Map of exceedances Track 4 SCOs (Part 375-6) after Remedial Action;
- A description of the "Residual Contamination Zone":
    - Demarcation layer; and
    - Map.

Tables and figures shall be provided to summarize results of all soil samples remaining at the Site and adjacent sidewalk areas after completion of RA that exceed the Track 1 (unrestricted) SCOs.

Tables and figures shall be provided to summarize results of all soil samples remaining at the Site and beneath adjacent sidewalk areas after completion of RA that exceed the Track 4 SCOs.

A survey map shall be provided that shows the top elevation of the Residual Contamination Zone.

1.4.4 Engineering and Institutional Controls

Since residual contamination will remain on Site and beneath adjacent sidewalk areas, ECs and ICs will be implemented to protect public health

and the environment in the future. There are two primary ECs: (1) a cover and (2) an SSD system.

A series of ICs are required to implement, maintain and monitor these ECs. The Environmental Easement requires compliance with these ICs. These ICs consist of the following:

- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Site and the adjoining sidewalk areas must be inspected and certified at a frequency and in a manner defined in this SMP;
- Cover and soil vapor monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP;
- On-Site environmental monitoring devices for the SSD system must be protected and replaced as necessary to ensure continued functioning in the manner specified in this SMP.

The Site and adjacent sidewalk areas have a series of ICs in the form of restrictions. Adherence to these ICs is required under the Environmental Easement. Restrictions that apply are:

- Vegetable gardens and farming on the Site and adjacent sidewalk areas are prohibited;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for the intended use;
- Future activities on the Site and adjacent sidewalk areas that will disturb residual contaminated material must be conducted in accordance with the soil management provisions in this SMP;
- The Site may be used for restricted-residential, commercial, and industrial uses only provided the long-term ECs/ICs included in the SMP remain in effect.

These EC/ICs should:

- Prevent ingestion of groundwater with contamination levels that exceed drinking water standards;

- Prevent migration of contaminants that would result in groundwater contamination;

- Prevent contact with or inhalation of volatiles from contaminated groundwater; and

- Prevent ingestion/direct contact with soil that exceeds applicable SCOs.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Remedial activities completed at the Site and adjacent sidewalk areas will be conducted in accordance with the NYSDEC-approved RWP for 220 Water Street (May, 2007) and the Supplemental Remedial Design Report (March, 2008). The remedial goals included Track 4 Soil Cleanup Objectives (SCO) for lead in on-Site and adjacent sidewalk soils for commercial and restricted-residential use. A summary of the remedial strategies and EC/ICs implemented at the Site and adjacent sidewalk areas are as follows:

- Excavation of soils beneath the adjacent sidewalk areas exceeding the restricted-residential SCO (400 mg/kg) for lead;
- Excavation of soils beneath the Site with lead concentrations exceeding 1,000 mg/kg;
- Maintenance of a cover consisting of concrete sidewalk over adjacent sidewalk areas, and concrete building slab over the Site to prevent human exposure to residual contaminated soils remaining;
- Registration of an Environmental Easement, including Institutional Controls, to prevent future exposure to any contamination remaining at the Site and adjacent sidewalk areas (a copy of the draft Environmental Easement is provided in Appendix C); and
- Operation of an SSD system.

Since residual contaminated soil and soil vapor exist beneath the Site and adjacent sidewalk areas, EC/ICs are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs.

2.1.2 PURPOSE

The purpose of this Plan is to provide:

- A description of all EC/ICs on the Site and the adjacent sidewalk areas;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Environmental Easement;
- A description of the features that should be evaluated during each annual, or other specified period approved by NYSDEC, inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Soil Management Plan (SoMP) for the safe handling of residual contamination that may be disturbed during maintenance or redevelopment work on the Site and adjacent sidewalk areas; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the remedy, as approved by the NYSDEC in the RWP (May 2007) and Supplemental Design Report (March 2008).

2.2 ENGINEERING CONTROL COMPONENTS

2.2.1 Engineering Control Systems

2.2.1.1 Cover of the Site and Adjacent Sidewalk Areas

Exposure to residual contaminated soil/fill at the Site and adjacent sidewalk areas is prevented by a cover. The cover is comprised of concrete sidewalk pavement over the adjacent sidewalk and concrete building slabs over the Site. Figure 2-2 shows the location of each cover type at the Site and adjacent sidewalk areas. A *Draft* SoMP is included in Appendix D, and outlines the procedures required in the event the cover and underlying residual contamination are disturbed. The *Draft* SoMP is also discussed in greater detail in Section 2.3 of the EC/IC Plan. Issues related to maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.1.2 Sub-slab Depressurization System

Procedures for operating and maintaining the SSD system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the Site and adjoining sidewalk areas, has occurred.

2.2.2 *Criteria for Completion of Remediation/Termination of Remedial Systems*

2.2.2.1 Cover of the Site and Adjacent Sidewalk Areas

The cover system is a permanent control and the quality and integrity of this cover will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Sub-slab Depressurization System (SSD)

The active SSD system would be discontinued only upon the written approval by NYSDEC and NYSDOH. A proposal to discontinue the active SSD system may be submitted by the Site owner based on confirmatory data that justifies such request. The system will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH. Monitoring activities are outlined in the Monitoring Plan of the SMP.

2.3 *INSTITUTIONAL CONTROLS COMPONENTS*

2.3.1 *Institutional Controls*

A series of Institutional Controls are required under the RWP to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to residual contamination by controlling disturbances of the subsurface contamination; and, (3) restrict the use of the Site to commercial and restricted-residential uses only. Adherence to these Institutional Controls on the Site is required under the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and assigns with all elements of this SMP;

- All Engineering Controls must be operated and maintained as specified in this SMP;

- A cover consisting of concrete covered sidewalks over adjacent sidewalk areas and concrete building slabs over the Site must be inspected, certified and maintained as required in this SMP;

- A soil vapor mitigation system consisting of an SSD system under all building structures must be inspected, certified, operated and maintained as required in this SMP;

- All ECs on the Site must be inspected and certified at a frequency and in a manner defined in the SMP;

- Soil vapor monitoring must be performed as defined in this SMP;

- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP;

- On-Site environmental monitoring devices (i.e., soil vapor probes, vacuum gauges, and SSD system alarm), must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP; and

- ECs may not be discontinued without an amendment or the extinguishment of this Environmental Easement.

The Site and adjacent sidewalk areas have a series of Institutional Controls in the form of restrictions. Adherence to these Institutional Controls is required by the Environmental Easement and include:

- Vegetable gardens and farming on the Site are prohibited;

- The use of the groundwater underlying the Site is prohibited without treatment rendering it safe for intended purpose;

- All future activities on the Site that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in this SMP;

- Activities by or on behalf of the Site owner in the adjacent sidewalk areas that will disturb residential contaminated material are prohibited unless they are conducted in accordance with the SoMP provisions in this SMP.

- The Site may only be used for industrial, commercial or restricted-residential uses provided that the long-term ECs/ICs included in this SMP are employed until such time that NYSDEC approves their discontinuation.

- The Site may not be used for a higher level of use, such as unrestricted residential use without an amendment or the extinguishment of this Environmental Easement.

- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site and adjacent sidewalk areas are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual (or other NYSDEC-approved time frequency) statement must be certified by a qualified environmental professional.

2.3.2 *Soil/Materials Management Plan*

The requirements in this section of the SMP shall apply with respect to any future work on the Site, and any future work conducted by or on behalf of the Site owner in the adjacent sidewalk areas. The Site and adjacent sidewalk areas will be fully remediated for commercial and restricted-residential uses in accordance with the approved RWP.

2.3.2.1 Soil/Materials Management

Intrusive work performed by the Site owner or owner's contractor that will disturb the residual contamination, and modifications or repairs to the existing Site cover will be performed in compliance with the SoMP, a draft of which is included in this D*raft* SMP. Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. The *Draft* SoMP is presented in Appendix D, the CAMP in Appendix E, and the HASP in Appendix F. The HASP shall be in compliance with DER-10 Technical Guide and 29 CFR 1910 and 1926, and all other applicable Federal, State and local regulations. Any

intrusive construction work must be certified as compliant with the SMP and included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

2.3.2.2 Stormwater Pollution Prevention

A Stormwater Pollution Prevention Plan is not required by NYSDEC because the Site is not greater than one acre in size. Measures, such as covering exposed soils that are subject to remediation each night prior to anticipated heavy rains, will be implemented to prevent soils from washing away into nearby storm drains. Excavation beneath the Site is not expected following the Site redevelopment. It is expected that only small, limited excavations would be conducted within adjacent sidewalks for utility work, if necessary.

2.3.2.3 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs).

2.3.2.4 Community Air Monitoring Plan

Excavation and sampling activities may create potentially hazardous conditions, such as the release of hazardous substances into the breathing space or surrounding area. An evaluation of chemical hazards has been performed to ensure employee safety and selection of appropriate personal protective equipment. Air monitoring will be conducted using direct reading instruments. Appendix E is the CAMP for the RA work at the Site and adjacent sidewalk areas.

2.3.2.5 Odor, Dust and Nuisance Control Plan

The odor control plan shall be capable of controlling emissions of nuisance odors off-Site and on-Site. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Site owner's Remediation

Engineer, who is responsible for certifying the Periodic Site Management Report.

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

Provisions should be taken to minimize or control dust generation, if needed. Such provisions may include an on-site water truck for road wetting.

A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of the Site cover, the cover for adjacent sidewalks, and SSD system will be conducted at the frequency specified in SMP Monitoring Plan schedule. A comprehensive inspection will be conducted annually, or other specified period approved by NYSDEC. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events at the specified frequency;

- If Site records are complete and up to date; and

- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Site Management Reporting Plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site, and if applicable, the adjacent sidewalks, will be conducted to verify the effectiveness of the EC/ICs by a qualified environmental professional.

2.4.2 Notifications

2.4.2.1 Non-routine Notifications

Non-routine notifications are to be submitted by the Site owner to the NYSDEC on an as-needed basis for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are consistent with the terms of the Brownfield Cleanup Agreement.

- 10-day advance notice of any proposed ground-intrusive activities at the Site.

- Notice within 48-hours of any damage or defect to the Site's foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action taken to mitigate the damage or defect.

- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site and/or adjacent sidewalks, including a summary of action taken and the impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

3.0 MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site and adjacent sidewalks. ECs at the Site and adjacent sidewalks include the cover and SSD system. This Monitoring Plan is subject to revision by NYSDEC.

3.1.2 Purpose

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of soil vapor, and when appropriate, indoor air;
- Evaluating Site information periodically to confirm that the remedy continues to be effective as per the design;
- Preparing the necessary reports for the various monitoring activities; and
- Assessing achievement of the remedial performance criteria.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., SSD system pressure);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements; and

- Annual, or other specified period approved by NSYDEC, inspection and certification.

Annual monitoring of the performance of the remedy will be conducted until such time as it is determined to no longer be necessary and discontinuation is approved by NYSDEC, or a lesser frequency is approved by NYSDEC. SSD system performance will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Soil vapor and indoor air concentrations will be reviewed to determine whether continued SSD system operation is necessary. Monitoring programs are summarized in the below table and outlined in detail in Sections 3.2 through 3.6 below.

Summary of Monitoring Programs

Monitoring Program	***Frequency****	***Matrix***	***Analysis***
SSD System Performance	Annually, or other specified period approved by NSYDEC	Not Applicable	Not Applicable
Soil Vapor	To Determine System Shutdown	Air	TO-15
Indoor Air	To Determine System Shutdown	Air	TO-15

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 COVER MONITORING

The cover shall consist of concrete-paved sidewalks and concrete building slab.

3.2.1 Cover Monitoring Schedule

The Site cover and adjacent sidewalks cover integrity will be inspected annually, or other specified period approved by NYSDEC, to determine whether adequate protection is provided. Photographs will be taken to document the integrity of these covers.

Inspection frequency is subject to change by NYSDEC and NYSDOH. Unscheduled inspections and/or sampling may take place when a suspected failure of the composite cover system has been reported or an

emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the composite cover system are specified later in this Plan.

A visual inspection of the cover will be conducted during the monitoring event. The cover will be monitored for, but are not limited to, the following:

- Condition of the cover system;
- Cracks;
- Vegetation growing between cracks;
- Ponding of surface water or surface depressions;

A complete list of components to be checked is provided in the Inspection Checklist, presented in Appendix G. If any significant defects are noted, maintenance and repair as per the Operation and Maintenance Plan will be conducted.

3.3 SSD SYSTEM MONITORING

SSD systems will have been installed to mitigate possible soil vapor intrusion into the occupied building at the Site. The system design will be described in the Engineering and Institutional Control Plan, and as-built drawings will be provided in an Appendix.

The SSD system layout drawings will be included in Appendix H.

Following completion of the SSD system installation, the below details shall be provided in this section:

- General introduction for system built
- Location of system design information
- Location of as-built drawings
- System start date
- Description of monitoring system (if any; for instance, monitor well array)

- o As-built drawings (Appendix H)
- o Materials

3.3.1 Monitoring Schedule: SSD System

The SSD system shall be monitored annually, or other specified period approved by NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the SSD system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the SSD system are specified later in this Plan.

3.3.2 SSD System Equipment Monitoring

A visual inspection of the complete SSD system will be conducted during the monitoring event. The SSD system components to be monitored include, but are not limited to, the following:

- SSD fan;
- General system piping;
- Pressure gauges;
- Alarms
- Condition of vent pipe on roof.

A complete list of components to be checked is provided in the Inspection Checklist, presented in Appendix G. If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not performing within specifications, maintenance and repair as per the Operation and Maintenance Plan are required immediately, and the SSD system restarted.

3.3.3 SSD System Monitoring Devices and Alarms

A system monitoring device and alarm notification will be installed to sound in the event of SSD vacuum blower failure. The SSD system has a warning device to indicate that the system is not operating properly. In the event that the warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance

Plan, and the SSD system restarted. Operational problems will be noted in the Periodic Site Management Report.

3.4 SOIL VAPOR MONITORING

Soil vapor sampling will be performed following the air sampling protocols identified in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006). Prior to collection of samples, ERM will complete the "Indoor Air Quality Questionnaire and Building Inventory, and Product Inventory Forms" contained in Appendix B of the NYSDOH Guidance. This will include activities such as use of a photoionization detector (PID) to identify areas of potential interferences, and removing possible sources of VOCs from the sampling area. All samples will be collected with individually-certified clean Summa® canisters fitted with regulators programmed to collect the sample over an 24-hour period.

All sub-slab soil vapor samples will be collected over the same 24-hour period. At each sample location, all the pertinent data will be recorded in the field notebook and/or data collection forms. This information will include the following items:

- Sampler's name;
- Date, time and PID reading;
- Date and time of sample start and stop;
- Summa® canister serial number;
- Initial and final Summa® canister vacuum
- Sample identification, and descriptive location of the sampling area;
- Sample identification for other corresponding samples at the same property;
- Weather conditions including ambient temperature inside and outside the residences;
- Sampling depth(s);

- Soil type at sample location, if known;
- Soil vapor purge volumes;
- Apparent moisture content of the air being sampled;
- Description of features that may impact the vapor measurements (e.g., storage areas for materials that may contain VOCs, drainage facilities, utility lines, any contamination noted, stains, etc.); and
- All equipment calibrations performed.

Soil vapor will be monitored at two locations beneath the building slab, one from beneath the concrete building and one from beneath the wood building. After the sampling area been inspected, the location of subsurface utilities determined, and the ambient air surrounding the proposed sampling screened with a photoionization detector (PID), a hammer drill will be used to advance a one-inch diameter boring to a just below the building slab. Teflon tubing (approximately 3/8-inch outside diameter) will be inserted into the subsurface through the boring. The annular space between the 1 inch hole and the 3/8 inch tubing will be filled with filter sand and sealed with beeswax at the ground surface.

To ensure the sample collected will be representative, one to three volumes of air will be purged from the tubing and the borehole. During the purge, the PID measurements will be monitored and the highest reading recorded. Following the purge, the PID will be disconnected, and the tubing will be connected to a one-liter Summa® canister regulated for an 24-hour sample collection period. This corresponds to a flow rate of less than the maximum 0.2 L/min required by the NYSDOH Guidance. Sampling will be discontinued while the canister still exhibits a slight vacuum.

At the conclusion of sampling, the canisters will be shipped via overnight delivery to an Environmental Laboratory Accreditation Program- (ELAP)-certified laboratory. Sub slab vapor samples will be analyzed for VOCs using USEPA Method TO-15, with a target detection limit of 1.0 micrograms per cubic meter (ug/m^3) for all parameters, except trichloroethene (TCE). The target detection limit for TCE in soil vapor samples will be 0.25 ug/m^3. If TCE is not detected in an indoor air sample at 1.0 ug/m^3, using the standard TO-15 full-scan analysis, additional analysis of the sample will be carried out using GC/MS selective ion monitoring (SIM) to achieve the required 0.25 ug/m^3 detection limit. This lower detection limit is required for TCE because the Decision Matrices in

the NYSDOH Guidance will be used to evaluate any concentrations of TCE detected in soil vapor samples,, and Decision Matrix 1 evaluates the risks posed by TCE at concentrations as low as 0.25 ug/m^3.

All laboratory data will be provided in ASP Category B deliverable format and the data validated. A letter report will be prepared and submitted to NYSDEC that include: 1) a summary of the sampling activities performed including any required deviations from this work plan, 2) a summary table of all sampling results, 3) completed "Indoor Air Quality Questionnaires, Building Inventory Forms, and Product Inventory Forms", 4) sampling logs, 5) photographs of sampling locations, 6) Data Validation Reports, and 7) Category B Laboratory Data Deliverables.

Results will be reported in the Periodic Site Management Report unless concentrations warrant a more immediate report to NYSDEC and NYSDOH. If results meet all guidelines a request to eliminate soil vapor monitoring will sent to NYSDEC and NYSDOH in the Periodic Site Management Report.

3.4.1 Monitoring for SSD System Shutdown

Periodic monitoring of soil gas and indoor air will be conducted at the Site at the Owner's discretion to monitor whether the SSD system may be shut down.

The process would be conducted as follows:

1. An initial soil vapor and indoor sampling following 24 hours of temporary system shutdown;

2. If results from the initial sampling may warrant shutdown (see criteria below), a temporary shut down request will be submitted to NYSDEC to collect samples following a two-week temporary shutdown;

3. If the sample results collected following the two-week temporary shutdown are within acceptable concentrations (see criteria below), the system will remain off to allow for a confirmatory sampling round to be conducted at least 30 days after the sampling conducted in step 2 above. If these sample results are within acceptable concentrations, the NYSDEC would be petitioned to discontinue operation of the SSD system.

The SSD system would be initially shut down for 48 hours to collect soil vapor samples. That is, the system would be shut down for 24 hours to allow for subsurface conditions to equilibrate, and remain off during a 24-hour sample collection duration. Following the soil vapor sampling, the SSD system would be turned back on for normal operation mode.

In the event that the soil gas and indoor air samples are within acceptable concentrations, a temporary shut down request will be submitted to NYSDEC. This request to discontinue operation of the SSD system will be submitted to NYSDEC if monitoring samples indicate that any of the following three conditions occur:

- The soil gas and indoor air concentrations for TCE and PCE are both below the NYSDOH decision matrices for no further action;
- PCE in sub-slab soil vapor is less than 100 µg/m3 and TCE in sub-slab soil vapor is below 5.0 µg-TCE/m3; or
- A final remedy for soil vapor is implemented that addresses remaining contaminants.

