Final

Remedial Work Plan

Proposed Whole Foods Market

220 3rd Street
Brooklyn, Kings County,
New York

NYSDEC BCP ID No. C224100

Prepared on Behalf of:
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Cambridge, Massachusetts

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1. INTRODUCTION AND PURPOSE

On behalf of Whole Foods Market Properties Brooklyn, LLC, n/k/a 190-220 Third Street Store Brooklyn NY, LLC (WFM), BL Companies has prepared this Remedial Work Plan (RWP) for the property located at 220 3rd Street, Brooklyn, Kings County, New York (the Site). This RWP was developed in accordance with the terms of the Brownfield Cleanup Agreement (BCA), dated March 31, 2005, Index W2-1052-05-02, between WFM and the New York State Department of Environmental Conservation (NYSDEC), and the criteria contained in Section 4 of NYSDEC's Draft Brownfield Cleanup Program Guide dated May 2004.

Previous investigations (Phase I Environmental Site Assessment, Phase II Site Investigation, and Remedial Investigation) completed by BL Companies characterized current environmental Site conditions. Interim Remedial Measures (IRMs) were completed by BL Companies to prevent potential risk to the environment and public health from on-Site areas of contamination. The IRMs were designed to be a permanent part of the final Site-specific remedial goals and objectives for the Site. The purpose of this RWP is to propose additional remedial activities needed to:

1. Eliminate, to the extent practicable, the potential risk to public health and the environment;
2. To the extent practicable, achieve compliance with Brownfield Cleanup Program (BCP) land use based remedial goals and objectives; and
3. Allow for re-development and productive re-use of the Site.

1.1 Site Description

The Site consists of approximately 2.155-acres of land located on the southern side of 3rd Street, approximately 30-feet west of the 3rd Street and 3rd Avenue intersection in the Borough of Brooklyn, City of New York, Kings County, New York. The City of New York Assessor's office lists the parcels as Block 978, Lots 1, 16, and 19. The Site covers the following addresses, 210 to 220 3rd Street, and 370 and 376 to 384 3rd Avenue. A Site location map is presented in Figure 1.

The Site historically consisted of several interconnected buildings and an open, rear area at the northwest corner of 3rd Street and 3rd Avenue. The former buildings consisted of a one-story warehouse building, a two-story auto repair shop that was located on the eastern portion of the Site, and a one/two-story building used for truck repairs that was located on the northwestern portion of the Site. The Site also contained a one/two-story building/loading dock that was located on the northern portion of the Site. The remaining area (rear) was an open area that bordered the 4th Street Basin and was used for parking and/or storage when the Site was occupied. Access to the Site was from 3rd Street via a paved driveway. Public water and natural gas serviced the buildings. Two septic systems provided on-Site wastewater treatment.

When the warehouse was occupied, it was used to store radiators (mostly new) and heat exchangers for automobiles and trucks. At one time, radiators were manufactured in this building. An unoccupied loading dock/building was used as a storage area for metal scaffolding and structure supports. The former truck repair building contained office space on the upper and lower levels, a repair area, a storage area and employee area. The Site buildings have been demolished. A Site plan is presented in Figure 2.

The Site is located in a commercial area and is zoned as "Medium Manufacturing District." The Site is bordered by 3rd Street and Verizon, followed by a Jewish Center and commercial properties to the north; by a two-story office building, 3rd Avenue, followed by MB Contracting, Novarts, Staples, and commercial properties to the east; by the 4th Street Basin/Gowanus Canal followed by Hochburg Brothers, Schan Inc., Hollywood Signs and commercial properties to the south; and by property formerly occupied by All Boro Building Materials, followed by property formerly occupied by Red Hook Rock Crushers, and the Gowanus Canal to the west.

1.2 Site History

The usage history of the Site has been reconstructed from information obtained during interviews with Site representatives and review of topographic maps, street directories, and Sanborn™ Fire Insurance Maps.

Prior to 1880, the Site was part of the Edwin Clarke and Grace Hill Litchfield Estate. The 1886 Sanborn™ Fire Insurance Map depicted the Site as developed with a two-story building, the Hopkins and Ennis Coal Yard, A. Polhemus & Son Long Island Ice Company, and a portion of the J. E. Litchfield and Co.'s Lumber Yard. The Hopkins and Ennis Coal Yard consisted of a coal pile located in the southeastern portion of the Site, a two-story office building located in the northern portion of the Site, and an outbuilding located to the south of the office building. The A. Polhemus & Son Long Island Ice Company consisted of an office building located in the northwestern portion of the Site and an outbuilding located in the central portion of the Site.

The 1904 Sanborn™ Fire Insurance Map depicted the Site as developed with the two-story garage (since removed) listed as a Shoppe, the Schroeder and Horstman Coal Yard, and the Powell and Titus Coal Yard. The coal yards consisted of office buildings located along Third Street, storage buildings located in the central portion of the Site, and coal sheds located in the southeastern and southwestern portions of the Site. The 1904 Sanborn™ Fire Insurance Map also indicated the presence of Pure Oil Company located on the western portion of the Site which had a 200,000-gallon oil tank located in the northwestern portion of the Site.

The 1915 Sanborn™ Fire Insurance Map depicted the Site as developed with the Schroeder and Horstman Coal Yard and the Powell and Titus Coal Yard. The Site was

also developed with the John Morton Sons Co. Building Materials in the western portion. The 200,00-gallon oil tank was no longer present.

The 1938 Sanborn™ Fire Insurance Map depicted the Site as developed with the Horstman and Higley Co., Inc. Coal Yard, the Powell and Titus Coal Yard, and Carroll Trucking Corp. The layout of the coal yards had not significantly changed since the 1915 Sanborn™ Fire Insurance Map. The Carroll Trucking Corp. was depicted on the western portion of the Site.

The 1950 Sanborn™ Fire Insurance Map depicted the Site as developed with a lumberyard and a freight depot on the southern portion and an auto junkyard and auto repair on the northern portion.

The 1969 Sanborn™ Fire Insurance Map showed the Site as developed with the all of the current buildings (since demolished) discussed in the previous section. Freight storage was depicted along most of 3rd Avenue and on the southeastern portion of the Site. Auto repair was depicted at 370 3rd Avenue where the most recent radiator repair shop had been located. A loading dock/building was depicted on the central portion of the Site, with the most recent former truck engine repair building depicted on the northwestern portion of the Site. Storage areas for brick and tile were depicted on the western and southwestern portions of the Site.

The 1977, 1979, and 1980 Sanborn™ Fire Insurance Maps showed the Site similar to the 1969 map. The 1981 Sanborn™ Fire Insurance Map depicted the building on the northwestern portion of the Site as occupied by the auto repair shop. The remaining portions of the Site were depicted as they appeared on the 1980 map. The 1982, 1986, 1987, 1988, 1991, 1992, 1993, 1995, and 1996 Sanborn™ Fire Insurance Maps depicted the Site similar to the 1981 map.

1.3 Program Regulatory Status

This RWP has been prepared as required by the BCA. In the BCA, the NYSDEC has identified the Site as Site No. C224100, Index # W2-1052-05-02. WFM executed the BCA on March 31, 2005. Dale A. Desnoyers, Director, Division of Environmental Remediation, NYSDEC, executed the BCA on April 25, 2005, making it fully effective on that date. The BCA is the Oversight Document between NYSDEC and WFM for this project as provided for in the Brownfield Cleanup Program (BCP).

The Site has a long history of industrial and commercial uses as described in Section 1.2. Under the Agreement, the following definitions apply to the Site:

- "Contemplated Use": commercial/retail use with public access promenade along the 4th Street Basin excluding residential uses, day care, childcare, and medical care uses.

- "Existing Contamination": contamination that has been identified at the Site to date. Volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs)/semi-volatile organic compounds (SVOCs), inorganics (metals), poly-chlorinated biphenyls (PCBs), and pesticides have been detected in soil at the Site. VOCs, SVOCs/PAHs, pesticides, and metals have been detected in the ground water beneath the Site. Some of the existing contaminated material has been removed through remedial actions performed under two separate IRMs, which are summarized in section 1.4.2.
- "Site": that parcel of property located at 220 3rd Street, Kings County, New York, and currently identified on the Kings County Tax Map as Block 978, lot 1, lot 16, and lot 19. The Site purchased does not include the existing two-story building located on the corner of 3rd Street and 3rd Avenue (360 3rd Avenue).
- "Applicant": WFM Properties Brooklyn, LLC, a Massachusetts limited liability company, n/k/a 190-220 Third Street Store Brooklyn NY, LLC, the current owner (as of January 2005) and developer of the Site, with an address of 125 Cambridge Park Drive, Cambridge, MA 02140.

1.4 Previous Remedial Investigations

A Phase I Environmental Site Assessment (ESA) was completed by BL Companies in December 2003. The Phase I ESA recommended additional investigation of the Site based on the past use of the property by auto and truck repair businesses, as a coal yard, and as a bulk petroleum storage facility. In addition, two above ground storage tanks with associated staining, one confirmed and one suspected underground storage tank, on-Site septic tanks/leach fields, hydraulic lifts in the buildings, open vats of antifreeze and oil, and 55-gallon drums of unidentified material stored throughout the Site, including outside on the gravel parking areas and inside the buildings, were identified as specific Areas of Concern (AOCs) requiring additional investigation. Copies of the Phase I and II reports were submitted to the NYSDEC with the BCP application and prior to the September 8, 2004 pre-application meeting.

A Phase II Site Investigation (SI) was completed by BL Companies in February 2004. During completion of the Phase II SI, VOCs, SVOCs/PAHs, and metals were identified in the soil and ground water beneath the Site. PCBs also were identified to be present in the on-Site soils.

The BCP application was submitted by Robinson & Cole LLP on behalf of WFM to the NYSDEC on October 27, 2004. As a BCP Volunteer, WFM committed to both on-Site investigation and remediation to achieve appropriate clean-up goals and objectives.

1.4.1 Summary of the Remedial Investigation

A draft Remedial Investigation Report (RIR) was completed by BL Companies in April 2006 and submitted to the NYSDEC on April 14, 2006. The RIR was prepared in

general accordance with the draft NYSDEC Brownfield Cleanup Program Guide, the Draft DER–10, Technical Guidance for Site Investigation and Remediation, and the Remedial Investigation Work Plan (RIWP) submitted on October 29, 2004 (revised May 12, 2005) and approved by the NYSDEC on July 12, 2005. The main goals of the voluntary cleanup investigation included:

- Investigating each AOC identified during the Phase I ESA.
- Identifying contaminant source areas (if present).
- Defining the nature and extent of contamination at the Site, both laterally and vertically.
- Producing data of sufficient quantity and quality to support the development of an acceptable RWP. This included generating sufficient data to properly characterize soil that will be displaced by construction for off-Site disposal or re-use on the Site, and to determine if additional excavation and/or in-situ treatment is required for soil that will not be displaced by construction.

The draft RIR concluded the following:

- A gasoline-related release area with elevated concentrations of VOCs was identified beneath the former truck repair building. Low levels of chlorinated VOCs were also detected in this area.
- Several petroleum-related releases areas with elevated levels of SVOCs/PAHs were identified at the Site.
- No significant soil vapor concentrations have been detected outside the footprint of the former truck repair building.
- Ground water plumes (containing VOC and SVOC) have been substantially delineated. The highest concentrations for VOCs have been shown to be near the existing historic building on the corner of 3rd Street and 3rd and may be originating from off-Site. The highest concentration for SVOCs appears to be centered downgradient of the former truck repair building, which is also the former location of a 200,000-gallon aboveground storage tank that was present at the Site during the early 1900's.
- Potential impacts to indoor air have been evaluated by the collection of soil vapor samples from temporary and permanent soil vapor monitoring wells that were installed at the Site.
- SVOCs/PAHs and metals were detected within the urban fill present across the entire Site.
- Complete potential exposure pathways were identified.

The draft RIR recommended that a draft RWP be prepared and submitted to the NYSDEC based upon the draft RIR findings. Additionally, the RIR recommended that the following remedial alternatives be considered:

1. No action.
2. Soil excavation and removal

3. Utilize in-situ remediation (i.e., bio/chemical remediation techniques) in capillary fringe and below the water table at specific locations.
4. Encapsulation of contamination (institutional/engineering controls).
5. Monitor ground water via natural attenuation.

Remedial action items will be further discussed in detail in later sections of this RWP.

A Fish and Wildlife Impact Analysis (FWIA) was conducted at the Site to determine whether particular chemical contaminates present in on-Site subsurface soils are a potential on-going contributing source to the chemical contamination present in the 4th Street Basin. As part of the study, three test borings were advanced on-Site along the 4th Street Basin, and three canal bottom sediment samples, adjacent to the test borings, were collected. The findings of the FWIA were:

- There was no reasonably clear indication that chemical contamination present at the Site has adversely impacted the canal.
- Contamination in the canal sediments was more likely a result of area wide filling activities, with potential contributions from any former and existing sites along the canal.

The findings and conclusions of the RI and the FWIA are detailed in the report titled "Remedial Investigation Report" dated October 31, 2006. The RIR was revised based on comments received from the NYSDEC in a letter dated October 17, 2006. The revised RIR was submitted to the NYSDEC, and a copy of the final RIR was placed in the document repositories located at Brooklyn Public Library - Carroll Gardens Branch, Brooklyn Public Library - Park Slope Branch, and Brooklyn Community Board #6.

1.4.2 Summary of the Interim Remedial Measures

Draft IRM Reports (IRM #1 [UST/Septic Removal] and IRM #2 [Hotspot Removal]) were submitted by BL Companies to the NYSDEC on April 14th and April 21st, 2006, respectively, under separate cover.

IRM #1 detailed the removal of several potential sources of past, existing, and future contamination, specifically, the removal of four USTs, two drywells, and a septic tank and associated cesspool. Underground storage tanks removed from the Site were "closed' under the NYSDEC Petroleum Bulk Storage Program. IRM #1 concluded the following from the closure sampling results:

- Concentrations of compounds that exceed the Recommended Soil Cleanup Objectives (RSCOs) listed in Technical and Administrative Guidance Memorandum (TAGM) #4046 have been observed to varying degrees in confirmation samples collected from tank/drywell graves.
- Concentrations of compounds that exceed the draft Track 2 Restricted-Commercial Use Soil Cleanup Objectives (SCOs) presented in draft 6 NYCRR

Subpart 375-3 dated November 2005 have been minimally observed in samples collected from tank/drywell graves.

Based upon the findings presented in the IRM #1 report, BL Companies recommended the submission of a RWP to the NYSDEC to address the following:

- The removal of UST-4 and UST-4a (not removed during IRM activities).
- The remediation and/or institutional or engineering control of remaining soil containing elevated concentrations of compounds that exceed TAGM #4046 RSCOs or the draft Track 2 Restricted-Commercial Use SCOs, under an approved RWP.

The objective of IRM #2 was to excavate hotspots (release areas where concentrations of certain compounds significantly exceeded the TAGM #4046 RSCOs), identified in the RI. Classes of compounds of concern included VOCs, SVOCs/PAHs, PCBs, and metals. The IRM #2 report achieved the following:

- The excavation of HOTSPOT #1, #2, #3, #4, #5, and PCB.
- The over excavation of HOTSPOT #1, #2, #4, and #5, based on conditions observed during excavation.

Closure sampling identified the following:

- Concentrations of compounds that exceed the TAGM #4046 RSCOs have been observed to varying degrees in samples collected from excavation graves.
- Concentrations of compounds that exceed the draft Track 2 Restricted-Commercial Use SCOs have been minimally observed in samples collected from excavation graves.

Based upon the findings detailed in the IRM #2 report, BL Companies recommended the submission of a RWP to the NYSDEC to address the following:

- The excavation of HOTSPOTs #6, #7, #8, and #9 (not removed during IRM activities).
- The remediation and/or institutional or engineering control of remaining soil containing elevated concentrations of compounds that exceed TAGM #4046 RSCOs, or that exceed the draft Track 2 Restricted-Commercial Use SCOs, under an approved RWP.

Although the IRM activities stopped prior to being completed, both IRM #1 and IRM #2 were effective in removing sources of contamination and in reducing the risk to human health and the environment associated with the Site. In addition to the removal of the USTs and septic tanks, over 11,000 tons of petroleum-impacted soil above and below the water table were removed during the IRM activities. Post-IRM ground water data

presented in the RIR suggests that ground water quality has already been improved at the Site as a result of these activities.