Following approval by NYSDEC, the system would be temporarily turned off. Simultaneous indoor air and soil vapor samples would be collected at least two-weeks after temporary system shut down. If conditions still are within acceptable NYSDOH levels, a second confirmatory round of samples would be collected within the same heating season, at least 30 days apart. These results would be reported to NYSDEC with a formal request to permanently shut down the system and dismantle appurtenant equipment. Any permanent shutdown request would be subject to NYSDEC approval.

3.5 SITE-WIDE INSPECTION

Site-wide inspections will be performed on an annual schedule, or other specified period approved by NYSDEC. Site-wide inspections will also be performed after severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix G) and the adjacent sidewalk cover will also be inspected.

3.6 MONITORING AND REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-Site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be submitted at the time of the Periodic Site Management Report, as specified in the Reporting Plan of the SMP.

All monitoring results will be reported to NYSDEC following their scheduled occurrence. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air), if any;
- Copies of all field forms completed (e.g., sample logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria, as appropriate;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (also to be submitted electronically in the NYSDEC-identified format);
- A copy of the laboratory certification;
- Any observations, conclusions, or recommendations; and
- An evaluation as to whether Site conditions or adjacent sidewalk conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized the below table.

Monitoring/Inspection Deliverables

Task	*Frequency**	*Reporting Requirement*
Cover and SSD Operation Inspection	Annually, or other specified period approved by NYSDEC	Periodic Site Management Report
Sub-slab Soil Vapor Sampling	To Determine System Shut Down	Letter Report Following Sampling Event
Indoor Air Sampling	To Determine System Shut Down	Letter Report Following Sampling Event

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH.

3.7 CERTIFICATIONS

Inspections and sampling activities will take place as outlined above. Inspection certification for all ICs and ECs will be submitted to NYSDEC on a calendar year basis and must be submitted by 1 June each year for the prior calendar year, until such time that NYSDEC approves a less frequent reporting period. A qualified environmental professional will perform inspection and certification. Further information on the certification requirements are outlined in the Reporting Plan of the SMP.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The Operation and Maintenance Plan describes the measures necessary to operate and maintain any mechanical components of the SSD System installed at the Site. The Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the Site to operate and maintain the SSD systems;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in Site conditions or the manner in which the SSD systems are operated and maintained.

Information on non-mechanical Engineering Controls (i.e. cover) can be found in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the Site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

4.2.1 Sub-slab Depressurization System Monitoring

This section will include a description of:

- General introduction for system built;
- Location of system design information (Appendix [x]);
- Location of as-built drawings (Appendix H);
- System start date.

4.2.1.1 SSD System Scope

This should include a description of operation and maintenance requirements.

4.2.1.2 SSD System Start-Up and Testing

This should include a description of, as appropriate:

- Manufacturer's recommendations;
- Pre-start up inspection;
- Baseline measurements;
- Testing methods:
  - Checks for leaks;
  - Checks of seals;
  - Check of back drafts;
  - Pressure tests;
  - System balancing;
  - Warning devices;
  - Sampling;
  - Test results (Appendix To Be Determined).

The system testing described above will be conducted if, in the course of the SSD system lifetime, significant changes are made to the system, and the system restarted.

4.2.1.3 SSD System Operation: Routine Operation Procedures

This shall include a description of:

- Manufacturer's recommendations;
- Troubleshooting (guide in Appendix To Be Determined);

- Adjustment and repairs;
- Operation schedule.

4.2.1.4 System Operation: Routine Equipment Maintenance

This shall include a description of:

- Manufacturer's recommendations;
- Inspections;
- Routine maintenance activities and minimum schedules (Appendix To Be Determined).

4.2.1.5 System Operation: Non-Routine Equipment Maintenance

This shall include a description of:

- Warning devices initiated;
- Damage;
- Reduced effectiveness;
- System or component replacement.

4.3 MAINTENANCE REPORTING REQUIREMENTS

Maintenance reports and any other information generated during regular operations at the Site will be kept on-file on-Site. All reports, forms, and other relevant information generated will be available submitted as part of the Periodic Site Management Report, as specified in the Section 5 of this SMP.

4.3.1 Routine Maintenance Reports

Routine maintenance will be conducted to inspect the Site cover and cover over adjacent sidewalks (see Figure 2-2 for location of Site cover and adjacent sidewalk cover). Checklists (see Appendix G) will be completed during each routine maintenance event. Checklists will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist).

4.3.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks, if relevant;
- Date of leak repair, if relevant;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

4.4 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

4.4.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence at the Site or adjacent sidewalk areas requiring assistance, the Site owner or owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the qualified environmental professional for the Site. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center: (3 day notice required for utility markout)	(800) 272-4480
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline:	(800) 457-7362
ERM – Cathy Weber	(617) 646-7800
ERM – Jim Perazzo	(212) 447-1900

* Note: Contact numbers subject to change and should be updated as necessary

4.4.2 Map and Directions to Nearest Health Facility

Site Location: 220 Water Street
Brooklyn, NY 11201-1158

Nearest Hospital Name: Long Island College Hospital

Hospital Location: 525 Fulton St
Brooklyn, NY 11201

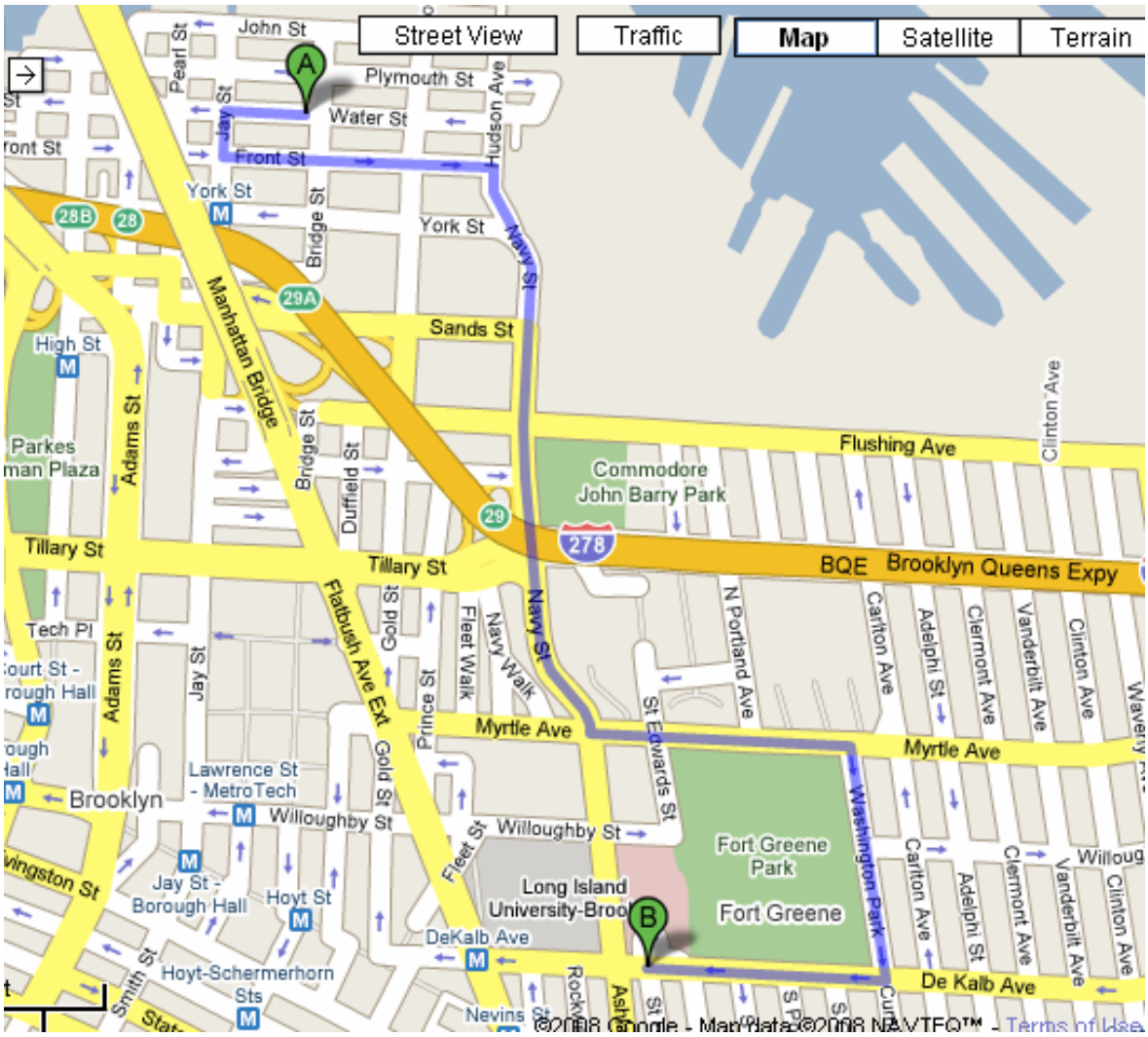
Hospital Telephone: (718) 522-4800 *or* 911

Directions to the Hospital:

1) Head west on Water Street toward Jay Street
2) Turn left at Jay Street
3) Turn left at Front Street **0.3 miles**
4) Turn right at Hudson Avenue
5) Hudson Avenue turns slightly left and becomes Navy Street 0.6 **miles**

6) Turn left at Myrtle Avenue **0.3 miles**
7) Turn right at Washington Park **0.3 miles**
8) Turn right at DeKalb Avenue **0.3 miles**

Route To the Nearest Hospital:



4.4.3 *Response Procedures*

4.4.3.1 *Emergency Contacts/Notification System*

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of Section 4.4.1. The list is also posted prominently at the Site and made readily available to all personnel at all times.

- Evacuation plans;
- Amendments to the contingency plan.

5.0 SITE MANAGEMENT REPORTING PLAN

5.1 INTRODUCTION

A Periodic Site Management Report will be submitted to NYSDEC each year by June 1. The Site Management Report will be prepared in accordance with NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation requirements.

This report will include the following:

- Identification of all required EC/ICs required by the Remedial Action Work Plan for the Site and adjacent sidewalks;
- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
- Assessment of the continued effectiveness of all Institutional and Engineering Controls for the Site and adjacent sidewalks;
- Certification of the EC/ICs;
- Results of the required periodic Inspections; and
- All deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan, Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

Information of EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the ECs will occur at a frequency described in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan. Following annual, or other specified period approved by NYSDEC, inspection, a qualified environmental professional will sign and certify the document. The document will certify that:

- On-Site and adjacent sidewalk ECs are unchanged from the previous certification;

- They remain in-place and effective;
- The systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls;
- Access is available to the Site and adjacent sidewalks by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- Site usage is compliant with the environmental easement.

The signed certification will be included in the Periodic Site Management Report (see Section 5.3).

5.3 SITE AND ADJACENT SIDEWALK INSPECTIONS

5.3.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, inspections will be conducted:

- Annually, or other specified period approved by NYSDEC;
- When a breakdown of the SSD system has occurred; and
- Whenever a severe condition has taken place that may affect the ECs.

5.3.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system (see Appendix G). Additionally, a general Inspection Form will be completed during the inspection (see Appendix G).

All applicable inspection forms and other records (including all sampling data of any media at the Site and adjacent sidewalk and system maintenance reports) generated during the calendar year will be included in the Periodic Site Management Report.

5.3.3 Evaluation of Records and Reporting

The results of the inspection and monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.4 SITE MANAGEMENT REPORT

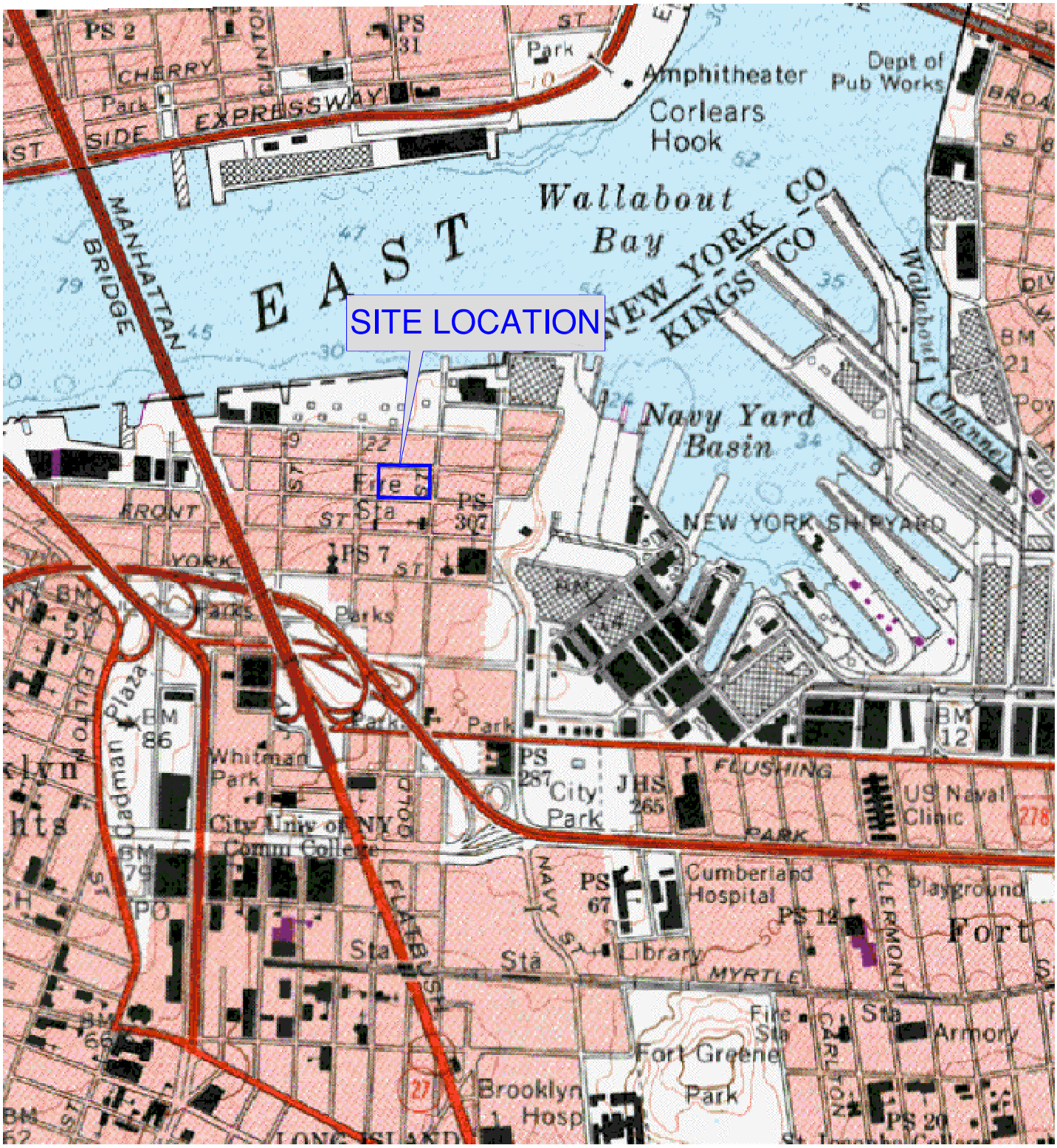
The Site Management Report will be submitted annually, or other specified period approved by NYSDEC, by June 1 each year following the reporting period (the prior calendar year or other specified period approved by NYSDEC). The Site Management Report will include the results of any air sampling, if applicable. The report will include:

- EC certification;
- All applicable inspection forms and other records generated during the reporting period;
- Cumulative data summary tables and/or graphical representations of contaminants of concern, which include a listing of all compounds analyzed along with the applicable standards, with all exceedances highlighted;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables required for all points sampled during the reporting period, as applicable (also to be submitted electronically in the NYSDEC-specified format);

- A performance summary for the SSD system at the Site during the reporting period, including information such as:
    - The number of days the system was run for the reporting period;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A summary of the performance and/or effectiveness monitoring;
    - Comments, conclusions, and recommendations based on data evaluation; and
    - Description of the resolution of any performance problems, if relevant.
- An evaluation, which will address the following:
    - The compliance of the remedy with the requirements of the RAWP and FER;
    - The performance and effectiveness of the remedy;
    - The operation and the effectiveness of the SSD system, including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding contamination based on inspections or data generated by the Monitoring Plan for the media being monitored, as applicable; and
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan.
- A figure showing sampling locations, and significant analytical values at sampling locations; and
- Comments, conclusions, and recommendations, based on an evaluation of the information included in the report, regarding EC/ICs at the Site and the adjacent sidewalk areas.

The Site Management Report will be submitted, in hard-copy format and in electronic format to NYSDEC and NYSDOH.

Figures



0 1,000 2,000

GRAPHIC SCALE

N

REFERENCE:
A PORTION OF USGS 7.5 MINUTE TOPOGRAPHIC MAP; BROOKLYN QUADRANGLE, NEW YORK; 1969; PHOTREVISED 1979.