1.5 Contemplated Use of the Site

As previously discussed, the contemplated use of the Site is intended to be commercial/retail use with a public access promenade along the 4th Street Basin excluding residential uses, day care, childcare, and medical care uses. Specifically, the Site will be the location of a Whole Foods Market and associated infrastructure, which is expected to be completed in 2008. The final remedial action portion of the project will be conducted in conjunction with the construction of the market. The development includes a 60,000 S.F. market building on the 220 3rd Street Site, a bulkhead reconstruction along the 4th Street Basin, with an associated public promenade, an outside parking lot on the 220 3rd Street Site and a portion of the adjacent site, located at 190 Third Street (Lot 23), and a parking garage on Lot 23. The plan for the market also includes the installation of a subsurface storm water drainage system for the 220 3rd Street Site (market building) and potentially a separate drainage system for the parking garage on Lot 23. The features shown on Figure 3 are based on WFM's conceptual plan of the market. Figure 4 illustrates the proposed remedial excavation limits (in feet below the current ground surface (cgs)) for specific areas of the Site. For purposes of clarity the future grade of the Site (grade of Site to be established after the completion of the remediation and building construction) will be referenced as the "redevelopment grade."

2. SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Topographic Setting

According to the United States Geological Survey (USGS) topographic quadrangle of Brooklyn, New York, the topography in the area of the Site slopes to the southwest. The Site has an approximate average elevation of 6.5 feet above mean sea level (AMSL) and has a slight slope to the southwest. The southwestern portion of the Site next to the 4th Street Basin had an elevation of approximately 2.30 feet AMSL and the northeastern portion of the Site next to 3rd Street has an elevation of approximately 9.30 feet AMSL.

The Site was filled during its early development in the 1800s. Prior to the demolition of the on-Site buildings, the northeastern portion of the Site was level with 3rd Street and the southeastern portion of the property was level with 3rd Avenue with first floor building access at street level. The elevation of 3rd street increased towards 3rd Avenue and the elevation of 3rd Avenue increased away from 3rd Street. Currently, the original access road into the Site exists on the 3rd Street side but the elevation of the property is approximately 4 feet lower than the street on the northeastern portion of the Site and approximately 12 feet lower than the street in the extreme southern corner of the Site. The change in topography is a result of the Site demolition and IRM activities completed to date. A concrete bulkhead for the 4th Street Basin is present along the southwestern portion of the property.

The topography within a quarter mile of the Site is relatively flat with a slight slope to the southwest towards the Gowanus Canal.

2.2 Geologic Setting

According to published information, the Site is located in the Atlantic Coastal Plain Physiographic Province and is underlain by Coastal Plain deposits. The Coastal Plain deposits consist of approximately 54 feet of glacial till, over approximately 50 feet of fine to very coarse sand and gravel with a few layers of clay and silt of the Jamaco Aquifer. The Jamaco Aquifer is underlain by approximately 50 feet of clay, silt, and a few layers of sand, known as Gardiners Clay. Bedrock underlies the Gardiners Clay and is reported to be approximately 154 feet below ground surface.

Site-specific geologic information was obtained during the advancement of both environmental and geotechnical test borings across the Site. The Site is underlain by fill that varies in thickness from approximately 5 feet to 25 feet. The fill is underlain by an organic layer composed of varying proportions of silt and clay that varied in thickness from approximately 10 feet to 25 feet. The top of the organic layer likely represents the original surface of the Site, prior to filling in the late 1800s. The organic layer is

underlain by a mixture of fine to coarse sands with increasing percentages of gravel and coarser sands with depth (coarsening downward sequence). Exploration borings were advanced to a total depth of approximately 77 feet below grade. The bedrock surface was not encountered in any of the test borings.

Based on laboratory analytical results obtained from soil samples collected across the Site (laterally and vertically), impacted soils have been identified to be coincident with the fill material and the top portion of the organic layer. Sampling of ground water and soil from the lower portion of the organic layer and the upper portion of the aquifer below the organic layer indicate that contamination has not migrated into the deep portion of the aquifer.

2.3 Hydrogeologic Setting

Shallow ground water is present in the overburden fill material beneath the Site. Several rounds of ground water measurement were collected during RI activities conducted at the Site. Ground water is tidally influenced, but generally flows toward the 4th Street Basin in both high and low tide conditions. The ground water level within the overburden aquifer ranges from approximately 3.0 feet below cgs at MW-4 (previously located near the northwest boundary of the Site) to 7.5 feet below cgs at MW-1 (previously located in the northeast boundary of the Site). The average horizontal gradient across the Site is 0.01 foot per foot.

Vertical hydraulic gradient was measured at the shallow/intermediate/deep well triplet (MW-18S/MW-18I, MW-18D) previously located in the central portion of the Site. The vertical gradient was slightly upward between the shallow and intermediate wells while the vertical gradient was slightly downward between the deep and both the shallow and intermediate wells. The vertical gradient was greatest between the deep and intermediate wells at 0.99 foot per foot (downwards) and least between the intermediate and shallow wells at 0.28 foot per foot (upwards). The vertical gradient between the shallow and deep wells was 0.71 foot per foot.

A tidal survey was performed at the Site in March 2005. During the survey, water levels were monitored continuously at one location in the 4th Street Basin and one shallow monitoring well (MW-12) for a minimum of two weeks. The tidal survey data from MW-14 (previously located approximately 15 feet from the basin) indicates that the water level in MW-14 is tidally influenced (maximum fluctuation of approximately 1.7 feet).

2.4 Nature and Extent of Contamination

As discussed in the draft RIR, VOCs, SVOCs, pesticides, PCBs and metals were detected at concentrations above laboratory detection limits in media samples collected across the entire Site. The RIR provides a description of the nature and extent of the

contamination both before and after the IRM activities. As described in Subsection 1.4.2, the IRM activities were designed to remove soils defined as hotspots (i.e., areas that exhibit concentrations of compounds that significantly exceed TAGM #4046 RSCOs, and where the source of the impacted soil appears to be from an on-Site release). The IRM activities partially or completely removed several, but not all, hotspots. Therefore, it is the nature and extent of the contamination remaining on-Site (post-IRMs) that is relevant to, and the basis of, this RWP. The post-IRM analytical data for soil, ground water and soil gas samples are summarized in Tables 1 through 4. Soil analytical results for all areas identified as hotspots are compared against NYSDEC Division of Hazardous Waste Remediation TAGM #4046 RSCOs and the draft Track 2 Restricted-Commercial Use SCOs presented in draft 6 NYCRR Subpart 375-3 of the November 2005 draft BCP guidance document. Ground water analytical results are compared to NYSDEC ambient ground water quality standards published in the Division of Waste Technical and Operating Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards (AWQS) and Guidance Values and Ground Water Effluent Limitations."

The standards and guidance values published in TAGM #4046, TOGS 1.1.1 and draft 6 NYCRR Subpart 375-3 were used for comparative screening purposes to evaluate soil and ground water quality at the Site, and are not Site-specific clean-up goals.

The development of the initial Conceptual Site Model (CSM) described in the draft RIR was based on a review of the current and historical uses of the Site. The locations of specific activities/operations/storage areas were identified as preliminary AOCs to be investigated. The initial CSM identified 19 AOCs. However, after the implementation of investigation activities and remedial efforts described in the IRM #1 and IRM #2 reports, it is no longer appropriate to maintain the designation of AOCs to the Site. The IRMs were designed to remove soils with significantly elevated concentrations of petroleum related contaminates believed to be the result of specific on-Site releases. For the purpose of completing the IRMs, these areas were designated as hotspots. During the completion of the IRMs several of these hotspots were removed, however, several hotspots remain and will be the focus of future remedial activities described in this RWP. The locations of the post-IRM hotspots are illustrated in Figure 5.

2.4.1 Post-IRM Soil Analytical Results

SVOCs with soil concentrations exceeding the draft Track 2 Restricted-Commercial Use SCOs were detected in 12 discernible hotspots, which are depicted in Figure 6. Figure 6 also depicts the proposed location of the WFM structures. HOTSPOTs 4c and 6 displayed similar SVOC characteristics, and as such, they are discussed together. Similar SVOC characteristics were seen in HOTSPOTs 9a, 9b, and 9c,, and are discussed together as well. The remaining hotspots, HOTSPOTs 3a, 7, 8, 10, 11 and 12 have more distinct SVOC characteristics, and/or are located in discrete areas, and are discussed separately.

HOTSPOT 4c and 6

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- EX4-5, S (~ 6 ft below cgs),
- EX4-5, SE (~ 6 ft below cgs),
- GP-2 (0-4 ft below cgs), and
- B115 (0-4 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)anthracene (14,000 ppb-20,000 ppb),
- benzo(a)pyrene (2,400 ppb-19,000 ppb),
- benzo(b)fluoranthene (12,000 ppb-20,000 ppb),
- dibenzo(a,h)anthracene (610 ppb-4,200 ppb), and
- indeno(1,2,3-cd)pyrene (6,300 ppb-14,000 ppb).