TITLE

SITE LOCATION MAP
220 WATER STREET
BROOKLYN, NEW YORK

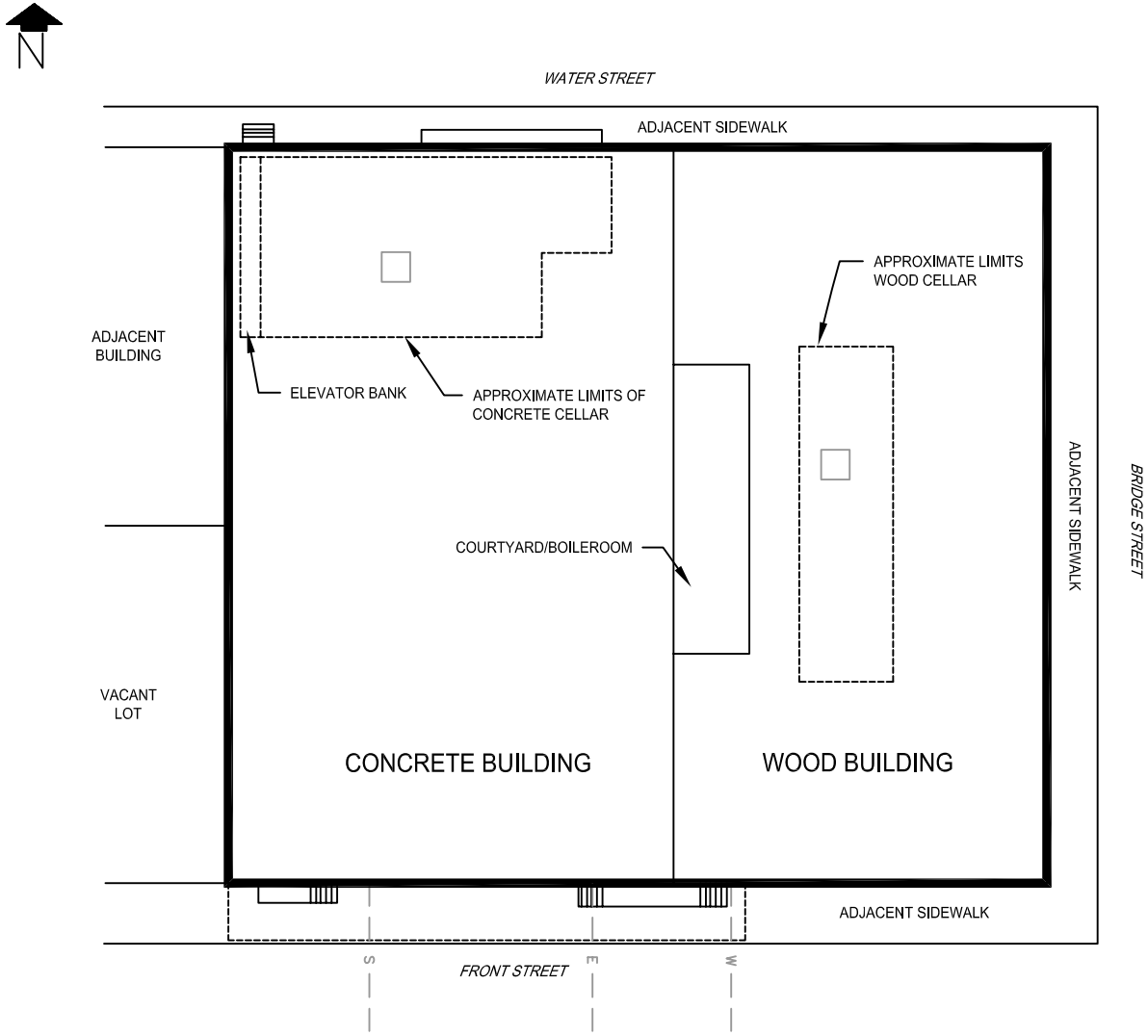
PREPARED FOR

220 WATER STREET

ERM Environmental Resources Management

SCALE	FIGURE
GRAPHIC	1 – 1

DRAWN:	JOB NO.:	FILE NAME:	DATE
JMC/EMF	0022103	0022103–00–14	2/28/07



LEGEND

- DRAIN (CONCRETE CELLER)/AREA OF MISSING CONCRETE(WOOD CELLER)
- SITE BOUNDARY

NOTES:
1. EXTERIOR LOCATIONS TO SCALE
2. INTERIOR LOCATIONS ARE APPROXIMATE
SOURCE: BASED ON JADE ENVIRONMENTAL, INC. DRAWING DATED 07/09/04

50 25 0 50
SCALE IN FEET

TITLE

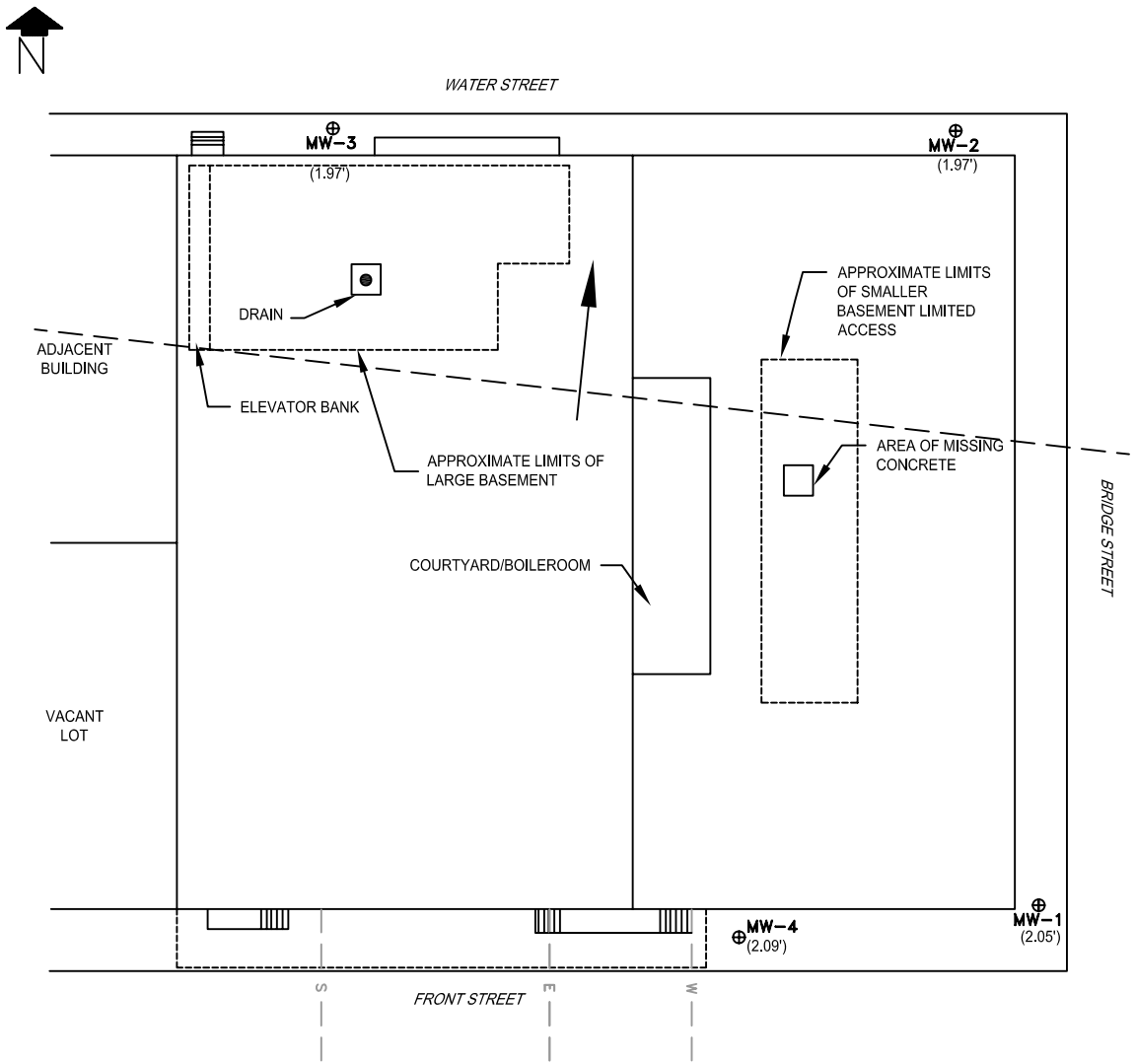
SITE BOUNDARY AND ADJACENT SIDEWALK AREA
220 WATER STREET
BROOKLYN, NY

PREPARED FOR

220 WATER STREET

ERM Environmental Resources Management

DRAWN:	JOB NO.:	FILE NAME:	SCALE	FIGURE
MLB/EMF	0022103	0022103-00-002	GRAPHIC	1-2
			DATE 02/15/08	



LEGEND

⊕ MONITORING WELL

(1.97') GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

GROUNDWATER ELEVATION CONTOUR

DIRECTION OF GROUNDWATER FLOW

DRAIN

NOTES:

Well location per property survey by Keller and Kirkpatrick

50 25 0 50

SCALE IN FEET

TITLE

GROUNDWATER FLOW MAP
OCTOBER 2006
220 WATER STREET
BROOKLYN, NY

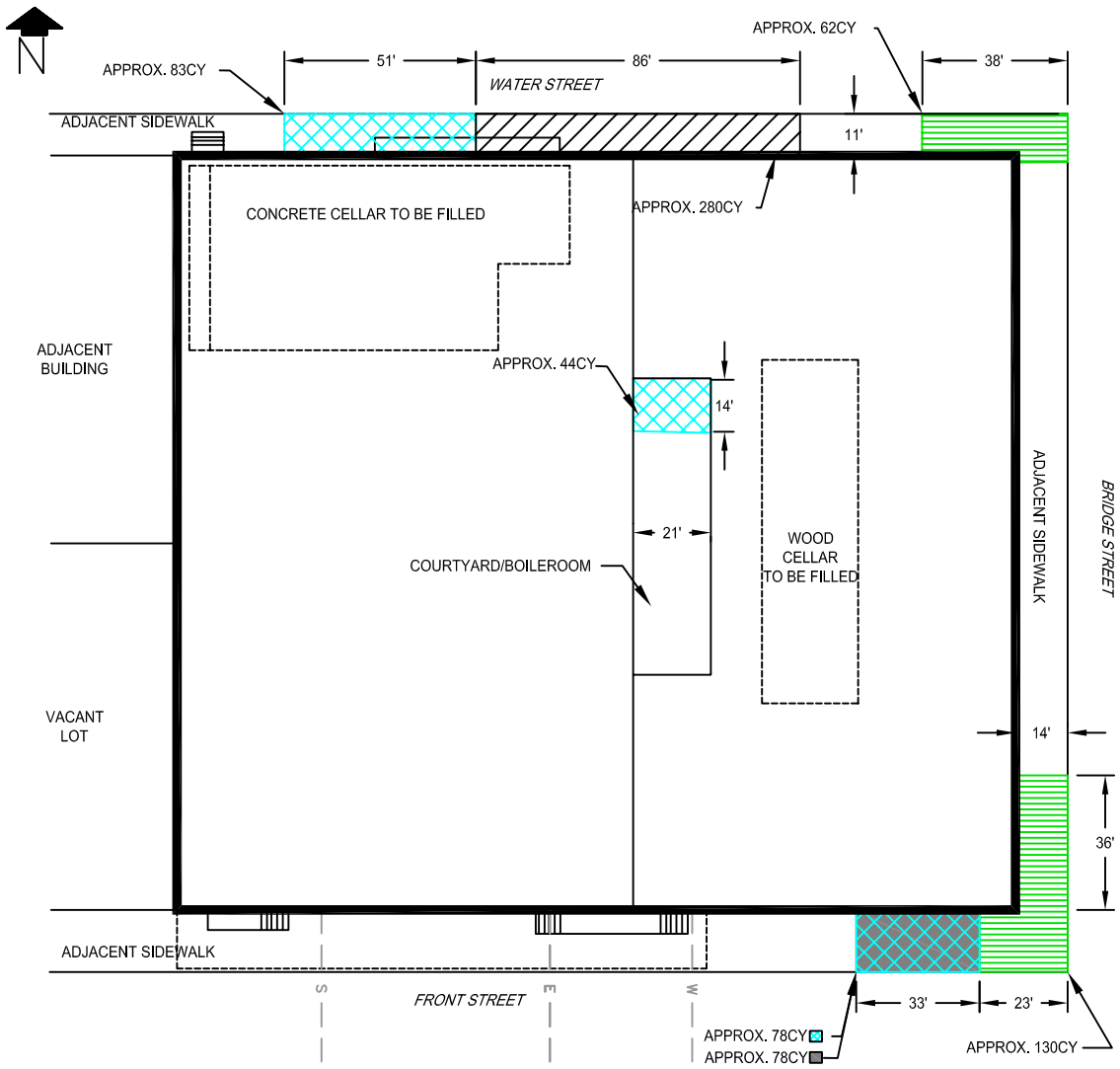
PREPARED FOR

220 WATER STREET

ERM Environmental Resources Management

SCALE	FIGURE
GRAPHIC	1-3

DRAWN:	JOB NO.:	FILE NAME:	DATE
JMC/EMF	0022103	0022103-00-025	12/14/06



LEGEND

- SITE BOUNDARY
- 0 - 4' EXCAVATION WITH TOTAL LEAD > 400 mg/kg (192 CY)
- 0 - 4' EXCAVATION WITH TOTAL LEAD > 400 mg/kg (192 CY)
- 0 - 4' EXCAVATION WITH TOTAL LEAD > 1,000 mg/kg (205CY)
- 0 - 8' EXCAVATION WITH TOTAL LEAD > 1,000 mg/kg (280CY)
- 4 - 8' EXCAVATION WITH TOTAL LEAD > 400 mg/kg (78CY)
- CELLAR TO BE FILLED AND PERMANENTLY SEALED
- 10' MEASUREMENT IN FEET

NOTES:
1. EXTERIOR LOCATIONS TO SCALE
2. INTERIOR LOCATIONS ARE APPROXIMATE
3. SCO = SOIL CLEANUP OBJECTIVE
4. CY = CUBIC YARDS
5. INDICATED VOLUMES INCLUDE OVERLYING CONCRETE
6. THIS FIGURE IS PROVIDED FOR THE SOLE PURPOSE OF ILLUSTRATING THE LOCATION AND DEPTH OF SOIL ABOVE THE SITE SOIL CLEANUP OBJECTIVES (SCO) AND REQUIRING EXCAVATION. ANY MEANS NEEDED TO PROTECT THE INTEGRITY OF THE BUILDING, UTILITIES, SIDEWALK, STREETS, OR ANY OTHER ADJACENT STRUCTURES IS THE RESPONSIBILITY OF OTHERS.

SOURCE: BASED ON JADE ENVIRONMENTAL, INC. DRAWING DATED 07/09/04, AND KELLER AND KIRKPATRICK SURVEY

50 25 0 50
SCALE IN FEET

TITLE

SOIL EXCAVATION TO RESTRICTED-RESIDENTIAL USE SCO FOR LEAD BENEATH ADJACENT SIDEWALKS AND TO 1,000mg/kg BENEATH SITE

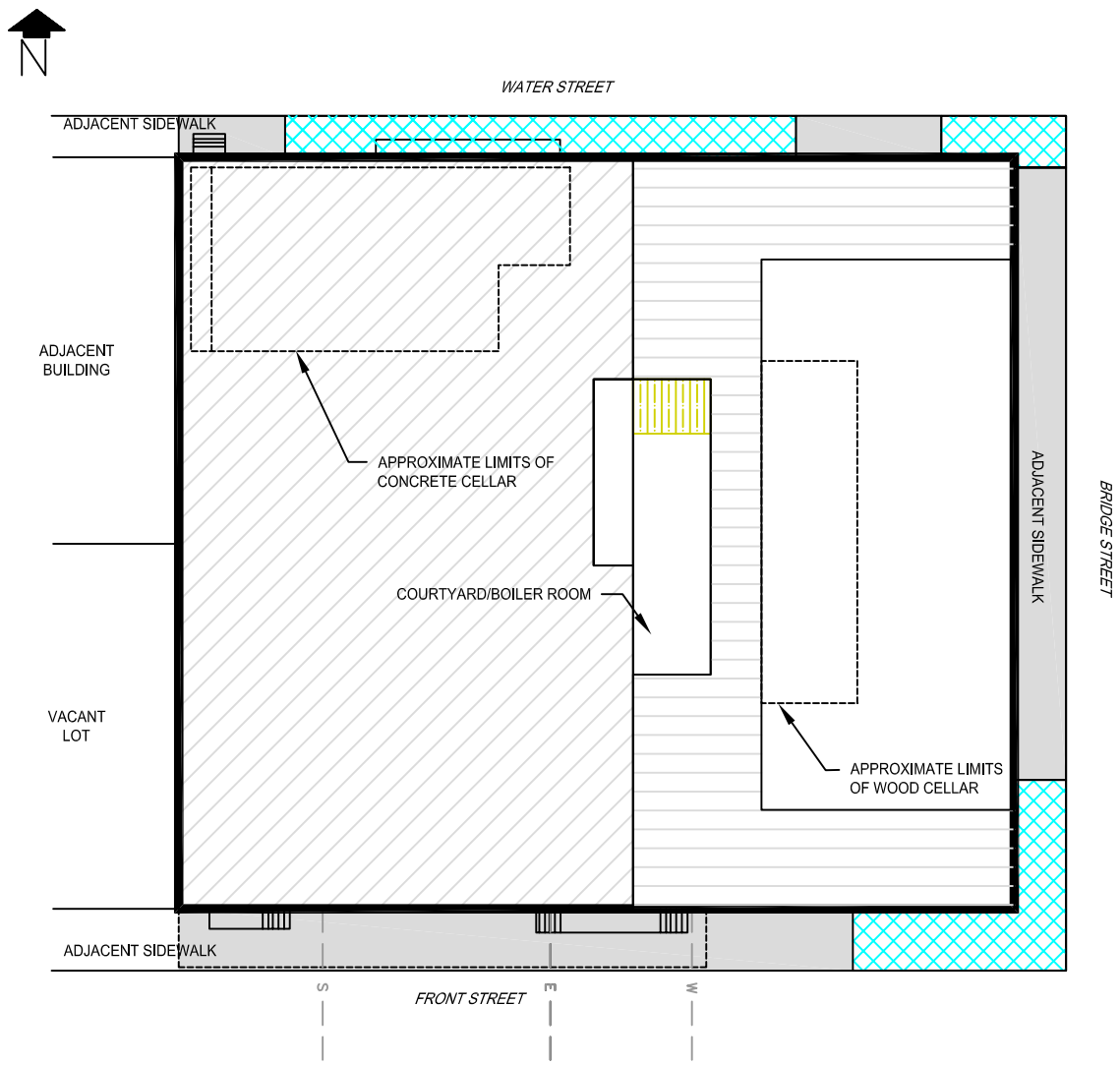
PREPARED FOR

220 WATER STREET

ERM Environmental Resources Management

SCALE	FIGURE
GRAPHIC	2-1

DRAWN:	JOB NO.:	FILE NAME:	DATE
MLB/EMF	0022103	0022103-00-020	2/15/08



LEGEND

- SITE BOUNDARY
- APPROXIMATE AREA OF CELLAR TO BE FILLED.
- APPROXIMATE AREA OF EXISTING FLOOR TO REMAIN IN PLACE. ADDITIONAL CONCRETE MAY BE POURED OVER THE EXISTING FLOOR.
- APPROXIMATE AREA OF CONCRETE SLAB TO BE REMOVED AND REPLACED OR ADDITIONAL SLAB TO BE POURED. FINAL COVER WILL BE MINIMUM 6" TOTAL THICKNESS OF ASTM #5 AGGREGATE AND CONCRETE.
- APPROXIMATE AREA OF AREA TO BE EXCAVATED AND DISPOSED OFF-SITE (SEE NOTE 1) THE FINAL COVER WILL BE MINIMUM 6" TOTAL THICKNESS OF ASTM#5 AGGREGATE AND CONCRETE.
- APPROXIMATE AREA OF ADJACENT SIDEWALK AREA TO BE EXCAVATED AND DISPOSED OFF-SITE (SEE NOTE).THE FINAL COVER WILL BE MINIMUM 6" TOTAL THICKNESS OF CLEAN FILL/AGGREGATE AND CONCRETE.
- APPROXIMATE AREA OF EXISTING CONCRETE SIDEWALK TO REMAIN IN PLACE (SEE NOTE 2).
- APPROXIMATE AREA OF WOOD FLOORING/CONCRETE SLAB TO BE REMOVED. CONCRETE SLAB TO BE POURED. FINAL COVER WILL BE MINIMUM 6" TOTAL THICKNESS OF AGGREGATE/CLEAN FILL AND CONCRETE.

SOURCE: BASED ON JADE ENVIRONMENTAL, INC. DRAWING DATED 07/09/04.

NOTES:

1. THESE AREAS ARE TO HAVE SNOW FENCING PLACED AT BASE OF EXCAVATION TO DISTINGUISH BETWEEN COVER AND NATIVE MATERIALS.
2. SOIL TO A DEPTH OF TWO FEET BELOW GRADE BENEATH ADJACENT SIDEWALKS MAY BE EXCAVATED AND DISPOSED OFF-SITE TO ALLOW FOR TWO FEET OF CLEAN FILL FOR CURB BOXES/PLANTIGS TO BE INSTALLED.

50 25 0 50

SCALE IN FEET

TITLE

COVER FOR SITE AND ADJACENT SIDEWALK AREAS
220 WATER STREET
BROOKLYN, NY

PREPARED FOR

220 WATER STREET

ERM Environmental Resources Management

SCALE	FIGURE
GRAPHIC	2-2
DATE	
2/11/08	

DRAWN:	JOB NO.:	FILE NAME:
JMC/EMF	0022103	0022103-00-030

R:\Melville Projects\220 water street\REPORT\FIGURE 2-2.dwg (03/17/2008 - 5:07pm Boston)

Tables

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB1** **0** **4** **5/28/2004** **Primary Exterior**	**SB1** **4** **8** **5/28/2004** **Primary Exterior**	**SB2** **0** **4** **5/28/2004** **Primary Exterior**	**SB2** **4** **8** **5/28/2004** **Primary Exterior**	**SB-2** **4** **6** **12/7/2005** **Primary Exterior**	**SB-2** **6** **8** **12/7/2005** **Primary Exterior**	**SB3** **0** **3.5** **5/28/2004** **Primary Exterior**	**SB4** **0** **3.5** **5/28/2004** **Primary Exterior**
Aluminum									
Antimony									
Arsenic	13	2.53	6.94	[54]	7.75			7.82	3
Barium	350	53.4	62.3	128	180			57.1	40.2
Beryllium	7.2								
Cadmium	2.5	1 U	0.5 U	0.62	0.73			0.5 U	0.5 U
Calcium									
Chromium	30	13.2	13.4	[60.8]	15			18.7	10.8
Cobalt									
Copper	50								
Iron									
Lead	63	40.8	[75]	[2910]	[479]	24.1 J	23.2 J	[69.3]	5.94
Magnesium									
Manganese	1600								
Mercury	0.18	0.1 U	[0.19]	0.1 U	[0.32]			0.1 U	0.1 U
Nickel	30								
Potassium									
Selenium	3.9	1.4	1 U	2.26	1.25			1.19	1
Silver	2	2 U	0.5 U	0.5 U	0.5 U			0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	109								
Hexavalent Chromium	1								

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB5** **0** **4** **5/28/2004** **Primary** **Exterior**	**SB5** **2** **4** **12/2/2005** **Primary** **Exterior**	**SB5** **4** **6** **12/2/2005** **Primary** **Exterior**	**SB6** **0** **4** **5/28/2004** **Primary** **Exterior**	**SB6** **2** **3** **12/2/2005** **Primary** **Exterior**	**SB7** **0** **3** **5/28/2004** **Primary** **Interior**	**SB8** **0** **4** **5/28/2004** **Primary** **Interior**	**SB9** **0** **4** **5/28/2004** **Primary** **Interior**
Aluminum									
Antimony									
Arsenic	13	6.61			4.36		3.23	6.25	[19.2]
Barium	350	96			121		88.9	91	[1160]
Beryllium	7.2								
Cadmium	2.5	0.5 U			0.5 U		0.5 U	1.87	[7.84]
Calcium									
Chromium	30	12.1			15.8		14.6	18.6	[120]
Cobalt									
Copper	50								
Iron									
Lead	63	[808]	[531] J	28.5 J	[8940]	[6710] J	16.6	[125]	[500]
Magnesium									
Manganese	1600								
Mercury	0.18	[0.27]			0.1 U		0.1 U	0.11	[0.31]
Nickel	30								
Potassium									
Selenium	3.9	1 U			1.23		1.14	1 U	3.83
Silver	2	0.5 U			0.5 U		0.5 U	0.5 U	1.63
Sodium									
Thallium									
Vanadium									
Zinc	109								
Hexavalent Chromium	1								

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Unrestricted Use SCO	SB-9 0 2 12/8/2005 Primary Interior	SB-9 0 2 12/8/2005 Duplicate Interior	SB10 0 2 11/30/2005 Primary Interior	SB10 2 4 11/30/2005 Primary Interior	SB10 4 6 11/30/2005 Primary Interior	SB10 4 6 11/30/2005 Duplicate Interior	SB10 6 8 11/30/2005 Primary Interior
Aluminum		4250 J	2960 J		5370			
Antimony		14.4 U J	15.3 U J		16.4 U J			
Arsenic	13	9.3 J	4.7 J		3 J			
Barium	350	136 J	87.4 J		108			
Beryllium	7.2	2.5 U	2.6 U		2.8 U			
Cadmium	2.5	2.1 J	3.9 U		[13]			
Calcium		6990 J	4140 J		9940			
Chromium	30	23.4 J	13.7 J		39			
Cobalt		9.2 J	4.7 J		6.3			
Copper	50	[466] J	[184] J		27.1			
Iron		46000 J	14400 J		14000			
Lead	63	[185] J	[124] J	[773]	[99]	[112] J	15.7 J	50.5
Magnesium		4640 J	2740 J		5910			
Manganese	1600	379 J	237 J		231			
Mercury	0.18	0.12 J	0.084 J		[0.93]			
Nickel	30	29.1 J	17 J		25.3			
Potassium		1010 J	620 J		1580 J			
Selenium	3.9	19.7 U	21 U		22.4 U			
Silver	2	0.44 J	3.9 U		4.2 U			
Sodium		97.4 J	75.1 J		106 J			
Thallium		24.6 U J	26.2 U J		28 U J			
Vanadium		16.1 J	10.1 J		20.8			
Zinc	109	[800] J	[487] J		99.5			
Hexavalent Chromium	1							

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB11** **0** **2** **12/1/2005** **Primary** **Interior**	**SB11** **2** **4** **12/1/2005** **Primary** **Interior**	**SB11** **4** **6** **12/1/2005** **Primary** **Interior**	**SB13** **1** **2** **11/29/2005** **Primary** **Interior**	**SB2-1** **0** **4** **6/24/2004** **Primary** **Exterior**	**SB2-1** **4** **8** **6/24/2004** **Primary** **Exterior**	**SB2-2** **0** **4** **6/24/2004** **Primary** **Exterior**	**SB2-2** **4** **7** **6/24/2004** **Primary** **Exterior**
Aluminum		6360							
Antimony		14.1 U J							
Arsenic	13	2.4 J				11.3	2.55	4.58	3.46
Barium	350	49.1				128	32.9	124	82.2
Beryllium	7.2	2.4 U							
Cadmium	2.5	3.6 U				0.5 U	0.5 U	0.5 U	0.5 U
Calcium		12800							
Chromium	30	10.3				20	7.7	14.7	13
Cobalt		40.5							
Copper	50	16.4							
Iron		10800							
Lead	63	[90.8]	5.0 J	6.1 J	[521]	[1270]	4.79	[2450]	[1730]
Magnesium		3340							
Manganese	1600	335 J							
Mercury	0.18	0.044 U				0.11	0.1 U	[1.51]	0.1 U
Nickel	30	16.6							
Potassium		1480 J							
Selenium	3.9	19.3 U				1 U	1 U	1 U	1 U
Silver	2	3.6 U				0.5 U	0.5 U	0.5 U	0.5 U
Sodium		173							
Thallium		24.1 U J							
Vanadium		13.5							
Zinc	109	47.8							
Hexavalent Chromium	1					[1.74]			

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB2-2** **6** **8** **12/2/2005** **Primary Exterior**	**SB2-2** **8** **10** **12/2/2005** **Primary Exterior**	**SB2-2** **10** **12** **12/2/2005** **Primary Exterior**	**SB2-3** **0** **4** **6/24/2004** **Primary Exterior**	**SB2-3** **4** **8** **6/24/2004** **Primary Exterior**	**SB2-3** **8** **12** **6/24/2004** **Primary Exterior**	**SB2-3** **12** **16** **6/24/2004** **Primary Exterior**	**SB2-3** **16** **20** **6/24/2004** **Primary Exterior**
Aluminum									
Antimony									
Arsenic	13				3.27	5.08	3.01	3.45	4.31
Barium	350				37.7	34	34.3	42	37.5
Beryllium	7.2								
Cadmium	2.5				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium									
Chromium	30				10.1	29.6	10.9	14.8	[30.3]
Cobalt									
Copper	50								
Iron									
Lead	63	[79.5] J	[86.2] J	17.4 J	[88.9]	52.8	31.3	30.9	3.61
Magnesium									
Manganese	1600								
Mercury	0.18				0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	30								
Potassium									
Selenium	3.9				1 U	1 U	1 U	1 U	1 U
Silver	2				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	109								
Hexavalent Chromium	1								0.5 U

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB2-4** **0** **4** **6/24/2004** **Primary** **Exterior**	**SB2-4** **4** **7** **6/24/2004** **Primary** **Exterior**	**SB2-5A** **0** **4** **6/24/2004** **Primary** **Exterior**	**SB2-5A** **4** **8** **6/24/2004** **Primary** **Exterior**	**SB2-5A** **8** **12** **6/24/2004** **Primary** **Exterior**	**SB2-6** **0** **4** **6/24/2004** **Primary** **Exterior**	**SB2-6** **0** **2** **12/5/2005** **Primary** **Exterior**	**SB2-6** **2** **4** **12/5/2005** **Primary** **Exterior**
Aluminum									
Antimony									
Arsenic	13	[16.8]	2.08	4.05	3.88	3.15	11.7		
Barium	350	56.7	30.6	121	49.3	52.1	43.4		
Beryllium	7.2								
Cadmium	2.5	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U		
Calcium									
Chromium	30	26.9	12.6	27.6	12.9	14.8	13.6		
Cobalt									
Copper	50								
Iron									
Lead	63	[97.5]	6.97	2.69	16.2	10.8	[243]	[519] J	[592] J
Magnesium									
Manganese	1600								
Mercury	0.18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		
Nickel	30								
Potassium									
Selenium	3.9	1 U	1 U	1 U	1 U	1 U	1 U		
Silver	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		
Sodium									
Thallium									
Vanadium									
Zinc	109								
Hexavalent Chromium	1								

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB2-6** **4** **6** **12/5/2005** **Primary** **Exterior**	**SB3-2** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-3** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-4** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-5** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-6** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-09** **1** **3** **6/24/2004** **Primary** **Interior**	**SB3-10** **1** **3** **6/24/2004** **Primary** **Interior**
Aluminum									
Antimony									
Arsenic	13		2.62	2.22	2.56	2.12	5.61	2.6	4.39
Barium	350		3.4	74	67.8	69.9	184	54.2	83.4
Beryllium	7.2								
Cadmium	2.5		0.5 U	0.5 U	0.5 U	1.41	0.99	0.5 U	0.77
Calcium									
Chromium	30		11.3	9.06	13.1	10.6	23.3	13.8	18.6
Cobalt									
Copper	50								
Iron									
Lead	63	[63.1]	4.99	4.8	3.2	[3770]	[68.2]	59.2	43.4
Magnesium									
Manganese	1600								
Mercury	0.18		0.1 U	0.1 U	0.1 U	0.13	0.1 U	0.1 U	0.1 U
Nickel	30								
Potassium									
Selenium	3.9		1 U	1 U	1 U	1 U	1.02	1 U	1.13
Silver	2		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	109								
Hexavalent Chromium	1								

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Unrestricted Use SCO**	**SB3-11** **1** **3** **6/25/2004** **Primary Interior**	**SB3-12** **1** **3** **6/24/2004** **Primary Interior**	**Interior Composite** **5/28/2004** **Primary Composite**	**Exterior Composite** **5/28/2004** **Primary Composite**
Aluminum					
Antimony					
Arsenic	13	12.3	2.64	[13.4]	7.24
Barium	350	181	51.9	[468]	85.7
Beryllium	7.2				
Cadmium	2.5	[5.52]	0.5 U	[3.06]	0.5 U
Calcium					
Chromium	30	[57]	15.5	[40.1]	15.4
Cobalt					
Copper	50				
Iron					
Lead	63	[424]	51.8	[231]	[1560]
Magnesium					
Manganese	1600				
Mercury	0.18	0.1 U	0.1 U		
Nickel	30				
Potassium					
Selenium	3.9	1.09	1 U	1.91	1.29
Silver	2	0.67	0.5 U		
Sodium					
Thallium					
Vanadium					
Zinc	109				
Hexavalent Chromium	1	0.1 U			

See the Endnotes following the last page of this table.

Table 1-1A
Pre-Remedial Action Soil Sample Results – Metals
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Notes:

- mg/kg = milligrams per kilogram (parts per million; ppm).
- The samples were analyzed for Target Analyte List (TAL) Metals with mercury analyzed by USEPA Method 7471A and all other metals analyzed by USEPA Method 6010B. Certain samples were also analyzed for Hexavalent Chromium by USEPA Method 7196A. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Unrestricted Use SCO = New York State Department of Environmental Conservation Unrestricted Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Subpart 375-6.8(a).
- Bracketed values indicate an exceedance of NYSDEC Unrestricted Use SCO.
- Soil samples were analyzed for total chromium. There is not a Part 375 SCO for total chromium. Thus, the SCO listed in Part 375 for trivalent chromium was used for comparison.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The analyte was positively identified at the associated numerical value which is the concentration of the analyte in the sample.
U	Non-Detect. The analyte was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The analyte was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The analyte was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB1 0 4 5/28/2004 Primary Exterior	SB1 4 8 5/28/2004 Primary Exterior	SB2 0 4 5/28/2004 Primary Exterior	SB2 4 8 5/28/2004 Primary Exterior	SB-2 4 6 12/7/2005 Primary Exterior	SB-2 6 8 12/7/2005 Primary Exterior	SB3 0 3.5 5/28/2004 Primary Exterior	SB4 0 3.5 5/28/2004 Primary Exterior
Aluminum									
Antimony									
Arsenic	16	2.53	6.94	[54]	7.75			7.82	3
Barium	400	53.4	62.3	128	180			57.1	40.2
Beryllium	72								
Cadmium	4.3	1 U	0.5 U	0.62	0.73			0.5 U	0.5 U
Calcium									
Chromium	180	13.2	13.4	60.8	15			18.7	10.8
Cobalt									
Copper	270								
Iron									
Lead	400	40.8	75	[2910]	[479]	24.1 J	23.2 J	69.3	5.94
Magnesium									
Manganese	2000								
Mercury	0.81	0.1 U	0.19	0.1 U	0.32			0.1 U	0.1 U
Nickel	310								
Potassium									
Selenium	180	1.4	1 U	2.26	1.25			1.19	1
Silver	180	2 U	0.5 U	0.5 U	0.5 U			0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	10000								
Hexavalent Chromium	110								

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB5 0 4 5/28/2004 Primary Exterior	SB5 2 4 12/2/2005 Primary Exterior	SB5 4 6 12/2/2005 Primary Exterior	SB6 0 4 5/28/2004 Primary Exterior	SB6 2 3 12/2/2005 Primary Exterior	SB7 0 3 5/28/2004 Primary Interior	SB8 0 4 5/28/2004 Primary Interior	SB9 0 4 5/28/2004 Primary Interior
Aluminum									
Antimony									
Arsenic	16	6.61			4.36		3.23	6.25	[19.2]
Barium	400	96			121		88.9	91	[1160]
Beryllium	72								
Cadmium	4.3	0.5 U			0.5 U		0.5 U	1.87	[7.84]
Calcium									
Chromium	180	12.1			15.8		14.6	18.6	120
Cobalt									
Copper	270								
Iron									
Lead	400	[808]	[531] J	28.5 J	[8940]	[6710] J	16.6	125	[500]
Magnesium									
Manganese	2000								
Mercury	0.81	0.27			0.1 U		0.1 U	0.11	0.31
Nickel	310								
Potassium									
Selenium	180	1 U			1.23		1.14	1 U	3.83
Silver	180	0.5 U			0.5 U		0.5 U	0.5 U	1.63
Sodium									
Thallium									
Vanadium									
Zinc	10000								
Hexavalent Chromium	110								

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB-9 0 2 12/8/2005 Primary Interior	SB-9 0 2 12/8/2005 Duplicate Interior	SB10 0 2 11/30/2005 Primary Interior	SB10 2 4 11/30/2005 Primary Interior	SB10 4 6 11/30/2005 Primary Interior	SB10 4 6 11/30/2005 Duplicate Interior	SB10 6 8 11/30/2005 Primary Interior
Aluminum		4250 J	2960 J		5370			
Antimony		14.4 U J	15.3 U J		16.4 U J			
Arsenic	16	9.3 J	4.7 J		3 J			
Barium	400	136 J	87.4 J		108			
Beryllium	72	2.5 U	2.6 U		2.8 U			
Cadmium	4.3	2.1 J	3.9 U		[13]			
Calcium		6990 J	4140 J		9940			
Chromium	180	23.4 J	13.7 J		39			
Cobalt		9.2 J	4.7 J		6.3			
Copper	270	[466] J	184 J		27.1			
Iron		46000 J	14400 J		14000			
Lead	400	185 J	124 J	[773]	99	112 J	15.7 J	50.5
Magnesium		4640 J	2740 J		5910			
Manganese	2000	379 J	237 J		231			
Mercury	0.81	0.12 J	0.084 J		[0.93]			
Nickel	310	29.1 J	17 J		25.3			
Potassium		1010 J	620 J		1580 J			
Selenium	180	19.7 U	21 U		22.4 U			
Silver	180	0.44 J	3.9 U		4.2 U			
Sodium		97.4 J	75.1 J		106 J			
Thallium		24.6 U J	26.2 U J		28 U J			
Vanadium		16.1 J	10.1 J		20.8			
Zinc	10000	800 J	487 J		99.5			
Hexavalent Chromium	110							

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB11 0 2 12/1/2005 Primary Interior	SB11 2 4 12/1/2005 Primary Interior	SB11 4 6 12/1/2005 Primary Interior	SB13 1 2 11/29/2005 Primary Interior	SB2-1 0 4 6/24/2004 Primary Exterior	SB2-1 4 8 6/24/2004 Primary Exterior	SB2-2 0 4 6/24/2004 Primary Exterior	SB2-2 4 7 6/24/2004 Primary Exterior
Aluminum		6360							
Antimony		14.1 U J							
Arsenic	16	2.4 J				11.3	2.55	4.58	3.46
Barium	400	49.1				128	32.9	124	82.2
Beryllium	72	2.4 U							
Cadmium	4.3	3.6 U				0.5 U	0.5 U	0.5 U	0.5 U
Calcium		12800							
Chromium	180	10.3				20	7.7	14.7	13
Cobalt		40.5							
Copper	270	16.4							
Iron		10800							
Lead	400	90.8	5.0 J	6.1 J	[521]	[1270]	4.79	[2450]	[1730]
Magnesium		3340							
Manganese	2000	335 J							
Mercury	0.81	0.044 U				0.11	0.1 U	[1.51]	0.1 U
Nickel	310	16.6							
Potassium		1480 J							
Selenium	180	19.3 U				1 U	1 U	1 U	1 U
Silver	180	3.6 U				0.5 U	0.5 U	0.5 U	0.5 U
Sodium		173							
Thallium		24.1 U J							
Vanadium		13.5							
Zinc	10000	47.8							
Hexavalent Chromium	110					1.74			

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB2-2 6 8 12/2/2005 Primary Exterior	SB2-2 8 10 12/2/2005 Primary Exterior	SB2-2 10 12 12/2/2005 Primary Exterior	SB2-3 0 4 6/24/2004 Primary Exterior	SB2-3 4 8 6/24/2004 Primary Exterior	SB2-3 8 12 6/24/2004 Primary Exterior	SB2-3 12 16 6/24/2004 Primary Exterior	SB2-3 16 20 6/24/2004 Primary Exterior
Aluminum									
Antimony									
Arsenic	16				3.27	5.08	3.01	3.45	4.31
Barium	400				37.7	34	34.3	42	37.5
Beryllium	72								
Cadmium	4.3				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium									
Chromium	180				10.1	29.6	10.9	14.8	30.3
Cobalt									
Copper	270								
Iron									
Lead	400	79.5 J	86.2 J	17.4 J	88.9	52.8	31.3	30.9	3.61
Magnesium									
Manganese	2000								
Mercury	0.81				0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	310								
Potassium									
Selenium	180				1 U	1 U	1 U	1 U	1 U
Silver	180				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	10000								
Hexavalent Chromium	110								0.5 U