HOTSPOT 9a, 9b, and 9c

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- B-9 (8-12 ft below cgs),
- B132 (0-4 ft below cgs),
- B113 (0-4 ft bgs and 8-12 ft below cgs), and
- B114 (8-16 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)anthracene (13,000 ppb-67,000 ppb),
- benzo(a)pyrene (1,200 ppb-52,000 ppb),
- benzo(b)fluoranthene (14,000 ppb-28,000 ppb),
- chrysene (74,000 ppb),
- dibenzo(a,h)anthracene (9,500 ppb), and
- indeno(1,2,3-cd)pyrene (14,000 ppb-29,000 ppb).

HOTSPOT 3a

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- EX3, B (~5 ft below cgs),
- EX3, S (~2 ft below cgs),
- EX3, E (~2 ft below cgs),
- EX3, W (~2 ft below cgs), and
- EX 1/2 2-2 (~2 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)pyrene (1,200 ppb-2,500 ppb) and
- dibenzo(a,h)anthracene (598 ppb).

HOTSPOT 7

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- B-4 (4-8 ft below cgs), and
- B-15 (12-16 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)anthracene (27,000 ppb),
- benzo(a)pyrene (3,700 ppb-27,000 ppb),
- benzo(b)fluoranthene (29,000 ppb),

HOTSPOT 8

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in sample GP-8 (4-8 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- acenaphthene (1,800,000 ppb),
- anthracene (960,000 ppb),
- fluoranthene (1,300,000 ppb),
- fluorene (1,000,000 ppb),
- naphthalene (15,000,000 ppb),
- phenanthrene (3,400,000 ppb), and
- pyrene (2,100,000 ppb).

HOTSPOT 10a, 10b, and 10c

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- CEB-1 (6-8 and 8-10 ft below cgs),
- CEB-2 (8-10 ft below cgs), and
- CEB-3 (2-4 ft bgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)anthracene (14,000 ppb),
- benzo(a)pyrene (2,800 ppb-13,000 ppb), and
- benzo(b)fluoranthene (9,700 ppb).

HOTSPOT 11

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in samples:

- DW-2S (~1ft below cgs),
- DW-2E (~1 ft below cgs),
- DW-2W (~1ft below cgs), and
- DW-2N (~1 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)anthracene (7,600 ppb),
- benzo(a)pyrene (2,900 ppb-6,000 ppb),
- benzo(b)fluoranthene (6,500 ppb), and
- dibenzo(a,h)anthracene (620 ppb-870 ppb).

HOTSPOT 12

SVOCs were detected above the draft Track 2 Restricted-Commercial Use SCOs in sample:

- UST138/142-B (~3 ft below cgs).

The SVOC compounds detected above the draft Track 2 Restricted-Commercial Use SCOs were:

- benzo(a)pyrene (5,300 ppb), and
- dibenzo(a,h)anthracene (600 ppb).

Cadmium

The metal cadmium was detected above the draft Track 2 Restricted-Commercial Use SCOs and published site background levels in sample B-9 (4-8 ft below cgs) at a concentration of 9.53 ppm.

Lead

The metal lead was detected above the draft Track 2 Restricted-Commercial Use SCOs and published site background levels in sample EX3E, (~2.5 ft below cgs) at a concentration of 1,370 ppm.

2.4.2 Post-IRM Ground Water Analytical Results

Ground water analytical data representing ground water quality at five locations after the completion of the IRM activities are presented in Table 2. The table presents the sample date, sample identification, analytical results and any applicable data qualifier for the compounds detected in a sample. It should be noted that all of the monitoring wells installed during pre-IRM Site characterization activities were destroyed during the demolition and IRM activities. Five additional monitoring wells, identified as MW-1A through MW-5A were subsequently installed at the Site in March 2006.

Benzene was the only VOC detected at a concentration (66 ppb) that exceeded the NYSDEC TOGS standards in the ground water samples analyzed. Based on the location of the monitoring well at the upgradient boundary of the Site the benzene detected in the ground water is most likely related to a gasoline source located off the Site.

Two SVOCs have been detected at concentrations that exceed the NYSDEC TOGS standards in the ground water samples analyzed. Phenol was detected at a concentration of 5 ppb in GW-MW-1A, and acenaphthene was detected at a concentration of 24 ppb in GW-MW-5A.

Several metals have been detected at concentrations that exceed the NYSDEC TOGS standards in the ground water samples analyzed. The TOGS standard for iron is 300 ppb; iron was detected in all five wells at concentrations ranging from 1,200 ppb to 15,400 ppb. The TOGS standard for lead is 25 ppb; lead was detected once at a concentration of 27.5 ppb in GW-MW-4A. The TOGS standard for magnesium is 35,000 ppb; magnesium was detected in all five wells at concentrations ranging from 35,100 ppb to 168,000 ppb. The TOGS standard for manganese is 300 ppb; manganese was detected in all five wells at concentrations ranging from 585 ppb to 5,080 ppb. The TOGS standard for sodium is 20,000 ppb; sodium was detected in all five wells at concentrations ranging from 92,600 ppb to 195,000 ppb.

Aldrin was the only pesticide detected at a concentration (0.0079 ppb in GW-MW-1A) that exceeded the NYSDEC TOGS standards in ground water samples analyzed.

2.4.3 Soil Gas

Soil gas samples SG-1 through SG-10 and SV-1 through SV-5 contained detectable concentrations of VOCs. Soil gas samples identified as SG-1 through SG-12 were collected prior to the initiation of IRM #1 or IRM #2. Soil gas samples identified as SV-1 through SV-5 were collected after the completion of IRM #1 and IRM #2. Currently there are no guidance values for soil vapor published by the NYSDEC or the NYSDOH. The concentrations of VOC constituents in post-IRM soil gas samples were significantly lower than pre-IRM samples. The soil gas analytical data are summarized in Tables 3 and 4.

2.5 Qualitative Exposure Assessment

In the draft RIR, potential exposure pathways and receptors were identified and evaluated for each of the contaminants above the applicable screening criteria identified for each media of concern. Exposure pathways were evaluated to determine the potential exposure to a receptor from all contaminants above the applicable screening criteria along a transport pathway. A potential point of exposure exists if one or more contaminants exceed the screening criteria (TAGM #4046) for a media. It is important to note that these criteria were used to make a preliminary assessment of potential exposure from compounds to human health and the environment and do not necessarily represent the final concentrations that must be achieved through remediation. The following media contain contaminants above applicable screening levels within the study area and were considered media of concern.

- **Subsurface Soil** results were compared against individual compound RCSOs presented in TAGM #4046.

- **Ground Water** results were compared against NYSDEC TOGS 1.1.1 per Part 703.

Soil vapor was not identified as a media of concern base on the concentrations of VOCs.

2.5.1 Potential Receptors and Routes of Exposure

The Site is located in a commercial area and is zoned as a “Medium Manufacturing District,” with industrial and commercial properties to the north, east and south. Industrial, commercial and residential properties are located to the west of the Site. A chain-link fence and building (on adjacent lot) surround the Site rendering it inaccessible to unauthorized personnel (e.g., the general public). The potential human receptors for each contaminant above the applicable screening level in each media were determined based on current land use and foreseeable potential future land uses.

Known contemplated uses of the Site include the construction of a Whole Foods Market (on the eastern/southeastern three quarters of the Site) with associated parking lot (western/northwestern quarter of the Site) and a public access promenade along the 4th Street Basin. Based on the current and future land uses for the Site, the primary potential human receptors for soil and ground water include Whole Foods Market patrons, Whole Foods Market employees, visitors to the public access promenade, and construction workers. Specifically, the following potential human receptors were identified and evaluated for each media of concern as part of the qualitative exposure assessment presented in the draft final RIR.

- **Whole Foods Market Patrons and Employees Using the Building and Asphalt Parking Lot** – includes patrons and employees of the proposed building, parking their vehicles in the parking lot, and walking across the parking lot into the building. Since contact with impacted soil or ground water will not be possible (ingestion, dermal contact or inhalation of fugitive dust), no exposure pathway exists for this group of potential human receptors.

- **Public Access Promenade Users** – includes patrons, employees and visitors who use the public access promenade. The proposed promenade will consist of a two-foot-thick barrier of clean fill covered with grass, plants and a walkway. Visitors to the promenade will not have contact with soil or ground water. Therefore, no exposure pathway (ingestion, dermal contact or inhalation of fugitive dust) exists for this group of potential human receptors.

- **Construction Workers** – includes individuals who would excavate soil, build foundations, construct the proposed building, pour asphalt for the parking lot, build the promenade, or perform other improvements or redevelopment construction activities. These individuals may be exposed to contaminants in soils during excavation activities through incidental ingestion, dermal contact, and inhalation of volatized compounds and fugitive dust. These workers may be exposed to contaminants in ground water through dermal contact and incidental ingestion. Construction activities are proposed for this property; therefore, an exposure pathway exists for this group of potential human receptors.