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB2-4 0 4 6/24/2004 Primary Exterior	SB2-4 4 7 6/24/2004 Primary Exterior	SB2-5A 0 4 6/24/2004 Primary Exterior	SB2-5A 4 8 6/24/2004 Primary Exterior	SB2-5A 8 12 6/24/2004 Primary Exterior	SB2-6 0 4 6/24/2004 Primary Exterior	SB2-6 0 2 12/5/2005 Primary Exterior	SB2-6 2 4 12/5/2005 Primary Exterior
Aluminum									
Antimony									
Arsenic	16	[16.8]	2.08	4.05	3.88	3.15	11.7		
Barium	400	56.7	30.6	121	49.3	52.1	43.4		
Beryllium	72								
Cadmium	4.3	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U		
Calcium									
Chromium	180	26.9	12.6	27.6	12.9	14.8	13.6		
Cobalt									
Copper	270								
Iron									
Lead	400	97.5	6.97	2.69	16.2	10.8	243	[519] J	[592] J
Magnesium									
Manganese	2000								
Mercury	0.81	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		
Nickel	310								
Potassium									
Selenium	180	1 U	1 U	1 U	1 U	1 U	1 U		
Silver	180	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		
Sodium									
Thallium									
Vanadium									
Zinc	10000								
Hexavalent Chromium	110								

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) **Ending Depth (feet)** **CONSTITUENT (mg/kg)**	**NYSDEC Restricted Use SCO Restricted - Residential**	**SB2-6** **4** **6** **12/5/2005** **Primary Exterior**	**SB3-2** **1** **3** **6/24/2004** **Primary Interior**	**SB3-3** **1** **3** **6/24/2004** **Primary Interior**	**SB3-4** **1** **3** **6/24/2004** **Primary Interior**	**SB3-5** **1** **3** **6/24/2004** **Primary Interior**	**SB3-6** **1** **3** **6/24/2004** **Primary Interior**	**SB3-09** **1** **3** **6/24/2004** **Primary Interior**	**SB3-10** **1** **3** **6/24/2004** **Primary Interior**
Aluminum									
Antimony									
Arsenic	16		2.62	2.22	2.56	2.12	5.61	2.6	4.39
Barium	400		3.4	74	67.8	69.9	184	54.2	83.4
Beryllium	72								
Cadmium	4.3		0.5 U	0.5 U	0.5 U	1.41	0.99	0.5 U	0.77
Calcium									
Chromium	180		11.3	9.06	13.1	10.6	23.3	13.8	18.6
Cobalt									
Copper	270								
Iron									
Lead	400	63.1	4.99	4.8	3.2	[3770]	68.2	59.2	43.4
Magnesium									
Manganese	2000								
Mercury	0.81		0.1 U	0.1 U	0.1 U	0.13	0.1 U	0.1 U	0.1 U
Nickel	310								
Potassium									
Selenium	180		1 U	1 U	1 U	1 U	1.02	1 U	1.13
Silver	180		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Sodium									
Thallium									
Vanadium									
Zinc	10000								
Hexavalent Chromium	110								

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remdial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB3-11 1 3 6/25/2004 Primary Interior	SB3-12 1 3 6/24/2004 Primary Interior	Interior Composite 5/28/2004 Primary Composite	Exterior Composite 5/28/2004 Primary Composite
Aluminum					
Antimony					
Arsenic	16	12.3	2.64	13.4	7.24
Barium	400	181	51.9	[468]	85.7
Beryllium	72				
Cadmium	4.3	[5.52]	0.5 U	3.06	0.5 U
Calcium					
Chromium	180	57	15.5	40.1	15.4
Cobalt					
Copper	270				
Iron					
Lead	400	[424]	51.8	231	[1560]
Magnesium					
Manganese	2000				
Mercury	0.81	0.1 U	0.1 U		
Nickel	310				
Potassium					
Selenium	180	1.09	1 U	1.91	1.29
Silver	180	0.67	0.5 U		
Sodium					
Thallium					
Vanadium					
Zinc	10000				
Hexavalent Chromium	110	0.1 U			

See the Endnotes following the last page of this table.

Table 1-1B
Pre-Remedial Action Soil Sample Results – Metals
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Notes:

- mg/kg = milligrams per kilogram (parts per million; ppm).
- The samples were analyzed for Target Analyte List (TAL) Metals with mercury analyzed by USEPA Method 7471A and all other metals analyzed by USEPA Method 6010B. Certain samples were also analyzed for Hexavalent Chromium by USEPA Method 7196A. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Restricted Use SCO Restricted-Residential = New York State Department of Environmental Conservation Restricted Use Soil Cleanup Objectives (SCOs) Restricted-Residential as presented in 6 NYCRR Subpart 375-6.8(b).
- Bracketed values indicate an exceedance of NYSDEC Restricted Use SCO Restricted-Residential.
- Soil samples were analyzed for total chromium. There is not a Part 375 SCO for total chromium. Thus, the SCO listed in Part 375 for trivalent chromium was used for comparison.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The analyte was positively identified at the associated numerical value which is the concentration of the analyte in the sample.
U	Non-Detect. The analyte was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The analyte was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The analyte was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-2
Pre-Remedial Action RCRA TCLP Metals Composite Soil Samples
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/l)	Regulatory Level	Interior Composite 6/25/2004 Primary	Exterior Composite 6/24/2004 Primary	Shallow Exterior Composite 6/24/2004 Primary	Clean Shallow Exterior Composite 6/24/2004 Primary	Clean Interior Composite 6/25/2004 Primary	INTERIOR A 1/13/2006 Primary
Arsenic	5	0.004 U	0.005	0.004 U	0.004 U	0.004 U	
Barium	100	0.868	1.13	1.35	1.21	1.17	
Cadmium	1	0.009	0.005 U	0.005 U	0.005 U	0.005 U	
Chromium	5	0.017	0.082	0.118	0.111	0.005 U	
Lead	5	[28.9]	0.852	[6.34]	0.618	0.092	2.27 J
Selenium	1	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Silver	5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Mercury	0.2	0.005 U	0.005 U	0.0096	0.0005 U	0.0005 U	

See the Endnotes following the last page of this table.

Table 1-2
Pre-Remedial Action RCRA TCLP Metals Composite Soil Samples
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (mg/l)	Regulatory Level	EXTERIOR A 1/13/2006 Primary	EXTERIOR B 1/13/2006 Primary
Arsenic	5		
Barium	100		
Cadmium	1		
Chromium	5		
Lead	5	2.96 J	[198] J
Selenium	1		
Silver	5		
Mercury	0.2		

See the Endnotes following the last page of this table.

Table 1-2
Pre-Remedial Action RCRA TCLP Metals Composite Soil Samples
220 Water Street
Brooklyn, New York

Notes:

- mg/l = milligrams per liter (parts per million; ppm).
- RCRA = Resource Conservation and Recovery Act; TCLP = Toxicity Characteristic Leaching Procedure
- The samples were analyzed for RCRA Metals prepared in accordance with USEPA SW-846 Method 1311 and mercury analyzed by USEPA Method 7470A and all other metals analyzed by USEPA Method 6010B. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- Interior Composite was composed of SB3-2 (1-3'), SB3-3 (1-3'), SB3-4 (1-3'), SB3-5 (1-3'), SB3-6 (1-3'), SB3-9 (1-3'), SB3-10 (1-3'), SB3-11 (1-3'), and SB3-12 (1-3').
- Exterior Composite was composed of SB2-1 (0-4' and 4-8'), SB2-2 (0-4' and 4-7'), SB2-3 (0-4', 4-8', 8-12', 12-16', and 16-20'), SB2-4 (0-4', 4-7'), SB2-5A (0-4', 4-8', and 8-12'), SB2-6 (0-4'), SB-1 (4-8'), and SB-2 (4-8').
- Shallow Exterior Composite was composed of samples SB2-1 (0'-4'), SB2-2 (0'-4'), SB2-3 (0'-4'), SB2-4 (0'-4'), SB2-5A (0'-4'), SB2-6 (0'-4').
- Clean Interior Composite was composed of samples SB3-2, SB3-3, SB3-4, SB3-6, SB3-9, SB3-11, SB3-12.
- Clean Shallow Exterior Composite was composed of SB2-3 (0'4'), SB2-4 (0'-4'), SB2-5A (0'-4'), and SB2-6 (0'-4').
- Interior A was composed of interior soil samples with lead concentrations between 400 mg/kg and 1,000 mg/kg: SB-10 (0-2') and SB-13 (1-2')
- Exterior A was composed of exterior soil samples with lead concentrations between 400 and 1,000 mg/kg: SB-5 (2-4'), SB2-6 (0-2'), and SB2-6 (4-6').
- Exterior B was composed of only one exterior soil sample exhibited a lead concentration greater than 1,000 mg/kg: SB-6 (2-3').

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.

Table 1-3A
Pre-Remedial Action Soil Sample Results - Volatile Organic Compounds (VOCs)
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (ug/kg)	NYSDEC Unrestricted Use SCO	SB1 0 4 5/28/2004 Primary	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
1,1,1,2-Tetrachloroethane		5 U					5 U	5 U
1,1,1-Trichloroethane	680	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloroethane	270	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloroethene	330	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloropropene		5 U					5 U	5 U
1,2,3-Trichlorobenzene		5 U					5 U	5 U
1,2,3-Trichloropropane		5 U					5 U	5 U
1,2,4-Trichlorobenzene		5 U					5 U	5 U
1,2,4-Trimethylbenzene	3600	5 U					5 U	5 U
1,2-Dibromoethane		5 U					5 U	5 U
1,2-Dichlorobenzene	1100	5 U					5 U	5 U
1,2-Dichloroethane	20	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,2-Dichloroethene		5 U					5 U	5 U
1,2-Dichloropropane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,3,5-Trimethylbenzene	8400	5 U					5 U	5 U
1,3-Dichlorobenzene	2400	5 U					5 U	5 U
1,3-Dichloropropane		5 U					5 U	5 U
1,4-Dichlorobenzene	1800	5 U					5 U	5 U
1-Chlorohexane		5 U					5 U	5 U
2,2-Dichloropropane		5 U					5 U	5 U
2-Butanone	120		59	31	12 U	19 U		
2-Chlorotoluene		5 U					5 U	5 U
2-Hexanone			10 U J	11 U J	12 U	11 U		
3-Methylpentane		5 U					5 U	5 U
4-Chlorotoluene		5 U					5 U	5 U
4-Methyl-2-Pentanone			10 U	11 U	12 U	11 U		
Acetone	50		21 U	21 U	23 U	23 U		
Benzene	60	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromobenzene		5 U					5 U	5 U
Bromochloromethane		5 U					5 U	5 U
Bromodichloromethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromoform		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromomethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Carbon Disulfide			5.2 U	5.3 U	5.8 U	5.6 U		
Carbon Tetrachloride	760	5 U	5.2 U J	5.3 U J	5.8 U	5.6 U	5 U	5 U
Chlorobenzene	1100	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloroform	370	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloromethane		5 U	5.2 U	5.3 U	5.8 U J	5.6 U	5 U	5 U
cis-1,2-Dichloroethene	250		5.2 U	5.3 U	5.8 U	5.6 U		
cis-1,3-Dichloropropene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Dibromochloromethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U J	5 U	5 U
Dibromochloropropane		5 U					5 U	5 U
Dibromomethane		5 U					5 U	5 U
Dichlorodifluoromethane		5 U					5 U	5 U
Ethylbenzene	1000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Hexachlorobutadiene		5 U					5 U	5 U
Isopropylbenzene		5 U					5 U	5 U
m+p-Xylene		5 U					5 U	5 U
Methyl Tertiary Butyl Ether	930	5 U					5 U	5 U
Methylene Chloride	50	5 U	6.4 J	21 U	23 U	23 U	5 U	5 U
Naphthalene	12000	5 U					5 U	5 U
n-Butylbenzene	12000	5 U					5 U	5 U
n-Propylbenzene	3900	5 U					5 U	5 U
o-Xylene		5 U					5 U	5 U
p-Isopropyltoluene		5 U					5 U	5 U
sec-Butylbenzene	11000	5 U					5 U	5 U
Styrene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
tert-Butylbenzene	5900	5 U					5 U	5 U
Tetrachloroethene	1300	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Toluene	700	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
trans-1,2-Dichloroethene	190		5.2 U	5.3 U	5.8 U	5.6 U		
trans-1,3-Dichloropropene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Trichloroethene	470	5 U	5.2 U	5.3 U	2.6 J	5.6 U	5 U	5 U
Trichlorofluoromethane		5 U					5 U	5 U
Vinyl chloride	20	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Xylene (total)	260		5.2 U	5.3 U	5.8 U	5.6 U		

See the Endnotes following the last page of this table.

Table 1-3A
Pre-Remedial Action Soil Sample Results - Volatile Organic Compounds (VOCs)
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs) by USEPA Method 8260B. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Unrestricted Use SCO = New York State Department of Environmental Conservation Unrestricted Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Subpart 375-6.8(a).
- Bracketed values indicate an exceedance of NYSDEC Unrestricted Use SCO.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-3B
Pre-Remedial Action Soil Sample Results - Volatile Organic Compounds (VOCs)
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

CONSTITUENT (ug/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB1 0 4 5/28/2004 Primary	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
1,1,1,2-Tetrachloroethane		5 U					5 U	5 U
1,1,1-Trichloroethane	100000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloroethane	26000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloroethene	100000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,1-Dichloropropene		5 U					5 U	5 U
1,2,3-Trichlorobenzene		5 U					5 U	5 U
1,2,3-Trichloropropane		5 U					5 U	5 U
1,2,4-Trichlorobenzene		5 U					5 U	5 U
1,2,4-Trimethylbenzene	52000	5 U					5 U	5 U
1,2-Dibromoethane		5 U					5 U	5 U
1,2-Dichlorobenzene	100000	5 U					5 U	5 U
1,2-Dichloroethane	3100	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,2-Dichloroethene		5 U					5 U	5 U
1,2-Dichloropropane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
1,3,5-Trimethylbenzene	52000	5 U					5 U	5 U
1,3-Dichlorobenzene	49000	5 U					5 U	5 U
1,3-Dichloropropane		5 U					5 U	5 U
1,4-Dichlorobenzene	13000	5 U					5 U	5 U
1-Chlorohexane		5 U					5 U	5 U
2,2-Dichloropropane		5 U					5 U	5 U
2-Butanone	100000		59	31	12 U	19 U		
2-Chlorotoluene		5 U					5 U	5 U
2-Hexanone			10 U J	11 U J	12 U	11 U		
3-Methylpentane		5 U					5 U	5 U
4-Chlorotoluene		5 U					5 U	5 U
4-Methyl-2-Pentanone			10 U	11 U	12 U	11 U		
Acetone	100000		21 U	21 U	23 U	23 U		
Benzene	4800	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromobenzene		5 U					5 U	5 U
Bromochloromethane		5 U					5 U	5 U
Bromodichloromethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromoform		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Bromomethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Carbon Disulfide			5.2 U	5.3 U	5.8 U	5.6 U		
Carbon Tetrachloride	2400	5 U	5.2 U J	5.3 U J	5.8 U	5.6 U	5 U	5 U
Chlorobenzene	100000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloroethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloroform	49000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Chloromethane		5 U	5.2 U	5.3 U	5.8 U J	5.6 U	5 U	5 U
cis-1,2-Dichloroethene	100000		5.2 U	5.3 U	5.8 U	5.6 U		
cis-1,3-Dichloropropene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Dibromochloromethane		5 U	5.2 U	5.3 U	5.8 U	5.6 U J	5 U	5 U
Dibromochloropropane		5 U					5 U	5 U
Dibromomethane		5 U					5 U	5 U
Dichlorodifluoromethane		5 U					5 U	5 U
Ethylbenzene	41000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Hexachlorobutadiene		5 U					5 U	5 U
Isopropylbenzene		5 U					5 U	5 U
m+p-Xylene		5 U					5 U	5 U
Methyl Tertiary Butyl Ether	100000	5 U					5 U	5 U
Methylene Chloride	100000	5 U	6.4 J	21 U	23 U	23 U	5 U	5 U
Naphthalene	100000	5 U					5 U	5 U
n-Butylbenzene	100000	5 U					5 U	5 U
n-Propylbenzene	100000	5 U					5 U	5 U
o-Xylene		5 U					5 U	5 U
p-Isopropyltoluene		5 U					5 U	5 U
sec-Butylbenzene	100000	5 U					5 U	5 U
Styrene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
tert-Butylbenzene	100000	5 U					5 U	5 U
Tetrachloroethene	19000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Toluene	100000	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
trans-1,2-Dichloroethene	100000		5.2 U	5.3 U	5.8 U	5.6 U		
trans-1,3-Dichloropropene		5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Trichloroethene	21000	5 U	5.2 U	5.3 U	2.6 J	5.6 U	5 U	5 U
Trichlorofluoromethane		5 U					5 U	5 U
Vinyl chloride	900	5 U	5.2 U	5.3 U	5.8 U	5.6 U	5 U	5 U
Xylene (total)	100000		5.2 U	5.3 U	5.8 U	5.6 U		

See the Endnotes following the last page of this table.

Table 1-3B
Pre-Remedial Action Soil Sample Results - Volatile Organic Compounds (VOCs)
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs) by USEPA Method 8260B. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Restricted Use SCO Restricted-Residential = New York State Department of Environmental Conservation Restricted Use Soil Cleanup Objectives (SCOs) Restricted-Residential as presented in 6 NYCRR Subpart 375-6.8(b).
- Bracketed values indicate an exceedance of NYSDEC Restricted Use SCO Restricted-Residential.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-4A
Pre-Remedial Action Soil Sample Results - Semi-Volatile Organic Compounds (SVOCs)
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (ug/kg)	NYSDEC Unrestricted Use SCO	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
1,2,4-Trichlorobenzene		340 U J	340 U J	370 U	360 U	660 U	660 U
1,2-Dichlorobenzene	1100	340 U J	340 U J	370 U	360 U	660 U	660 U
1,3-Dichlorobenzene	2400	340 U J	340 U J	370 U	360 U	660 U	660 U
1,4-Dichlorobenzene	1800	340 U J	340 U J	370 U	360 U	660 U	660 U
2,4,5-Trichlorophenol		1600 U J	1600 U J	1800 U	1700 U		
2,4,6-Trichlorophenol		340 U J	340 U J	370 U	360 U		
2,4-Dichlorophenol		340 U J	340 U J	370 U	360 U		
2,4-Dimethylphenol		340 U J	340 U J	370 U	360 U		
2,4-Dinitrophenol		1600 U J	1600 U J	1800 U	1700 U		
2,4-Dinitrotoluene		340 U J	340 U J	370 U	360 U	660 U	660 U
2,6-Dinitrotoluene		340 U J	340 U J	370 U	360 U	660 U	660 U
2-Chloronaphthalene		340 U J	340 U J	370 U	360 U	660 U	660 U
2-Chlorophenol		340 U J	340 U J	370 U	360 U		
2-Methylnaphthalene		340 U J	340 U J	370 U	290 J	660 U	660 U
3,3-Dichlorobenzidine		680 U J	680 U J	730 U	720 U J	660 U	660 U
4,6-Dinitro-o-cresol		1600 U J	1600 U J	1800 U	1700 U		
4-Bromophenyl phenyl ether		340 U J	340 U J	370 U	360 U	660 U	660 U
4-Chlorophenyl phenyl ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Acenaphthene	20000	340 U J	340 U J	370 U	330 J	660 U	660 U
Acenaphthylene	100000	210 J	340 U J	370 U	61 J	660 U	660 U
Anthracene	100000	160 J	340 U J	370 U	820	660 U	660 U
Benzo(a)anthracene	1000	890 J	63 J	370 U	1000	950	670
Benzo(a)pyrene	1000	900 J	54 J	370 U	840	730	660 U
Benzo(b)fluoranthene	1000	[1200] J	340 U J	370 U	930 J	730	660 U
Benzo(ghi)perylene	100000	640 J	340 U J	84 J	490	660 U	660 U
Benzo(k)fluoranthene	800	400 J	340 U J	370 U	310 J	[870]	710
Benzyl alcohol		340 U J	340 U J	370 U	360 U		
Bis(2-chloroethoxy)methane		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-chloroethyl)ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-chloroisopropyl)ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-ethylhexyl)phthalate (BEHP)		63 J	340 U J	790	66 J	660 U	660 U
Butyl benzyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Carbazole		340 U J	340 U J	370 U	300 J	660 U	660 U
Chrysene	1000	810 J	59 J	370 U	1000	760	660 U
Dibenzo(a,h)anthracene	330	120 J	340 U J	370 U	96 J	660 U	660 U
Dibenzofuran	7000	340 U J	340 U J	370 U	430	660 U	660 U
Diethyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Dimethyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Di-n-butyl phthalate		73 J	340 U J	290 J	360 U	660 U	660 U
Di-n-octyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Fluoranthene	100000	1600 J	140 J	370 U	2500	1500	1200
Fluorene	30000	340 U J	340 U J	370 U	450	660 U	660 U
Hexachlorobenzene	330	340 U J	340 U J	370 U	360 U	660 U	660 U
Hexachlorobutadiene		340 U J	340 U J	370 U	360 U	660 U	660 U
Hexachlorocyclopentadiene		340 U J	340 U J	370 U J	360 U	660 U	660 U
Hexachloroethane		340 U J	340 U J	370 U	360 U	660 U	660 U
Indeno(1,2,3-cd)pyrene	500	[650] J	340 U J	49 J	470	660 U	660 U
Isophorone		340 U J	340 U J	370 U	360 U	660 U	660 U
m-Nitroaniline		1600 U J	1600 U J	1800 U	1700 U	660 U	660 U
Naphthalene	12000	340 U J	340 U J	370 U	1500	660 U	660 U
Nitrobenzene		340 U J	340 U J	370 U	360 U	660 U	660 U
N-Nitrosodiphenylamine		340 U J	340 U J	370 U	360 U	660 U	660 U
N-Nitrosodipropylamine		340 U J	340 U J	370 U	360 U	660 U	660 U
o-Cresol	330	340 U J	340 U J	370 U	360 U		
o-Nitroaniline		1600 U J	1600 U J	1800 U	1700 U	660 U	660 U
o-Nitrophenol		340 U J	340 U J	370 U	360 U		
p-Chloroaniline		340 U J	340 U J	370 U	360 U	660 U	660 U
p-Chloro-m-cresol		340 U J	340 U J	370 U	360 U		
p-Cresol	330	340 U J	340 U J	370 U	360 U		
Pentachlorophenol	800	1600 U J	1600 U J	1800 U	1700 U		
Phenanthrene	100000	520 J	45 J	45 J	4100	680	860
Phenol	330	340 U J	340 U J	370 U	360 U		
p-Nitroaniline		680 U J	680 U J	730 U	720 U	660 U	660 U
p-Nitrophenol		1600 U J	1600 U J	1800 U	1700 U		
Pyrene	100000	1700 J	130 J	370 U	2500	1300	1200

See the Endnotes following the last page of this table.

Table 1-4A
Pre-Remedial Action Soil Sample Results - Semi-Volatile Organic Compounds (SVOCs)
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270C. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Unrestricted Use SCO = New York State Department of Environmental Conservation Unrestricted Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Subpart 375-6.8(a).
- Bracketed values indicate an exceedance of NYSDEC Unrestricted Use SCO.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-4B
Pre-Remedial Action Soil Sample Results - Semi-Volatile Organic Compounds (SVOCs)
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (ug/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
1,2,4-Trichlorobenzene		340 U J	340 U J	370 U	360 U	660 U	660 U
1,2-Dichlorobenzene	100000	340 U J	340 U J	370 U	360 U	660 U	660 U
1,3-Dichlorobenzene	49000	340 U J	340 U J	370 U	360 U	660 U	660 U
1,4-Dichlorobenzene	13000	340 U J	340 U J	370 U	360 U	660 U	660 U
2,4,5-Trichlorophenol		1600 U J	1600 U J	1800 U	1700 U		
2,4,6-Trichlorophenol		340 U J	340 U J	370 U	360 U		
2,4-Dichlorophenol		340 U J	340 U J	370 U	360 U		
2,4-Dimethylphenol		340 U J	340 U J	370 U	360 U		
2,4-Dinitrophenol		1600 U J	1600 U J	1800 U	1700 U		
2,4-Dinitrotoluene		340 U J	340 U J	370 U	360 U	660 U	660 U
2,6-Dinitrotoluene		340 U J	340 U J	370 U	360 U	660 U	660 U
2-Chloronaphthalene		340 U J	340 U J	370 U	360 U	660 U	660 U
2-Chlorophenol		340 U J	340 U J	370 U	360 U		
2-Methylnaphthalene		340 U J	340 U J	370 U	290 J	660 U	660 U
3,3-Dichlorobenzidine		680 U J	680 U J	730 U	720 U J	660 U	660 U
4,6-Dinitro-o-cresol		1600 U J	1600 U J	1800 U	1700 U		
4-Bromophenyl phenyl ether		340 U J	340 U J	370 U	360 U	660 U	660 U
4-Chlorophenyl phenyl ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Acenaphthene	100000	340 U J	340 U J	370 U	330 J	660 U	660 U
Acenaphthylene	100000	210 J	340 U J	370 U	61 J	660 U	660 U
Anthracene	100000	160 J	340 U J	370 U	820	660 U	660 U
Benzo(a)anthracene	1000	890 J	63 J	370 U	1000	670	950
Benzo(a)pyrene	1000	900 J	54 J	370 U	840	660 U	730
Benzo(b)fluoranthene	1000	[1200] J	340 U J	370 U	930 J	660 U	730
Benzo(ghi)perylene	100000	640 J	340 U J	84 J	490	660 U	660 U
Benzo(k)fluoranthene	3900	400 J	340 U J	370 U	310 J	710	870
Benzyl alcohol		340 U J	340 U J	370 U	360 U		
Bis(2-chloroethoxy)methane		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-chloroethyl)ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-chloroisopropyl)ether		340 U J	340 U J	370 U	360 U	660 U	660 U
Bis(2-ethylhexyl)phthalate (BEHP)		63 J	340 U J	790	66 J	660 U	660 U
Butyl benzyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Carbazole		340 U J	340 U J	370 U	300 J	660 U	660 U
Chrysene	3900	810 J	59 J	370 U	1000	660 U	760
Dibenzo(a,h)anthracene	330	120 J	340 U J	370 U	96 J	660 U	660 U
Dibenzofuran	59000	340 U J	340 U J	370 U	430	660 U	660 U
Diethyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Dimethyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Di-n-butyl phthalate		73 J	340 U J	290 J	360 U	660 U	660 U
Di-n-octyl phthalate		340 U J	340 U J	370 U	360 U	660 U	660 U
Fluoranthene	100000	1600 J	140 J	370 U	2500	1200	1500
Fluorene	100000	340 U J	340 U J	370 U	450	660 U	660 U
Hexachlorobenzene	1200	340 U J	340 U J	370 U	360 U	660 U	660 U
Hexachlorobutadiene		340 U J	340 U J	370 U	360 U	660 U	660 U
Hexachlorocyclopentadiene		340 U J	340 U J	370 U J	360 U	660 U	660 U
Hexachloroethane		340 U J	340 U J	370 U	360 U	660 U	660 U
Indeno(1,2,3-cd)pyrene	500	[650] J	340 U J	49 J	470	660 U	660 U
Isophorone		340 U J	340 U J	370 U	360 U	660 U	660 U
m-Nitroaniline		1600 U J	1600 U J	1800 U	1700 U	660 U	660 U
Naphthalene	100000	340 U J	340 U J	370 U	1500	660 U	660 U
Nitrobenzene		340 U J	340 U J	370 U	360 U	660 U	660 U
N-Nitrosodiphenylamine		340 U J	340 U J	370 U	360 U	660 U	660 U
N-Nitrosodipropylamine		340 U J	340 U J	370 U	360 U	660 U	660 U
o-Cresol	100000	340 U J	340 U J	370 U	360 U		
o-Nitroaniline		1600 U J	1600 U J	1800 U	1700 U	660 U	660 U
o-Nitrophenol		340 U J	340 U J	370 U	360 U		
p-Chloroaniline		340 U J	340 U J	370 U	360 U	660 U	660 U
p-Chloro-m-cresol		340 U J	340 U J	370 U	360 U		
p-Cresol	100000	340 U J	340 U J	370 U	360 U		
Pentachlorophenol	6700	1600 U J	1600 U J	1800 U	1700 U		
Phenanthrene	100000	520 J	45 J	45 J	4100	860	680
Phenol	100000	340 U J	340 U J	370 U	360 U		
p-Nitroaniline		680 U J	680 U J	730 U	720 U	660 U	660 U
p-Nitrophenol		1600 U J	1600 U J	1800 U	1700 U		
Pyrene	100000	1700 J	130 J	370 U	2500	1200	1300

See the Endnotes following the last page of this table.

Table 1-4B
Pre-Remedial Action Soil Sample Results - Semi-Volatile Organic Compounds (SVOCs)
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270C. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Restricted Use SCO Restricted-Residential = New York State Department of Environmental Conservation Restricted Use Soil Cleanup Objectives (SCOs) Restricted-Residential as presented in 6 NYCRR Subpart 375-6.8(b).
- Bracketed values indicate an exceedance of NYSDEC Restricted Use SCO Restricted-Residential.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-5A
Pre-Remedial Action Soil Sample Results - Polychlorinated Biphenyls (PCBs) and Pesticides
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (ug/kg)	NYSDEC Unrestricted Use SCO	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate 1	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
4,4'-DDD	3.3	3.4 U J	34 U J	[4] J	0.74 U		
4,4'-DDE	3.3	3.4 U J	34 U J	19 U	0.74 U		
4,4'-DDT	3.3	[3.7] J	1.2 J	[14] J	0.08 J		
Aldrin	5	2.1 U J	21 U J	12 U	0.45 U		
alpha-BHC	20	1.8 U J	18 U J	9.9 U	0.38 U		
alpha-Chlordane	94	[150] J	15 J	9.9 U	0.38 U		
beta-BHC	36	1.8 U J	18 U J	9.9 U	0.38 U		
delta-BHC	40	0.46 J	18 U J	9.9 U J	0.38 U J		
Dieldrin	5	3.4 U J	34 U J	19 U	0.74 U		
Endosulfan I	2400	0.9 J	18 U J	9.9 U	0.38 U		
Endosulfan II	2400	2.8 J	0.7 J	19 U	0.74 U		
Endosulfan sulfate	2400	4.2 J	1.9 J	19 U	0.2 J		
Endrin	14	5.2 U J	52 U J	29 U	1.1 U		
Endrin aldehyde		3.4 U J	34 U J	19 U	0.74 U		
Endrin ketone		3.4 U J	34 U J	19 U	0.74 U		
gamma-Chlordane		130 J	11 J	9.9 U	0.38 U		
Heptachlor	42	1.8 U J	18 U J	9.9 U	0.38 U		
Heptachlor epoxide		3.1 J	0.42 J	9.9 U	0.051 J		
gamma-BHC (Lindane)	100	1.8 U J	18 U J	9.9 U	0.38 U		
Methoxychlor		18 U J	180 U J	99 U	0.81 J		
Toxaphene		70 U J	690 U J	390 U	15 U		
Aroclor 1016				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1221				38 U J	37 U J	0.02 U	0.02 U
Aroclor 1232				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1242				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1248				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1254				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1260				10 J	19 U J	0.02 U	0.02 U
Total PCBs	100			10	0	0	0

See the Endnotes following the last page of this table.

Table 1-5A
Pre-Remedial Action Soil Sample Results - Polychlorinated Biphenyls (PCBs) and Pesticides
Compared to Unrestricted Use Soil Cleanup Objectives (SCOs)
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Polychlorinated Biphenyls (PCBs) and Pesticides by USEPA Methods 8082 and 8081 respectively. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Unrestricted Use SCO = New York State Department of Environmental Conservation Unrestricted Use Soil Cleanup Objectives (SCOs) as presented in 6 NYCRR Subpart 375-6.8(a).
- Bracketed values indicate an exceedance of NYSDEC Unrestricted Use SCO.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-5B
Pre-Remedial Action Soil Sample Results - Polychlorinated Biphenyls (PCBs) and Pesticides
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Starting Depth (feet) Ending Depth (feet) CONSTITUENT (ug/kg)	NYSDEC Restricted Use SCO Restricted - Residential	SB-9 0 2 12/8/2005 Primary	SB-9 0 2 12/8/2005 Duplicate 1	SB10 2 4 11/30/2005 Primary	SB11 0 2 12/1/2005 Primary	Interior Composite 5/28/2004 Primary	Exterior Composite 5/28/2004 Primary
4,4'-DDD	13000	3.4 U J	34 U J	4 J	0.74 U		
4,4'-DDE	8900	3.4 U J	34 U J	19 U	0.74 U		
4,4'-DDT	7900	3.7 J	1.2 J	14 J	0.08 J		
Aldrin	97	2.1 U J	21 U J	12 U	0.45 U		
alpha-BHC	480	1.8 U J	18 U J	9.9 U	0.38 U		
alpha-Chlordane	4200	150 J	15 J	9.9 U	0.38 U		
beta-BHC	360	1.8 U J	18 U J	9.9 U	0.38 U		
delta-BHC	100000	0.46 J	18 U J	9.9 U J	0.38 U J		
Dieldrin	200	3.4 U J	34 U J	19 U	0.74 U		
Endosulfan I	24000	0.9 J	18 U J	9.9 U	0.38 U		
Endosulfan II	24000	2.8 J	0.7 J	19 U	0.74 U		
Endosulfan sulfate	24000	4.2 J	1.9 J	19 U	0.2 J		
Endrin	11000	5.2 U J	52 U J	29 U	1.1 U		
Endrin aldehyde		3.4 U J	34 U J	19 U	0.74 U		
Endrin ketone		3.4 U J	34 U J	19 U	0.74 U		
gamma-Chlordane		130 J	11 J	9.9 U	0.38 U		
Heptachlor	2100	1.8 U J	18 U J	9.9 U	0.38 U		
Heptachlor epoxide		3.1 J	0.42 J	9.9 U	0.051 J		
gamma-BHC (Lindane)	1300	1.8 U J	18 U J	9.9 U	0.38 U		
Methoxychlor		18 U J	180 U J	99 U	0.81 J		
Toxaphene		70 U J	690 U J	390 U	15 U		
Aroclor 1016				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1221				38 U J	37 U J	0.02 U	0.02 U
Aroclor 1232				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1242				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1248				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1254				20 U J	19 U J	0.02 U	0.02 U
Aroclor 1260				10 J	19 U J	0.02 U	0.02 U
Total PCBs	1000			10	0	0	0

See the Endnotes following the last page of this table.

Table 1-5B
Pre-Remedial Action Soil Sample Results - Polychlorinated Biphenyls (PCBs) and Pesticides
Compared to Restricted Use Soil Cleanup Objectives (SCOs) - Restricted-Residential
220 Water Street
Brooklyn, New York

Notes:

- µg/kg = micrograms per kilogram (parts per billion; ppb).
- The samples were analyzed for Target Compound List (TCL) Polychlorinated Biphenyls (PCBs) and Pesticides by USEPA Methods 8082 and 8081 respectively. All samples were analyzed in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC Restricted Use SCO Restricted-Residential = New York State Department of Environmental Conservation Restricted Use Soil Cleanup Objectives (SCOs) Restricted-Residential as presented in 6 NYCRR Subpart 375-6.8(b).
- Bracketed values indicate an exceedance of NYSDEC Restricted Use SCO Restricted-Residential.
- Interior Composite was composed of SB-7 (0'-3'), SB-8 (0'-4'), and SB-9 (0'-4').
- Exterior Composite was composed of SB-1(0'-4'), SB-2 (0'-4'), SB-3 (0'-4'), SB-4 (0'-3.5'), SB-5 (0'-4'), SB-6 (0'-4').

Qualifiers

U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. The value is usable as a non-detect at the reporting limit.
J	Estimated value. The compound was detected at a concentration below the reporting limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the reporting limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated reporting limit.

Table 1-6
Summary of Groundwater Sampling Analytical Results - Volatile Organic Compounds (VOCs)
220 Water Street
Brooklyn, New York

CONSTITUENT	P/F	UNITS	NYSDEC TOGS	MW-1 211850-003 1/11/2006 Primary	MW-1 214086-001 10/31/2006 Primary	MW-2 211850-002 1/11/2006 Primary	MW-2 214086-002 10/31/2006 Primary	MW-2 214086-005 10/31/2006 Duplicate	MW-3 211850-001 1/11/2006 Primary	MW-3 211850-006 1/11/2006 Duplicate	MW-3 214086-003 10/31/2006 Primary	MW-4 214086-004 10/31/2006 Primary
Chloromethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Vinyl chloride	Total	(ug/l)	2	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Bromomethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Chloroethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
1,1-Dichloroethene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Carbon Disulfide	Total	(ug/l)	60	5 U	5.0 U J	5 U	5.0 U J	5.0 U J	5 U	5 U	5.0 U J	5.0 U J
Acetone	Total	(ug/l)	50	10 U J	10 U	10 U J	10 U	10 U	10 U J	10 U J	10 U	10 U
Methylene Chloride	Total	(ug/l)	5	5 U J	5.0 U	5 U J	5.0 U	5.0 U	5 U J	5 U J	5.0 U	5.0 U
trans-1,2-Dichloroethene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
1,1-Dichloroethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	3 J	2.6 J	1.4 J	5.0 U
cis-1,2-Dichloroethene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
2-Butanone (MEK)	Total	(ug/l)	50	10 U	10 U J	10 U	10 U J	10 U	10 U	10 U	10 U J	10 U J
Chloroform	Total	(ug/l)	7	3.5 J	4.6 J	5 U	5.0 U	5.0 U	1.3 J	1.3 J	2.7 J	3.2 J
1,1,1-Trichloroethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U J	4.5 J	4.3 J	0.62 J	1.6 J
Carbon Tetrachloride	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U J	5 U	5 U J	5.0 U	5.0 U
Benzene	Total	(ug/l)	1	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
1,2-Dichloroethane	Total	(ug/l)	0.6	5 U J	5.0 U	5 U J	5.0 U	5.0 U	5 U J	5 U J	5.0 U	5.0 U
Trichloroethene	Total	(ug/l)	5	1.3 J	1.5 J	4.9 J	[5.4]	[5.5]	[15]	[15]	[13]	[6.3]
1,2-Dichloropropane	Total	(ug/l)	1	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Bromodichloromethane	Total	(ug/l)	50	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	Total	(ug/l)	0.4	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
4-Methyl-2-pentanone	Total	(ug/l)		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	Total	(ug/l)	0.4	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
1,1,2-Trichloroethane	Total	(ug/l)	1	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Tetrachloroethene	Total	(ug/l)	5	3.3 J	4.6 J	[6.2]	[6.9]	[7.1]	[7.4]	[7.2]	[7.2]	2.1 J
2-Hexanone	Total	(ug/l)	50	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	Total	(ug/l)	50	5 U	5.0 U	5 U	5.0 U	5.0 U J	5 U	5 U	5.0 U	5.0 U
Chlorobenzene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Ethylbenzene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Styrene	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Bromoform	Total	(ug/l)	50	5 U	5.0 U	5 U	5.0 U	5.0 U J	5 U	5 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Xylene (total)	Total	(ug/l)	5	5 U	5.0 U	5 U	5.0 U	5.0 U	5 U	5 U	5.0 U	5.0 U
Sum of Constituents		(ug/l)		8.1	10.7	11.1	12.3	12.6	31.2	30.4	24.92	13.2

See the Endnotes following the last page of this table.