2.5.2 Assessment of Exposure Pathways

Using the data collected during the RI sampling program, each potential exposure pathway identified above was assessed. A complete exposure pathway exists when a contaminant is present in a media of concern above the screening criteria (potential exposure point) and a potential receptor can be exposed to that contaminant through one or more of the exposure routes identified in Subsection 2.5.1. For purposes of the qualitative exposure assessment, a potential exposure point was identified if the analytical results for at least one contaminant exceeded the applicable screening criteria. A human exposure pathway, therefore, exists if there is a potential for a

receptor to be exposed through one or more exposure routes to the specific exposure point based on the specific land use and impacted media.

An example of a complete exposure pathway would be an on-site construction worker excavating an 8-foot deep pit to install foundation footing. If the soil contains contaminants (VOCs, PAHs or metals) at concentrations greater than the TAGM #4046 RSCOs, then a complete exposure pathway exists for the construction worker potentially contacting the soil, or potentially inhaling particulates from the excavation (route of exposure).

2.5.3 Exposure Summary

Subsurface soil that underlies the Site contains VOC, PAH and metal concentrations above individual TAGM #4046 RSCOs and represents a complete exposure pathway to a construction worker receptor.

Ground water located on-site contains VOC, PAH pesticides, and metal concentrations above TOGS and represent a complete exposure pathway to a construction worker receptor.

2.6 The Fish and Wildlife Impact Analysis

While similar types of contaminants (VOCs, SVOCs/PAHs, and metals) have been detected both on the Site and in the 4th Street Basin sediment, there is no clear indication that releases at the Site have adversely impacted the basin. Contamination in the basin sediments is more likely a result of area wide filling activities associated with urban development, with contributions from former and existing sites along the Gowanus Canal. A summary of the Fish and Wildlife Impact Analysis (FWIA) can be found in Section 1.4.1 in this document. The full FWIA report is detailed in the RIR dated October 31, 2006.

2.7 Potential Upgradient Impacts to the Site

Based on review of the surrounding area and of the environmental database included in the Phase I ESA conducted for the Site, one potential upgradient source of gasoline was identified. Bell Atlantic, NYNEX, NY Telephone, 175 3rd Street is listed on the RCRA NLR, State Spill and Registered UST lists. This facility is located across 3rd Street, adjacent to the north and hydraulically upgradient of the Site. Five NYSDEC "closed" spills are listed for this facility. The closed spills include releases of waste oil and gasoline to the surface and subsurface, including subsurface soil contamination detected during the removal of a gasoline UST at the facility. Based on information detailed in the RIR, this facility may have environmentally impacted the Site, as suggested by the presence of dissolved-phase VOC's in groundwater samples collected

from hydraulically upgradient monitoring wells located on Site. In addition, this property has the potential to impact the Site in the future.

The RIR concludes that subsurface soils and ground water within the Site boundary are impacted by urban fill, former on-Site operations, and possibly an off-Site facility. Therefore, further remediation is necessary. The RWP is focused on the current impacted areas that have been identified on-Site.

3. Remedy Selection

3.1 Remedy Selection Goals

In the May 2004 Draft BCP Guide (Section 4) and December 2002 Draft DER 10 Technical Guidance for Site Characterization and Remediation (Section 4), NYSDEC identifies two general goals for remedy selection under the Brownfield Cleanup Program:

1. "Select a remedy for a site that is fully protective of public health and the environment, taking into account the current, intended and reasonable anticipated future use of the site," and

2. "Sources of contamination should be removed or eliminated, to the extent feasible, regardless of presumed risk."

The Site's contemplated use is a commercial/retail market. The proposed redevelopment includes the construction of an enclosed grocery store, outside parking, a bulkhead reconstruction, and an off-Site parking garage.

3.2. Remedial Action Objectives (RAOs)

Based on the general goals for remedy selection and the specific Site information, the proposed Site-specific remedial action objectives (RAOs) are:

- Eliminate, to the extent practicable, the potential human health exposure of future WFM patrons/Site users, employees, and construction workers to Site contaminants.
- Eliminate, to the extent practicable, potential impacts to the environment from Site contaminants.
- Excavate and remove identified Site contaminants to the extent practicable.

3.3 Proposed Remedy

Contaminants of concern are present on the Site as a result of both historic releases and the presence of urban fill, which is ubiquitous in the neighborhood. WFM has proposed a Site-specific use-based cleanup in accordance with the approach identified under the BCP as Track 4 Restricted Use Site Specific Evaluation. The proposed Site-specific restricted use based remedy will entail, to the extent practicable, the excavation and off-Site disposal of soils impacted by identified on-Site releases, and achieve a cleanup appropriate for the anticipated future, commercial use of the Site. Contamination will remain on-Site, generally as a result of the presence of urban fill, as it is impracticable to remove all soil containing levels of contaminants above unrestricted

use limits (i.e., remove all soils that exhibit chemical concentrations above draft Track 1 Unrestricted Use Generic Soil Cleanup Levels). As a general guideline for soil removal on the Site, WFM has proposed utilizing the NYSDEC and NYSDOH developed draft Track 2 Restricted-Commercial SCOs, which are a fairly conservative generic soil cleanup standard reflective of the anticipated future use of the Site for commercial purposes. However, there are levels of contaminants of concern on the Site in urban fill, which do not appear to be the result of an on-Site release, that exceed the draft Track 2 Restricted-Commercial Use SCOs. The removal of all of these areas to concentrations below the draft Track 2 Restricted-Commercial SCOs is not practicable. Therefore, a cap consisting of either the proposed on-Site building structural foundation slab, asphalt paving, or clean fill (hereafter referred to as the Cap) will further ensure that the resulting Site conditions are protective of human health and the environment.

Based on the RAOs, the proposed Site-specific remedial actions are:

- Removal and off-Site disposal of on-Site soils that contain concentrations of VOCs, SVOCs, or metals greater than draft Track 2 Restricted-Commercial Use SCOs within the excavation area needed for the construction of the structure(s).

- Selected removal of on-Site soils that contain concentrations of VOCs, SVOCs, or metals greater than draft Track 2 Restricted-Commercial Use SCOs located outside areas and/or below depths needed for the construction of the WFM.

- Installation and maintenance of a concrete structural foundation slab for any areas within the WFM building footprint with soils containing concentrations of VOCs, SVOCs or metals greater than draft Track 2 Restricted-Commercial Use SCOs that will remain in place.

- For any areas outside the WFM building footprint with soils containing concentrations of VOCs, SVOCs or metals greater than draft Track 2 Restricted-Commercial Use SCOs that will remain in place, installation and maintenance of an asphalt/concrete cover with a minimum 1-foot thick layer of clean fill/subbase gravel cap and/or minimum 2-foot-thick layer of clean fill cap (in areas not covered by asphalt/concrete) below the final redevelopment grade, including the area within the footprint of the planned outside parking lot and bulkhead/promenade. In some areas, this clean fill buffer layer may be thicker to accommodate deeper WFM infrastructure, such as landscaping and/or utilities.

- Implementation of post-remediation ground water monitoring and institutional controls.

The proposed Site-specific remedial actions will address the RAOs as follows:

WFM Patrons/Site Users: The building structural foundation slab, pavement structure, and clean fill buffer layer will eliminate direct contact exposure pathways for WFM patrons/Site users with any impacted soils left in place with concentrations above the draft Track 2 Restricted-Commercial SCOs. Results from the soil gas surveys indicated that the potential for indoor exposure from vapor migration is not probable**.** Regardless, the WFM building is being constructed with a subslab depressurization system (SSDS) and chemical vapor barrier (see Section 5.3.8) to prevent any potential soil vapor from migrating into the building. Institutional controls will prevent ground water use.

Construction Workers: Potential direct contact and/or inhalation exposure to soils containing VOCs, SVOCs, and/or metals above and below the draft Track 2 Restricted-Commercial Use SCOs proposed by WFM may occur during future excavation activities in areas beneath buildings, outside building footprints and below the buffer layer. These potential exposures will be appropriately managed using a site management plan and a HASP.

Ground Water/Surface Water Migration: It is anticipated that ground water quality will improve through natural processes as a result of the removal of soils containing constituents greater than the draft Track 2 Restricted-Commercial SCOs (including soil hotspots removed during IRMs). Therefore, active ground water remediation is not proposed. Periodic post-remediation ground water monitoring will be performed to evaluate ground water quality.