Table 1-6
Summary of Groundwater Sampling Analytical Results - Semi-Volatile Organic Compounds (SVOCs)
220 Water Street
Brooklyn, New York

CONSTITUENT	P/F	UNITS	NYSDEC TOGS	MW-1 211850-003 1/11/2006 Primary	MW-2 211850-002 1/11/2006 Primary	MW-3 211850-001 1/11/2006 Primary	MW-3 211850-006 1/11/2006 Duplicate 1
Phenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	Total	(ug/l)	1	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	Total	(ug/l)	3	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	Total	(ug/l)	3	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	Total	(ug/l)	3	10 U	10 U	10 U	10 U
Benzyl alcohol	Total	(ug/l)		10 U	10 U	10 U	10 U
2-Methylphenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
Bis(2-chloroisopropyl) ether	Total	(ug/l)		10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	Total	(ug/l)		10 U	10 U	10 U	10 U
Hexachloroethane	Total	(ug/l)	5	10 U	10 U	10 U	10 U
4-Methylphenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
2-Chlorophenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
Nitrobenzene	Total	(ug/l)	0.4	10 U	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	Total	(ug/l)	5	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	Total	(ug/l)	5	10 U	10 U	10 U	10 U
Isophorone	Total	(ug/l)	50	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
Hexachlorobutadiene	Total	(ug/l)	0.5	10 U	10 U	10 U	10 U
Naphthalene	Total	(ug/l)	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	Total	(ug/l)	5	10 U	10 U	10 U	10 U
4-Chloroaniline	Total	(ug/l)	5	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	Total	(ug/l)	1	50 U	50 U	50 U	50 U
Hexachlorocyclopentadiene	Total	(ug/l)	5	10 U	10 U	10 U	10 U
2-Methylnaphthalene	Total	(ug/l)		10 U	10 U	10 U	10 U
2-Nitroaniline	Total	(ug/l)	5	50 U	50 U	50 U	50 U
2-Chloronaphthalene	Total	(ug/l)	10	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	Total	(ug/l)	5	10 U	10 U	10 U	10 U
2-Nitrophenol	Total	(ug/l)	1	10 U	10 U	10 U	10 U
3-Nitroaniline	Total	(ug/l)	5	50 U	50 U	50 U	50 U
Dimethyl phthalate	Total	(ug/l)	50	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	Total	(ug/l)	10	50 U	50 U	50 U	50 U
Acenaphthylene	Total	(ug/l)		10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	Total	(ug/l)	5	10 U	10 U	10 U	10 U
Acenaphthene	Total	(ug/l)	20	10 U	10 U	10 U	10 U
Dibenzofuran	Total	(ug/l)		10 U	10 U	10 U	10 U
4-Nitrophenol	Total	(ug/l)	1	50 U	50 U	50 U	50 U
Fluorene	Total	(ug/l)	50	10 U	10 U	10 U	10 U
4-Nitroaniline	Total	(ug/l)	5	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	Total	(ug/l)		10 U	10 U	10 U	10 U
Hexachlorobenzene	Total	(ug/l)	0.04	10 U	10 U	10 U	10 U
Diethyl phthalate	Total	(ug/l)	50	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	Total	(ug/l)		10 U	10 U	10 U	10 U
Pentachlorophenol	Total	(ug/l)	1	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	Total	(ug/l)	50	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	Total	(ug/l)	1	50 U	50 U	50 U	50 U
Phenanthrene	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Anthracene	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Carbazole	Total	(ug/l)		10 U	10 U	10 U	10 U
Di-n-butyl phthalate	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Fluoranthene	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Pyrene	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Butyl benzyl phthalate	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Benzo(a)anthracene	Total	(ug/l)	0.002	10 U	10 U	10 U	10 U
Chrysene	Total	(ug/l)	0.002	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	Total	(ug/l)	5	20 U	20 U	20 U	20 U
Bis(2-ethylhexyl)phthalate	Total	(ug/l)	5	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	Total	(ug/l)	50	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	Total	(ug/l)	0.002	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	Total	(ug/l)	0.002	10 U	10 U	10 U	10 U
Benzo(a)pyrene	Total	(ug/l)		10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	Total	(ug/l)	0.002	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	Total	(ug/l)		10 U	10 U	10 U	10 U
Benzo(ghi)perylene	Total	(ug/l)		10 U	10 U	10 U	10 U
Sum of Constituents		(ug/l)		0	0	0	0

See the Endnotes following the last page of this table.

Table 1-6
Summary of Groundwater Sampling Analytical Results - Polychlorinated Biphenyls (PCBs) and Pesticides
220 Water Street
Brooklyn, New York

CONSTITUENT	P/F	UNITS	NYSDEC TOGS	MW-1 211850-003 1/11/2006 Primary	MW-2 211850-002 1/11/2006 Primary	MW-3 211850-001 1/11/2006 Primary	MW-3 211850-006 1/11/2006 Duplicate 1
PCBs							
Aroclor 1016	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor 1221	Total	(ug/l)	0.09	1 U	1 U	1 U	1 U
Aroclor 1232	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor 1242	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor 1248	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor 1254	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor 1260	Total	(ug/l)	0.09	0.5 U	0.5 U	0.5 U	0.5 U
Pesticides							
alpha-BHC	Total	(ug/l)	0.01	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	Total	(ug/l)	0.04	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	Total	(ug/l)	0.04	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	Total	(ug/l)	0.05	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	Total	(ug/l)	0.04	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	Total	(ug/l)	0	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	Total	(ug/l)	0.03	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	Total	(ug/l)		0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	Total	(ug/l)	0.004	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	Total	(ug/l)	0.2	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	Total	(ug/l)	0	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	Total	(ug/l)		0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	Total	(ug/l)	0.3	0.15 U	0.15 U	0.15 U	0.15 U
Endosulfan sulfate	Total	(ug/l)		0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	Total	(ug/l)	0.2	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	Total	(ug/l)	35	0.5 U	0.5 U	0.5 U	0.5 U
alpha-Chlordane	Total	(ug/l)		0.05 U	0.05 U	0.05 U	0.05 U
gamma-Chlordane	Total	(ug/l)		0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	Total	(ug/l)	0.06	2.5 U	2.5 U	2.5 U	2.5 U
Endrin aldehyde	Total	(ug/l)	5	0.1 U	0.1 U	0.1 U	0.1 U
Endrin ketone	Total	(ug/l)	5	0.1 U	0.1 U	0.1 U	0.1 U

See the Endnotes following the last page of this table.

Table 1-6
Summary of Groundwater Sampling Analytical Results - Metals
220 Water Street
Brooklyn, New York

CONSTITUENT	P/F	UNITS	NYSDEC TOGS	MW-1 211850-003 1/11/2006 Primary	MW-2 211850-002 1/11/2006 Primary	MW-3 211850-001 1/11/2006 Primary	MW-3 211850-006 1/11/2006 Duplicate
Aluminum	Total	(ug/l)		500 U	500 U	500 U	500 U
Antimony	Total	(ug/l)	3	20 U	20 U	20 U	20 U
Arsenic	Total	(ug/l)	25	40 U	40 U	40 U	40 U
Barium	Total	(ug/l)	1000	325	207	99.4	104
Beryllium	Total	(ug/l)	3	5 U	5 U	5 U	5 U
Cadmium	Total	(ug/l)	5	10 U	10 U	10 U	10 U
Calcium	Total	(ug/l)		125000	166000	194000	210000
Chromium	Total	(ug/l)	50	1.4 J	19.2	6 J	5.3 J
Cobalt	Total	(ug/l)		2.9 J	10 U	10 U	1.8 J
Copper	Total	(ug/l)	200	10 U	10 U	39.9 J	10 U J
Iron	Total	(ug/l)	300	200 U	186 J	200 U	200 U
Lead	Total	(ug/l)	25	10 U	10 U	10 U	10 U
Magnesium	Total	(ug/l)	35000	[50300]	[50200]	[45600]	[48100]
Manganese	Total	(ug/l)	300	[1000]	[442]	[383]	[407]
Mercury	Total	(ug/l)	0.7	0.2 U	0.2 U	0.092 J	0.086 J
Nickel	Total	(ug/l)	100	8.4 J	3.2 J	3.6 J	3.6 J
Potassium	Total	(ug/l)		8680 J	11300 J	8560 J	8970 J
Selenium	Total	(ug/l)	10	30 U	6.1 J	30 U	30 U
Silver	Total	(ug/l)	50	1.1 J	6 U	6 U	6 U
Sodium	Total	(ug/l)	20000	[113000]	[103000]	[109000]	[112000]
Thallium	Total	(ug/l)	0.5	40 U	40 U	40 U	40 U
Vanadium	Total	(ug/l)		6 U	6 U	6 U	6 U
Zinc	Total	(ug/l)	2000	50 U	50 U	50 U	50 U

See the Endnotes following the last page of this table.

Table 1-6
Summary of Groundwater Sampling Analytical Results
Volatile Organic Compounds (VOCs)
220 Water Street
Brooklyn, New York

Notes:

- μg/l = micrograms per liter (parts per billion; ppb).
- The samples were analyzed by Severn Trent Laboratories (STL) – Shelton, Connecticut, for Target Compound List (TCL) Volatile Organic Compound (VOC) analysis by USEPA SW-846 Method 8260B, in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- The samples were analyzed by Severn Trent Laboratories (STL) – Shelton, Connecticut, for Target Compound List (TCL) Semivolatile Organic Compound (SVOC) analysis by USEPA SW-846 Method 8270C, in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- The samples were analyzed by Severn Trent Laboratories (STL) – Shelton, Connecticut, for Target Compound List (TCL) Polychlorinated Biphenyl Compound (PCB) analysis by USEPA SW-846 Method 8082, in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- The samples were analyzed by Severn Trent Laboratories (STL) – Shelton, Connecticut, for Target Compound List (TCL) Pesticide Compound (Pest) analysis by USEPA Method 8081A in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- The samples were analyzed by Severn Trent Laboratories (STL) – Shelton, Connecticut, for Target Analyte List (TAL) Metals analysis with mercury analyzed by USEPA Method 7471A and all other metals analyzed by USEPA Method 6010B, in accordance with *"Test Methods for Evaluation Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions."*
- NYSDEC TOGS = Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values.
- Bracketed values indicate exceedances of TOGS.

Qualifiers

no qualifier	The compound was positively identified at the associated numerical value which is the concentration of the compound in the sample.
U	Non-Detect. The compound was analyzed for, but not detected. The associated numerical value is the detection limit. The value is usable as a non-detect at the detection limit.
J	Estimated value. The compound was detected at a concentration below the detection limit but greater than the method detection limit (MDL) or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ	The compound was analyzed for, but not detected. The associated numerical value is the detection limit. However, due to a QC exceedance the value is an estimated quantity. The value is usable as a non-detect at the estimated detection limit.

Table 1-7
Pre-Remedial Action TCE Sub-slab Vapor Concentration and Indoor Air Concentrations
Comparison to NYSDOH Soil Vapor / Indoor Air Matrix 1
220 Water Street
Brooklyn, NY

Sub-slab vapor concentration (ug/m^3)[1]	**Indoor Air Concentration of Compound (ug/m^3)**			
	< 0.25	**0.25 to < 1**	**1 to < 5.0**	**5.0 and above**
< 5	NA	NA	NA	NA
5 to < 50	NA	NA	NA	NA
50 to < 250	NA	NA	NA	NA
250 and above	MITIGATE **Concrete building second floor elevator shaft:** Sub-slab concentration SG-1: 1,400 Concrete building second floor elevator shaft IA-03: 0.16U **Wood building second floor:** Sub-slab concentration SG-2: 670 Second floor IA-04: 0.20	NA	MITIGATE **Concrete building basement:** Sub-slab concentration SG-1: 1,400 Concrete building basement IA-01: 1.3	MITIGATE **Wood building basement:** Sub-slab concentration SG-2: 670 Wood building basement IA-02: 5.3

U: Analyte was not detected at the indicated detection limit
SG: Sub-slab soil gas sample
IA: Indoor air sample
Table is based upon New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006
Matrix 1 for trichloroethene (TCE).
NA: Not applicable

Notes:

1. Sub-slab vapor concentrations listed are for round 2 sampling. Round 1 sampling did not include indoor air samples and thus cannot be evaluted using Matrix 1.
Sub-slab vapor concentrations for TCE during round 1 were: SG-1 = 3,700 ug / m3 and SG-2 = 5,100 ug / m3

Table 1-8
Pre-Remedial Action PCE Sub-slab Vapor Concentration and Indoor Air Concentrations
Comparison to NYSDOH Soil Vapor / Indoor Air Matrix 2
220 Water Street
Brooklyn, NY

Sub-slab vapor concentration (ug/m^3)[1]	**Indoor Air Concentration of Compound (ug/m^3)**			
	< 3	**3 to < 30**	**30 to < 100**	**100 and above**
< 100	NO FURTHER ACTION **Concrete building basement:** Sub-slab concentration SG-1: 65 Concrete building basement IA-01: 0.16U **Concrete building second floor elevator shaft:** Sub-slab concentration SG-1: 65 Concrete building second floor elevator shaft IA-03: 0.16U **Wood building basement:** Sub-slab concentration SG-2: 52 Wood building basement IA-02: 0.82 **Wood building second floor:** Sub-slab concentration SG-2: 52 Second floor IA-04: 0.16U	NA	NA	NA
100 to < 1,000	NA	NA	NA	NA
1,000 and above	NA	NA	NA	NA

U: Analyte was not detected at the indicated detection limit
SG: Sub-slab soil gas sample
IA: Indoor air sample
Table is based upon New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006 Matrix 2 for tetrachloroethene (PCE).
NA: Not applicable

Notes:
1. Sub-slab vapor concentrations listed are for round 2 sampling. Round 1 sampling did not include indoor air samples and thus cannot be evaluted using Matrix 1. Sub-slab vapor concentrations for PCE during round 1 were: SG-1 = 560 ug/m^3 and SG-2 = 480 ug/m3

Appendix A
220 Water Street Title

NATIONAL TITLE
Title No. FMK 15006

SCHEDULE A

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

BEGINNING at the corner formed by the intersection of the northerly side of Front Street with the westerly side of Bridge Street;

RUNNING THENCE westerly along the northerly side of Front Street, 220 feet;

THENCE northerly parallel with Bridge Street and part of the distance through a party wall, 200 feet to the southerly side of Water Street;

THENCE easterly along the southerly side of Water Street, 220 feet to the westerly side of Bridge Street;

THENCE southerly along the westerly side of Bridge Street, 200 feet to the point or place of BEGINNING.

Appendix B
Remedial Work Plan

(To be provided in final Site Management Plan)

Appendix C
Draft Environmental Easement
September 2007

DRAFT

ENVIRONMENTAL EASEMENT

THIS INDENTURE made this ___ day of _____, 200_, between ***Hawthorne Village LLC*** having an office at 245 Saw Mill River Road, Hawthorne, New York 10532, (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("brownfield sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of environmental easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and of ensuring the potential restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that environmental easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a brownfield site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and;

WHEREAS, Grantor, is the owner of real property located in the City of New York, Kings County, New York known and designated on the tax map of the City of New York as block 41 lot 17, being the same as that property conveyed to Grantor by deed on _____, and recorded in the Land Records of the _____ County Clerk at page _____, liber _____ of Deeds, comprised of approximately 1 acre, and hereinafter more fully described in Schedule A attached hereto and made a part hereof (the " Controlled Property"); and;

WHEREAS, the Commissioner does hereby acknowledge that the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established at this Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the covenants and mutual promises contained herein and the terms and conditions of Brownfield Cleanup Agreement Number W2-1042-05-01, Grantor grants, conveys and releases to Grantee a permanent Environmental Easement pursuant to Article 71, Title 36 of the ECL in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the potential restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The following controls apply to the use of the Controlled Property, run with the land are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees, and any person using the Controlled Property:

A. The Controlled Property may be used for residential, commercial or industrial use as long as the following long-term engineering controls are employed:

As required by the site management plan ("SMP") approved by the Department on ___, including the "soils management plan" included therein, Grantor shall maintain in place and in good condition certain engineering controls (collectively, the "Engineering Controls") consisting of a concrete system building slab at least six inches in thickness and an active sub-slab depressurization ("SSD") system at the Controlled Property, and a concrete system at least six inches in thickness in the sidewalk or two feet of soil under the sidewalk adjacent to the Controlled Property (the "Adjacent Sidewalk"). Grantor shall cause the Engineering Controls to be inspected annually and to be repaired as needed in light of such inspection. Grantor shall notify NYSDEC prior to conducting work (or causing work to be conducted) beneath the concrete system building slab at the Controlled Property or the Adjacent Sidewalk. As required by the SMP, Grantor shall also operate and maintain the SSD system in good working order in accordance with the SMP.

B. The Controlled Property may not be used for a higher level of use such as unrestricted use and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant of Title 36 to Article 71 of the Environmental Conservation Law.

D. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

E. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury that the controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls employed at the Controlled Property were approved by the NYSDEC, and that nothing has occurred that would impair the ability of such control to protect the public health and environment or constitute a violation or failure to comply with any Site Management Plan for such controls and giving access to such Controlled Property to evaluate continued maintenance of such controls.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Controlled Property, including:

1. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

2. The right to give, sell, assign, or otherwise transfer the underlying fee interest to the Controlled Property by operation of law, by deed, or by indenture, subject and subordinate to this Environmental Easement;

5. Enforcement.

A. This environmental easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this environmental easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person intentionally violates this environmental easement, the Grantee may revoke the Certificate of Completion provided under ECL Article 27, Title 14, or the Satisfactory Completion of Project provided under ECL Article 56, Title 5 with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach. Grantor shall then have a reasonable amount of time from receipt of such notice to cure. At the expiration of said second period, Grantee may commence any proceedings and take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement in accordance with applicable law to require compliance with the terms of this Environmental Easement.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar its enforcement rights in the event of a subsequent breach of or noncompliance with any of the terms of this Environmental easement.

6. Notice. Whenever notice to the State (other than the annual certification) or approval from the State is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing its County tax map number or the Liber and Page or computerized system tracking/ identification number and address correspondence to:

Division of Environmental Enforcement
Office of General Counsel
New York State Department of Environmental Conservation
625 Broadway
Albany, new York 12233-5500

Such correspondence shall be delivered by hand, or by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. This environmental easement may be amended only by an amendment executed by the Commissioner of the New York State Department of Environmental Conservation and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This environmental easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Grantor's Name

By:_____

Title:_____

Date:_____

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation

By:_____
Alexander B. Pete Grannis , Commissioner

DRAFT

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 200_, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 200_, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

Appendix D
Draft Soil Management Plan

DRAFT Site Management Plan

Appendix D: *Draft* Soil Management Plan

220 Water Street
Brooklyn, New York

March 2008
www.erm.com

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ERM

DRAFT REPORT

220 Water Street

Site Management Plan
Appendix D: *Draft* Soil Management Plan

Note: This *Draft* Soil Management Plan is being submitted to complete the requirements for a Remedial Action Work Plan for the Site. This is a working draft that does not reflect the results of the remediation scheduled to be performed at the Site and adjacent sidewalks. Following Remedial Action (RA), this *Draft* Soil Management Plan will be updated to reflect the completed remediation at the Site and adjacent sidewalks.