The proposed remedial actions also include the implementation of institutional controls, which include maintenance of the Cap and some Site use restrictions to prevent or mitigate potential exposures during future excavation activities. The proposed institutional controls and use restrictions are described in Section 5.6 of this RWP.

A discussion of the potential remedial alternatives considered for the Site is presented in the following SubSection. A detailed engineering evaluation that supports WFM's choice of the proposed remedy is presented in Section 4 of this RWP.

3.4 Comparative Analysis of Alternatives

3.4.1 Remedial Alternatives

The remedial alternatives considered for detailed engineering evaluation include the following:

Alternative 1: No Action

Alternative 2: Removal of UST 4 and 4a and Selected Excavation of Hotspots Identified in IRM #1 and IRM #2

Alternative 3: Full Scale Excavation – Track 1 Unrestricted Use Compliance

Alternative 4: In-Situ Bio/Chemical Remediation

Alternative 5: Encapsulation of Contamination

Alternative 6: Ground Water Monitoring via Natural Attenuation

Alternative 7: Combination of Alternatives 2, 5, and 6

A brief description of each of the above-mentioned remedial alternatives is presented below.

Alternative 1:
No Action

The no action alternative provides a basis for comparison. The Site would remain in its current state without any further development. All current safety and security measures would be abandoned, and no additional protection to public health or the environment would be provided.

Alternative 2:
Removal of UST 4 and 4a and
Selected Excavation of Hotspots Identified in IRM #1, IRM #2, and additional Hotspots

This alternative includes the removal of the two remaining potential contaminant sources (USTs 4 and 4a) which were identified in IRM #1, removal of HOTSPOTs 7, 8, 9a, 9b, and 9c (identified in IRM #2), and removal of additional HOTSPOTs 10a, 10b, 10c, 11, and 12. This alternative would also include the off-Site disposal of the excavated impacted soil. Based on the most recent earthworks calculations (with a 10% contingency), approximately 3,000 cubic yards of impacted soil would be excavated and sent for off-Site disposal from said activities.

Alternative 3:
Full Scale Soil Excavation
Track 1 Unrestricted Used Compliance

This alternative would involve the excavation and off-Site disposal of all fill and, in some areas, native soils to one foot below the water table. This alternative removes all unsaturated Site soil and some saturated Site soil, some of which contains

concentrations of compounds above TAGM #4046 standards, thus achieving Track 1 Unrestricted Use compliance.

Alternative 4:
In-Situ Bio/Chemical Remediation

In-situ biological or chemical remediation techniques would be employed in capillary fringe and below the water table across the Site. The implementation of this alternative would aim to enhance the natural attenuation process. Several applications may be required to achieve Site-specific clean-up goals.

Alternative 5:
Selected Hotspot Removal and Encapsulation of In-Situ Contamination

Selected hotspot removal, and encapsulation of in-situ (unexcavated) contamination via institutional/engineering controls would be utilized under this alternative. These controls are integrated into the design plan for the planned Site construction, and therefore do not add to the overall construction budget (i.e., covering the Site with asphalt to be used as a parking lot and the construction of an approximately 60,000 ft^2 building structural foundation slab). A figure showing the latest proposed Site development is presented in Figure 3. The current plan is to have a 60,000 ft^2 building that occupies a majority of the Site. Hotspots captured by the excavation needed to construct the building would be removed under this alternative. Parking configurations will occupy the remaining paved portion of the Site. Controls not related to general construction, but necessary to achieve remedial goals, include the placement of clean fill across the landscaped areas of the Site and the installation of a soil vapor barrier and SSDS beneath the building to prevent potential indoor vapor migration. A figure showing the proposed building foundation design and the location of the soil vapor barrier and venting system is presented in Figure 8.

Alternative 6:
Ground Water Monitoring Via Natural Attenuation

This alternative allows for natural attenuation of contaminants present in the ground water, and requires the periodic monitoring and analysis of ground water to determine trends and conditions. Installation of six monitoring wells across the Site, periodic ground water sample collection, and laboratory analyses of ground water samples for the presence of Target Compound List (TCL) VOCs, TCL SVOCs/PAHs, Target Analyte List (TAL) metals, pesticides and PCBs by EPA Methods 8260B, 8270C, 6010B, 8081A, and 8082 is included in this alternative.

Alternative 7:
Removal of UST 4 and 4a, Selected Excavation of Soils Remaining in Hotspots Identified in IRM #1, IRM #2 and additional Hotspots, Encapsulation of In-Situ (Unexcavated) Contamination, and Ground Water Monitoring Via Natural Attenuation

This alternative includes the activities described in Alternatives 2, 5, and 6. The only additional activity proposed under this alternative is extending the remedial excavation depths in the areas of HOTSPOTs 3a, 4c, 6, 7, 8,9a, 9b, 9c, and HOTSPOT 10a, to depth below what is needed to construct the building, promenade, and bulkhead. The excavation depths in these areas will be extended to approximately 4 to 10 feet below the cgs to remove additional impacted soil that may act as a continuing source to groundwater contamination.

3.4.2 Selection of Remedial Alternatives for Detailed Engineering Evaluation

This section contains an engineering evaluation that supports WFM's selection of the proposed remedial remedy as presented in Subsection 3.3. Selected remedial alternatives have been evaluated in accordance with the factors set forth in Section 4 of the NYSDEC *Draft DER-10 Technical Guidance for Site Investigations and Remediation*, 6 NYCRR 375, and *NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4030, Selection of Remedial Actions at Inactive Hazardous Waste Sites*. The goal of the evaluation is to explain how the proposed remedy will be protective of human health and the environment as compared to other potential remedies. Three remedial alternatives for the Site were considered for detailed engineering evaluations:

1. Alternative 1: No Action.

2. Alternative 3: Excavation of all soils that exhibit contaminant concentrations greater than individual Track 1 Unrestricted Use SCOs listed in Subpart 375-3 of the Brownfield Cleanup Program Public Review Draft dated November 16, 2005.

3. Alternative 7: A Site-specific use-based cleanup in accordance with the approach identified under the BCP as Track 4 Restricted Use Site Specific Evaluation. This alternative includes removal of UST 4 and 4a, selected excavation of soils remaining in hotspots identified in IRM #2 and additional hotspots, encapsulation of in-situ (unexcavated) contamination, installation of a SSDS beneath the building, and ground water monitoring via natural attenuation.

The remedial alternatives evaluated are based on experience at similar sites and the requirements for future Site use. Only excavation and off-Site disposal options are considered for detailed evaluation. The in-situ biological/chemical remediation alternative (Alternative 4) requiring longer timeframes and offering less certain degrees of effectiveness was not considered applicable for the Site due to the proximity to the 4th

Street Basin and the incompatibility of the treatment infrastructure with the Site's use as a market. The removal of the two USTs and remaining hotspots not completed under IRM #1 and IRM #2 (Alternative 2) would not be sufficient in and of itself to ensure the protection of public heath and the environment. Encapsulation of contamination via institutional/engineering controls with no soil removal is not considered applicable due to the planned excavation activities needed to construct the market. However, encapsulation of in-situ contamination via institutional/engineering controls is integrated into each of the remedial excavation alternatives selected for detailed engineering evaluation. None of the alternatives include separate remedial actions, other than source removal and impacted-soil removal, to address ground water impacts. Based on the RIR findings (e.g., ground water quality fate and transport, exposure assessment), ground water remediation is not required to meet RAOs. However, both Alternative #3 and Alternative #7 will eliminate source(s) of current on-Site ground water impacts, thereby creating conditions that will allow for reduced ground water contaminant concentrations over time due to natural attenuation. Post-remediation ground water monitoring is required for both excavation options to evaluate future ground water quality.

The three remedial alternatives selected for detailed engineering evaluation were evaluated according to the following criteria as specified in the Draft BCP Guide:

- ***Protection of Human Health and the Environment***. To what degree does each remedy achieve the remedial action objectives?

- ***Standards, Criteria and Guidance*** (SCGs). Identify major SCGs applicable to the Site and the degree to which the proposed remedies comply with the SCGs.

- ***Short-Term Effectiveness and Impacts***. Identify risks to the community, workers and environment that would result from implementing the remedy. Discuss how the risks will be controlled and the reliability of the controls. Evaluate whether the proposed remedy achieves RAOs within two years.

- ***Long-Term Effectiveness and Permanence***. Is the remedy permanent, or does it rely on containment or other factors that may reduce the ability to achieve RAOs over time? Discuss any uncertainty. After completion, will there be any significant remaining threats, exposure pathways, or risks to the public or environment from the remaining wastes or treated residuals?

- ***Reduction of Toxicity, Mobility, or Volume***. How much contamination will be removed from each media? If treatment is used, will the process be complete or partial, and is the process reversible? Will the mobility of contaminants be reduced?