220 Water Street

Brooklyn, New York

March 2008

ERM Ref. No. 0022103

ERM Consulting & Engineering, Inc.
235 Park Avenue South, 4th Floor
New York, NY 10003

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1.0 INTRODUCTION

This Soil Management Plan (the "SoMP") establishes policies and procedures for the management of soils during potential intrusive work at the 220 Water Street property ("Site") and adjacent sidewalks in Brooklyn, NY in the City of New York Borough of Brooklyn, Kings County, New York. The legal real estate designation is Block 41 Lot 17. This SoMP is intended for the owner and the owner's contractor and consultant. The health and safety plan (HASP) and community air monitoring plan (CAMP) in the Site Management Plan (SMP) shall be used in conjunction with this plan, and any other necessary procedure or plan needed to conduct work at the Site or within the adjacent sidewalk areas.

The Site is site #C224098 under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Under the BCP, a Remedial Investigation (RI) was performed during 2006. The RI evaluated environmental quality (soil, soil gas, and groundwater) at the Site and adjacent sidewalk areas. The results of the RI showed that Site soil and soil beneath adjacent sidewalks has lead, PAH, and other metals impacts in soil above Part 375 restricted-residential soil cleanup objectives (SCOs). The soil beneath the Site and adjacent sidewalk areas in certain areas will be remediated. Site soil has a remedial goal of 1,000 mg/kg for lead, consistent with the concentration above which soils are anticipated to be hazardous for lead. Soil beneath adjacent sidewalk areas has a remedial goal of 400 mg/kg for lead, consistent with the NYS SCO for restricted-residential use.

The entire Site will be capped with concrete building slab and foundation. The adjacent sidewalks will be capped with concrete sidewalk or, in areas of vegetation, a minimum of two feet of clean fill. Hence, barring intrusive activities, future contact with, or dust generation from soils containing constituents above NYSDEC-specified cleanup levels is likely to be minimal. Nevertheless, this SoMP was prepared to establish practical protocols and recommendations that will guide responsible management and/or mitigation of potential future soil issues/concerns that may arise (e.g., dust generation, direct contact, relocation or off-site disposal) with respect to future utility work related to the Site.

For the remedy to remain protective in the future, all subsurface soils beneath the Site and beneath the adjacent sidewalks containing residual concentrations above restricted-residential SCOs must remain undisturbed, or if required to be disturbed, such disturbance must be

planned to ensure the protection of workers, public health, and the environment. The HASP (Appendix F of the Site Management Plan) and CAMP (Appendix E of the Site Management Plan) will be used by the owner's workers carrying out these activities at the Site. Further, the New York State Department of Environmental Conservation (NYSDEC) shall be informed of any such work in writing before any such construction occurs, except in the case of emergency excavation (e.g., a water main break).

During activity/repair work within sidewalk areas adjacent to the Site, the excavation of soil/fill may be necessary during the construction/repair of utilities, replacement of sidewalk, and other related activities. Residual contaminated soils may be excavated from the beneath the Site or from beneath adjacent sidewalks during such activities. If this occurs, characterization of soils will be performed and, where applicable, disposal/reuse will be done in accordance with NYSDEC regulations. Proper management of the disturbed soil and any associated waste materials (soil, sediment, debris, etc.) shall be necessary . Finally, future work performed by or on behalf of the Site owner that disturbs Site soils or soils beneath adjacent sidewalks will be conducted such that all use restrictions (development and groundwater) detailed in the Environmental Easement are complied with.

This SoMP describes procedures to be followed in the event that intrusive soil activities occur subsequent to remediation within the Site and adjacent sidewalk areas. These activities can include construction during future construction or maintenance activities that require intrusive work. This SoMP identifies responsibilities, defines the activities to assess intrusive projects and specifies how to respond to environmental conditions encountered during these intrusive activities.

The SoMP is intended to be a guide for the Site owner, owner's consultant, and contractors involved in performing intrusive activities, specifically how to approach, manage and restore portions of the Site or adjacent sidewalk that were previously identified as areas where chemicals/constituents are present in soil above NYSDEC-specified cleanup levels.

2.0 SOIL MANAGEMENT RECOMMENDATIONS

Practical recommendations to responsibly manage potential soil issues with respect to future potential utility work include the following:

1. During utility work, provisions should be taken to minimize or control dust generation and/or erosion into adjacent sewers during preparation activities.

2. Laboratory analysis of any excess soil removed from the adjacent sidewalk areas should be provided to the entity that receives the soil.

3. Based on existing information, the Site and adjacent sidewalks will be capped with the Site building concrete slab and foundation, concrete sidewalk, or a minimum of two feet of clean fill. Hence, barring intrusive activities, future contact with, or dust generation, from soils containing the constituents above NYSDEC-specified cleanup levels is likely to be minimal. Nevertheless, unless demonstrated to be below NYSDEC-specified cleanup levels, all existing in-place soils will be covered by the Site building concrete slab and foundation, concrete sidewalk, or a minimum of two feet of clean fill to minimize the potential for future worker contact with these soils.

4. Rocks and any other debris should be segregated from the debris mound materials prior to their reuse.

The residual concentrations in Site soil and soil beneath the adjacent sidewalk remaining after remediation is documented in the Site Management Plan (SMP). Thus, when intrusive work is to be performed at the Site or within the adjacent sidewalk, the Contractor needs to be alerted to the potential of encountering impacted soil. Accordingly, the Contractor should review the figures showing the approximate location of soils with residual concentrations in relation to the location of the planned intrusive work (if any), and the follow prudent excavation practices and the General Excavation Guidelines below that would allow identification, if such impacted soil is present.

3.0 DEFINITION OF KEY TERMS

The following terms are defined as follows:

Intrusive Soil Activities – Any scope of work that involves the penetration of ground that encounters soil that subsequently results in one or more of the following activities: 1) soil handling; 2) stockpiling; 3) loading or unloading; 4) transport; 5) relocation; and/or, 6) off-site disposition (disposal) which can result in direct exposure.

Suspect Soil – Soil that exhibits visual discoloration, olfactory (odor) evidence, elevated real time readings using a photo ionization detector (PID or equivalent) and/or evidence of debris or waste disposal.

Discolored/Odorous Soil – Soil that is distinguishable from surrounding soils due to contrasts in color or hue and/or may also exhibit an odor that is distinguishable from ambient conditions.

Elevated PID (or equivalent) readings – Real time PID readings that exceed background, upwind concentrations and are sustained for at least one (1) minute.

Impacted Soil – soils which contain constituents at concentrations above SCOs[1].

Clean Soil - soils which do not contain constituents at concentrations above SCOs[1].

Relocated Soil – non-hazardous soils which do not contain constituents at concentrations above existing in-place soil (either beneath the Site or adjacent sidewalks) concentrations that will be placed in another location on-Site or beneath adjacent sidewalks.

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[1] 6 NYCRR Part 375 Environmental Remediation Programs (Subpart 6) Soil Cleanup Objectives for Restricted-Residential Use and/or Protection of Groundwater, effective 14 December 2006.

4.0 RESPONSIBILITIES

Appropriate soil management responsibilities for intrusive soil activities at the Property will belong to the Owner or the Contractor performing the work. The responsibilities for each are identified below:

4.1 OWNER RESPONSIBILITIES

- Project initiation and initial project location determination; and
- Provide, and hold the Contractor accountable for compliance with general excavation requirements of this SoMP.

4.2 CONTRACTOR RESPONSIBILITIES

- Implement general excavation guidelines and alert Owner if excess soil is generated or Suspect Soil is encountered;
- Implement the SoMP in a manner that conforms to the requirements set forth herein;
- Coordinate the staging, placement or removal of excavated, excess, Suspect or Impacted Soil; and
- Document and track separately, those activities associated with handling of excess, Suspect or Impacted Soil at the Property prior to commencement of the construction project and provide documentation to Owner.

4.3 OWNER'S CONSULTANT RESPONSIBILITIES

- Conduct testing as appropriate of excess or Suspect Soil and compare to SCOs[2] to determine if excavated soil can be reused on

[2] 6 NYCRR Part 375 Environmental Remediation Programs (Subpart 6) Soil Cleanup Objectives for Restricted Commercial Use and/or Protection of Groundwater, effective 14 December 2006.

the Property or if off-site disposal will be required in accordance with this SoMP.

5.0 EXCAVATION LOCATION ASSESSMENT

When an intrusive soil activity within the Site or adjacent sidewalk is planned by the Owner, the Owner should consider the depth of the intended activity and check whether or not the location of such activity is within an area where clean fill was placed during the remediation to evaluate the relative potential to encounter Suspect or Impacted Soils in the existing fill layer/shallow soils.

If the owner is performing the work, the owner and owner's Consultant will need to evaluate the proposed project location to determine:

- The relative likelihood that the intended intrusive soil activity will encounter Suspect or Impacted Soils. Shallow intrusive activities (e.g. landscaping activities) in areas where a minimum 2-foot thick layer of clean fill was emplaced during remediation will have a very low potential for encountering Suspect or Impacted Soil. Deeper intrusive activities (e.g. pipeline repairs) in these areas or in areas where no clean fill was used to cap the sidewalk have a greater potential for encountering Suspect or Impacted Soils;

- The current applicability of the SCOs, or other pertinent cleanup objectives; and

- Whether any pre-construction soil sampling is required or recommended based on knowledge of the proposed project and the reviews conducted above.

If the planned intrusive soil activities will occur within or penetrate the existing clean /cap, then the Site owner must notify the person(s) or Contractor performing the intrusive work; 1) that Suspect or Impacted Soil will likely be encountered, 2) about the requirements of this SoMP, and 3) to plan accordingly prior to performing the intrusive activity. Additionally, NYSDEC shall be notified of the work. If the intrusive soil activities are likely to be limited to the layer of clean fill emplaced during site development, then the person(s) or Contractor performing the intrusive work shall follow the General Excavation Guidelines and notify the Owner if any Suspect or Impacted soil is encountered.

If the work is performed by an entity other than the Site owner, the Site owner shall provide the entity performing the work with a copy of the

SMP and SoMP. The entity shall than obtain NYSDEC approval prior to commencement of work.

6.0 GENERAL EXCAVATION GUIDELINES

These guidelines are for work to be performed within previously remediated areas by the Site owner or owner's contractor. The Contractor shall evaluate the quality of soil encountered during all excavation activities. This evaluation is intended to determine whether Suspect Soil is encountered. Suspect Soils will be identified by visually discolored or odorous soil and/or elevated PID (or equivalent) readings and/or evidence of debris or waste disposal (i.e., any material that not immediately obvious to be clean fill).

In the event Suspect Soil is encountered, the Contractor representative is required to immediately notify the Site owner and commence cautionary steps (e.g. segregation of Suspect Soil, dust control, suspension of construction, implementation of HASP) until soil quality is confirmed (i.e. through testing or other mechanism). The Site owner must approve of all actions taken by the Contractor.

7.0 EXCAVATED SOIL MANAGEMENT REQUIREMENTS

This section sets forth the key elements for intrusive soil work conducted within the soil containing residual concentrations or for Suspect Soil either confirmed or unconfirmed. These elements will serve as the basis for the preparation of a Soil Excavation Work Plan (SEWP) which is to be prepared by the excavation Contractor and explain how these key elements will be addressed for each specific project. The SEWP will, at a minimum, address:

- Contractor Health & Safety Guidelines;
- Soil Handling, Segregation and Stockpiling Guidelines; and
- Emergency Excavations.

7.1 CONTRACTOR HEALTH AND SAFETY GUIDELINES

The Contractor performing soil intrusive activities shall perform all work in accordance with local, New York State, and federal regulations. Since the concentrations of contaminants in the subsurface soil may vary, precautions must be taken during all excavation activities and the Contractor is obliged to adhere to all applicable regulations that pertain to the planned intrusive activities. As such, a Contractor SEWP shall be developed for approval by the Site owner. Any future soil intrusive work (e.g., excavations, pipe installation, etc.) shall be conducted in accordance with the Owner-approved SEWP and should include the procedures identified below:

- Established work zones;
- Underground clearance;
- Work area security;
- Communications plan and defined chain-of-command;
- Dust mitigation and decontamination procedures (if required);

- Contractors HASP[3]
    - Potential hazard identification;
    - Work zone monitoring (if required);
    - Worker personal protective equipment (PPE - e.g. gloves, booties, and coveralls, etc.);
- Soil handling plan (e.g. segregation, stockpiling, etc.); and
- Transportation & Disposal (T&D) Plan or Relocation or Reuse Plan.

7.2 *SOIL HANDLING, SEGREGATION AND STOCKPILING GUIDELINES*

Soils that are anticipated to be disposed off-site shall be characterized in place prior to excavation. In the event that excess or unexpected Suspect soils are encountered and need to be removed, these soils shall be handled, segregated and stockpiled in accordance with the following guidelines:

- Any excavated excess or Suspect Soil will be temporarily stockpiled, or staged in covered roll off containers at all times until final determinations are made regarding disposal or reuse. Any stockpiles will be lined and covered with seamless polyethylene sheeting.
- Anthropogenic material such as tires, metallic debris, bottles, stained soil should be segregated, if required, and disposed off-site.
- Pursuant to the Contractor's responsibility to provide security, the stockpiled soil and/or other excavated materials will be stored in a secure area until analytical results are obtained and evaluated.
- Profiling of waste soils should be conducted in accordance with Section 8.0.

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[3] 29 Code of Federal Regulations (CFR) 1910.120 and other relevant OSHA regulations applicable to excavation activities

Any soils pre-classified as a characteristic hazardous waste (Section 8.0) must be managed in accordance with applicable federal and New York State RCRA requirements regarding storage, handling, transportation, treatment, and disposal.

7.3 EMERGENCY EXCAVATIONS

When excavations must be performed on an emergency basis (e.g. to repair a water line break), soil removal from such excavations must be handled as follows:

1. The excavated soil must be placed in either containers (drums) provided by chemical or waste operators or in a pile adjacent to the excavation.

2. Soil stored in a pile must be placed on top of, and covered by, sheets of seamless polyethylene to prevent erosion or runoff from the pile.

3. NYSDEC shall be notified of the emergency work.

4. The applicable Owner's representative shall be contacted following an emergency excavation to initiate implementation of this SoMP protocol.

5. All records of the emergency action shall be maintained in compliance with all federal, state and local regulations. These records shall include, but not be limited to, quantity, soil quality and disposition of soil.

8.0 SOIL CHARACTERIZATION, DISPOSITION & PROJECT CLOSEOUT

This section is intended as a guideline for future workers within the Site and adjacent sidewalk, to ensure the proper management of excavated soil. Because the solid and hazardous waste regulations are in a continuous state of change, this section provides only general guidelines. Any future soil disposal, if necessary, must be conducted in accordance with the regulations current at the time the disposal activities will take place. All applicable and appropriate standards, guidance and criteria will be followed to properly manage any remedial waste that is generated.

8.1 SOIL CHARACTERIZATION

The characterization of soil that is segregated during intrusive activities in accordance with the above procedures will depend on its final disposition. Segregated soil may be: 1) used as backfill in the excavation from which it originated; 2) relocated on-site; 3) disposed of as a non-hazardous regulated waste (industrial or special); or 4) disposed of off-site as a characteristic hazardous waste.

Characterization of soil for disposal as a characteristic hazardous waste or disposal as a non-hazardous regulated waste (industrial or special) will be done in accordance with the receiving disposal facility (i.e., waste profile testing), and including, TCLP testing for lead.

Characterization of soil that is to be used as backfill in the excavation from which it originated or relocated on-site will involve testing for VOCs, SVOCs, TAL metals and TCLP metals. The results will be compared to the SCOs[4] and the NYSDEC-specified cleanup levels.

Excavated soils may generally be stored temporarily as long as the material is segregated from the environment by impervious material, such as polyethylene sheeting or within a covered roll-off container; the soil may remain on-site until appropriate laboratory results are available and interpreted.

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[4] 6 NYCRR Part 375 Environmental Remediation Programs (Subpart 6) Soil Cleanup Objectives for Restricted-Residential Use and/or Protection of Groundwater, effective 14 December 2006.

8.2 DISPOSITION

No soil shall be removed from the Site and adjacent sidewalks for off-site reuse unless it is from previously remediated areas and has been demonstrated, in accordance with this SoMP to meet the requirements for clean fill in effect at the time of actual disposal (e.g. Unrestricted Use SCO[5]).

Conversely, all soil determined, on the basis of this protocol, to require management as a hazardous or non-hazardous regulated waste (industrial or special) must be managed in accordance with all applicable federal and New York State requirements regarding storage, handling, transportation, treatment, and disposal. The Contractor will identify the disposition of excavated soil based on the soil characterization performed in Section 8.1 and the following categories:

1. Off-Site Reuse/Disposal

2. On-Site Reuse/Relocation

8.2.1 Off-Site Disposal

Characteristic hazardous waste soil will be disposed of in a facility licensed to accept/dispose of that type of hazardous waste. Excavated Impacted Soil that is not a characteristic hazardous waste but constitutes a non-hazardous regulated waste (industrial or special) and cannot be used as backfill in the excavation from which it originated or relocated elsewhere within the adjacent sidewalk will also be disposed of at an off-site facility that is in compliance with current regulations for disposal of that material. The Contractor will provide the Owner with Manifests, Bills of Lading, or Certificates of Destruction, as appropriate.

8.2.2 On-Site Relocation

Excavated soil not exhibiting concentrations above SCOs[6] and existing residual soil concentrations (i.e., detected soils concentrations from laboratory analysis are <u>not</u> above the concentrations of existing soil

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[5] 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestricted Use.

[6] 6 NYCRR Part 375 Soil Cleanup Objectives for Restricted Residential Use and/or Protection of Groundwater.

maximum concentrations remaining on-site following RA, as documented in the SMP) may be reused within the adjacent sidewalks. Attempts should be made to re-use the soil as backfill in the excavation from which it originated, where feasible. The Owner will have final approval of any relocated on-site soil from the Property and specify any required documentation and contract provisioning.

8.3 PROJECT CLOSEOUT

Contractor shall notify the Owner of work completion and provide project documentation. Any areas with surface cover, (e.g. asphalt or concrete), and/or with a minimum 2-foot clean soil cover should be restored after work activities are complete unless prior written authorization for alternate closeout is obtained from the Owner. If the asphalt or concrete surface and/or with a minimum 2-foot clean soil cover is not restored to restore in-kind the current cover designs, the Contractor should consult the Owner to determine if there is a need for any further action.

All records shall be maintained in compliance with all federal, New York State and local regulations. These records shall include, but not be limited to quantity, soil quality and disposition of soil. Any correspondence to or from NYSDEC regarding contained-in demonstrations and disposition of excavated soil shall copy the Owner.

Appendix E
Community Air Monitoring Plan

(Community Air Monitoring Plan from Supplemental Design Report dated March 2008 to be provided in final Site Management Plan)

Appendix F
Health and Safety Plan

(Health and Safety Plan from Supplemental Design Report dated March 2008 to be provided in final Site Management Plan)

Appendix G
Inspection Checklists

(To be provided in final Site Management Plan)

Appendix H
As-Built Drawings

(To be provided in final Site Management Plan)