- ***Implementability***. Are there potential construction difficulties? Are the required materials and services readily available? Are there potential problems obtaining permits or other approvals?

- ***Cost***. Capital, operation, maintenance and monitoring costs.

- ***Community Acceptance.*** Summarize public participation program that will be followed for the project.

- ***Land Use.*** Summarize why the proposed remedy is appropriate for the anticipated future use of the Site

Based on these considerations, the combination of excavation and encapsulation of in-situ soils that exhibit contaminant concentrations greater than the draft Track 2 Restricted-Commercial Use SCOs was selected as the preferred alternative because it provides a similar level of protection to the larger unrestricted SCO excavation, but has fewer short-term impacts and is more implementable. A detailed discussion supporting this conclusion is contained in the following sections.

3.4.2.1 No Action

This option is included as a baseline for comparison. It does not include any remedial activity other than continued ground water monitoring.

3.4.2.2 Excavation of soils that exhibit contaminant concentrations greater than individual Track 1 Unrestricted Use SCOs listed in Subpart 375-3 of the Brownfield Cleanup Program Public Review Draft dated November 16, 2005

Achievement of Track 1 standards requiring concentrations of compounds below TAGM #4046 standards would require a full scale excavation of fill and organic material down to 1 foot below the seasonal low water table, and post-remediation ground water monitoring to identify the effects, if any, of the excavation on ground water conditions. Because the urban fill typically exceeds individual RSCOs for one or more chemicals, the urban fill will likely not be suitable for reuse as backfill. A deed restriction prohibiting development of water supply or irrigation wells on the Site would be required for this option until ground water constituent concentrations are equal to or below New York State AWQS for a GA Water Classification.

The area of the excavation would correspond to the entire Site boundary, or about 2.2 acres, and the depth of excavation would range from approximately six to eight feet below cgs over the majority of the Site, with depths greater than 10 feet below cgs near the 3rd Avenue Site boundary. Estimated remedial excavation volumes are as follows:

- The total excavation volume is approximately 22,000 cubic yards.
- The estimated backfill volume is approximately 14,000 cubic yards.
- Reused subsurface soil/urban fill would not be used as backfill.

The 8,000 cubic yard difference between the total excavation volume and the backfill volume is due to the lower redevelopment grade. The assumed average excavation rate is 360 cubic yards per day (18 truckloads per day). The average backfill placement is assumed to be about 50% faster, or 480 cubic yards per day (27 truckloads per day). The excavation may require sidewall support and dewatering below the water table. The total estimated time for remediation is six months, including mobilization, excavation support and post-remediation grading. Estimated time does not include construction of the building (including foundation), parking garage, parking lot surface, drainage system or bulkhead.

3.4.2.3 Site-specific use-based cleanups in accordance with the approach identified under the BCP as Track 4 Restricted Use Site Specific Evaluation

This Site-specific (Track 4) remedial alternative includes the excavation, removal and encapsulation of in-situ (unexcavated) soils that exceed draft Track 2 Restricted-Commercial Use SCOs (proposed as a general guideline for soil removal on the Site), institutional and engineering controls and post-remediation ground water monitoring to identify any effects of the excavation on ground water conditions. The option includes the installation and maintenance of a clean fill cover system that complies with NYSDEC individual TAGM #4046 RSCOs in any areas outside the proposed building structural foundation slab footprint where construction activities are proposed.

The area of the excavation would correspond to all areas of proposed construction (approximately the entire Site boundary) and depth of excavation would range from approximately one to seven feet below the cgs. The area of the excavation includes potential source areas (UST 4 and 4a) as well as shallow contaminated soils identified in HOTSPOTS 3a, 4c, 6, 7, 8, 9a, 9b, 9c, 10a, 10b, 10c, 11, and 12. The greater excavation depths correspond to the locations of HOTSPOTS, proposed foundation piles and drainage system (see Figures 3 and 4).

The only exceptions to the above-mentioned remedial excavation depths are the areas of HOTSPOTS 7, 8, 9b, and 9c , which contain one or more individual SVOCs at concentrations one or two orders of magnitude above draft Track 2 Restricted-Commercial Use SCOs The excavation depths in these areas will be

extended to approximately 10 feet below the cgs (potentially below the water table) to remove additional impacted soil and create Site conditions that will allow ground water quality to improve over time due to natural attenuation.

The estimated remedial excavation volume is approximately 9000 cubic yards. The estimated backfill volume is approximately 3,000 cubic yards to fill existing IRM excavations and establish the redevelopment grade.

The excavations would be backfilled with subsurface soil excavated from the Site that does not exceed the draft Track 2 Restricted-Commercial Use SCOs, and/or imported clean fill, as necessary. The Site will be capped with the proposed on-Site building structural foundation, asphalt paving, and/or clean fill. Institutional controls would also be required to control potential exposure to soils and ground water below the cover system. The proposed institutional controls include:

- An Environmental Easement meeting the requirements of Article 71, Title 36 of the New York Environmental Conservation Law (ECL) to the State of New York for the lands comprising the Site. The Environmental Easement will be filed with the New York City Register. As specified in New York ECL Article 71, Title 36, the Environmental Easement will be enforceable by the State, acting through the NYSDEC, and the City of New York and will require all owners and users of the Site lands to comply with the use restrictions and the engineering and institutional controls called for in the NYSDEC-approved RWP and SMP for the Site. Until the Easement is extinguished, each deed transferring the property will contain, in at least fifteen-point print, the words "This property is subject to an environmental easement held by the New York state department of environmental conservation pursuant to title 36 of article 71 of the environmental conservation law."

  Periodic inspections for the Site's institutional controls will include confirming that the Environmental Easement remains on file in the New York City Register's Office and that any NYSDEC-approved amendments to the Environmental Easement have been properly recorded.

- A prohibition of land development for any use other than commercial/retail/industrial without written approval of the NYSDEC, provided that the Site conditions are protective of the new use or made protective for such use by additional remediation. Without such approval, only appropriate commercial or industrial use will be allowed.

- Worker notification if utility or other excavation work below the cover system is planned on-Site.

- Notification to the NYSDEC prior to any action that could jeopardize the integrity of the remedy.

- Development and approval of a site management plan (including health and safety plan) for any soil removed below the cover system at the Site. The SMP will also include details for the operation of the SSDS and post-remedial groundwater-monitoring program.

- A prohibition on the development of water supply or irrigation wells on the Site.

- Periodic inspection and certification to confirm appropriate use of the Site and to ensure that engineering and institutional controls included in this remedy are in place and remain effective.

The total estimated time for remediation is two months, including mobilization and post-remediation grading. Estimated time does not include construction of buildings (including foundations), parking garage, parking lot surface, drainage system or bulkhead.

3.4.3 Comparative Evaluation of Review Criteria

3.4.3.1 Protection of Public Health and the Environment

As previously indicated in Subsection 3.1, the general goals for remedy selection under the Brownfield Cleanup Program are:

1. "To remediate the Site to a level that is protective of public health and the environment under the conditions of the Site's Contemplated Use," and

2. "Sources of contamination should be removed or eliminated, to the extent feasible, regardless of presumed risk."

Both Alternative #3 and Alternative #7 remove the sources of contamination at the Site. Both Alternative #3 and Alternative #7 are also similarly protective of public health and the environment assuming final use as a market. Specifically, the Alternative #7 Track 4 Restricted Use option will eliminate exposure pathways to contaminants with a combination of source removal and removal of soils that exhibit contaminants above draft Track 2 Restricted-Commercial Use SCOs , encapsulation by the building/parking lot/clean fill cover and institutional controls. The Alternative #3 Track 1 Unrestricted Use option will eliminate exposure pathways to contaminants with removal of all contaminants to one foot below the water table.

The No Action option is not protective of public health and the environment because it does not address the source, and does not provide for control of exposure pathways.

3.4.3.2 Standards Criteria and Guidance (SCGs)

The following is a list of major SCGs that apply to the Site:

Remedy Selection:

- TAGM #4030 – Selection of Remedial Actions at Inactive Hazardous Waste Sites (May 1990).
- Draft NYCRR Part 375 Environmental Remediation Program, Subpart 375-3 (Public Review Draft-November 2005).
- Draft Brownfield Cleanup Program Guide, May 2004.

Remedy Implementation:

- 6 NYCRR Part 376 – Land Disposal Restrictions.
- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response.
- 6 NYCRR Part 750 through 758 – Implementation of NPDES Program in NYS ("SPDES Regulations).
- TAGM #4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites.
- Draft Brownfield Cleanup Program Guide, May 2004.

Both Alternative #3 and Alternative #7 comply with the remedy selection SCGs and would comply with the remedy implementation SCGs if selected. In particular, Draft BCP Guide specifies the two alternative cleanup criteria considered in this evaluation: Track 1-Unrestricted Use and Track 4-Restricted Use Site-Specific Evaluation criteria.

The No Action option does not comply with any applicable criteria.

3.4.3.3 Short-Term Effectiveness and Impacts

The primary risks to the community during implementation of Alternative #3 and Alternative #7 include inhalation of fugitive dust and vapors from the Site and

additional truck traffic (including potential spills). Primary risks to Site workers include inhalation and direct contact with fugitive dust and vapors and equipment accidents. The primary risk to the environment is a release of excavated material containing Site contaminants to the 4th Street Basin through direct discharge.

These risks will be mitigated with a variety of Site controls implemented during construction, including security fencing, erosion control barriers, continuous air monitoring, vapor and dust suppression, personal protective equipment, decontamination and training.

While the general reliability of the Site controls is similar for both Alternative #3 and Alternative #7, the significantly longer duration of the Alternative #3 Track 1-Unrestricted Use option (approximately 6 months vs. 2 months) increases the probability that one of more of the controls will fail during some portion of the remedial work. The Alternative #3 Track 1-Unrestricted Use option also includes approximately three times the excavated soil volume, substantially increasing truck traffic, the associated nuisance, accident potential, and risk of a release to the environment.

The excavations and institutional controls associated with both Alternative #3 and Alternative #7 will likely achieve all the RAOs presented in Subsection 3.3.

The No Action option would maintain the current no risk conditions in the short term but would not remove the sources of contamination.

3.4.3.4 Long-Term Effectiveness and Permanence

Both Alternative #3 and Alternative #7 are permanent remedies, irreversible, and do not rely on containment of sources. However, Track 4-Restricted Use excavation relies on the maintenance of institutional controls to control potential exposures to contamination below the building structural foundation slab, parking lot and subbase, and soil cover. There is a minimal degree of uncertainty related to future enforcement of the institutional controls. The controls apply to subsurface work below the footprint of the proposed Whole Foods Market building, and greater than two feet in depth in areas outside the building footprint, which are likely to occur as infrequent, discrete, planned events, and not as the result of regular maintenance activities. These are circumstances that favor enforcement of the institutional controls with a reasonable amount of diligence by WFM staff.

The No Action option does not reduce Site risks over the long term.

3.4.3.5 Reduction of Toxicity, Mobility, or Volume

Both Alternative #3 and Alternative #7 would remove the source area and soil hotspots from the Site, which is estimated to include most of the total mass of contamination identified in soils at the Site. The Alternative #3 Track 1-Unrestricted Use excavation would remove most of the remaining mass not excavated under the Alternative #7 Track 4 Restricted Use option.

In both instances, removal of contaminants from the hotspots is expected to reduce contaminant dissolution into ground water to the point where natural attenuation processes will steadily reduce hydraulically downgradient contaminant concentrations over time. This, in conjunction with almost 100% Site coverage with impermeable surfaces after redevelopment, will reduce any leaching of contaminants from the vadose zone to the water table.

The No Action option does not reduce the toxicity, mobility, or volume of the contamination at the Site.

3.4.3.6 Implementability

Both Alternative #3 and Alternative #7 could be implemented using conventional excavation equipment and procedures. However, the greater area and depth of the excavation for the Alternative #3 Track 1-Unrestricted Use option would require a more complicated excavation support system and would generate significantly more dewatering effluent. In contrast, the Alternative #7 Track 4 Restricted Use option will not require as extensive an excavation and thus will be less disruptive to the community and may be more easily implemented.

3.4.3.7 Cost Effectiveness

Costs of Alternative #3 and Alternative #7 are approximate and are based on average industrial standard costs, plus a 10% contingency for work completed in the New York City area. The following table presents an estimate of present worth (total cost), capital cost (initial expenditure), and annual operations and maintenance (O & M). The present worth value enables direct comparisons to be made between the two alternatives. It represents the total amount of money to be spent on that particular alternative from beginning to end to complete the remaining remedial actions and would be adequate to cover all present and future costs stemming from the alternative. These estimates do not include the money already spent to complete IRM #1 and IRM #2 (approximately $1,000,000). A time period of 10 years was used for Annual Operation and Maintenance calculation because that is the maximum time that is projected it will take to complete environmental monitoring at the Site (worst-case scenario). Capital cost represents the initial cost to implement the alternative.

Alternatives	Present Worth	Capital Costs	Annual OM&M
Alternative #3, Track 1 Unrestricted Use	$7,342,412	$7,342,412	$0
Alternative #7, Track 4 Restricted Use	$2,671,562	$2,341,562	$33,000

3.4.3.8 Community Acceptance

Community acceptance will be evaluated following the submittal of this RWP to the community and the 45-day review period.

3.4.3.9 Land Use

Both Alternative #3 and Alternative #7 would remove impacted soils from the Site to allow for the anticipated future commercial use of the Site. The Site is located in a commercial area with a municipal water supply, and is zoned as "Medium Manufacturing District". The Alternative #7 Track 4 Restricted Use excavation option allows for continued use of the Site that is consistent with the current zoning. The Alternative #3 Track 1 Unrestricted Use excavation option would allow development of the Site for any use but would require a change in existing zoning laws and the use of a deed restriction prohibiting development of water supply or irrigation wells on the Site.

3.4.4 Remedy Option Evaluation

- Both Alternative #3 and Alternative #7 provide a similar level of protectiveness of human health and the environment and meet applicable SCGs.

- The Alternative #7 Track 4 Restricted Use Site-Specific excavation involves fewer short-term risks to the community, Site workers and the environment due to its substantially shorter duration, reduced disruption of the community and less expansive area of excavation and depth.

- The Alternative #3 Track 1 Unrestricted Use excavation has less uncertainty regarding long-term effectiveness due to its lack of institutional controls and results in a greater reduction in the mass of contamination on-Site.

- The Alternative #7 Track 4 Restricted Use Site-Specific excavation is more implementable due to its smaller size and depth.

Given that both Alternative #3 and Alternative #7 meet the two threshold criteria (protection of human health and the environment and compliance with SCGs), the final remedy selection is based on an evaluation of the benefits and drawbacks associated with the remaining balancing criteria. The benefits associated with the Track 4 Restricted Use Site-Specific excavation option (i.e., fewer short-term risks to the

community and significantly greater implementability) significantly outweigh the potential risks associated with enforcement of institutional controls and the marginal increase in contaminant mass removed. The Alternative #3 Track 1 Unrestricted Use excavation option is also significantly more expensive than the Alternative #7 Track 4 Restricted Use Site-Specific excavation option, and is not cost effective.

3.5 Summary of Proposed Remedy

WFM has proposed Alternative #7, a Site-specific use-based cleanup in accordance with the approach identified under the BCP as Track 4 Restricted Use Site-Specific Evaluation. The proposed Site-specific restricted use based remedy will, to the extent practicable, excavate and dispose of soils impacted by identified on-Site releases, and install a cap consisting of either the proposed on-Site building structural foundation slab, asphalt paving, or clean fill. The proposed remedy will achieve a cleanup that is appropriate for the anticipated future commercial use of the Site, and ensure that the resulting Site conditions are protective of human health and the environment.

The proposed remedy includes the following activities:

- Stockpiling of urban fill and native soils with concentrations at or below draft Track 2 Restricted–Commercial SCOs for possible reuse as backfill.

- To the extent practicable, excavation and off-Site disposal of impacted soil that exceeds the draft Track 2 Restricted-Commercial SCOs and/or contains visible impacts.

- Removal of any former structures and piping encountered within the area of the construction/remedial excavation.

- If necessary, excavation dewatering effluent treatment and discharge.

- Backfilling the bottom of the excavations with stockpiled urban fill and native soils (if backfill material is required) that do not exceed the draft Track 2 Restricted-Commercial SCOs.

- Installation and maintenance of a demarcation barrier within any areas outside the WFM building footprint boundary that contain concentrations of regulated compounds greater than draft Track 2 Restricted-Commercial SCOs.

- Installation of a chemical vapor barrier under the building structural foundation slab, and installation of a SSDS between the structural foundation slab and the floor, to prevent potential soil vapor migration into the WFM building.

- Placement of a minimum 2-foot-thick buffer layer of clean fill below the final redevelopment grade in the unpaved area outside the WFM building footprint

boundary that contain concentrations of regulated compounds greater than draft Track 2 Restricted-Commercial SCOs.

- Preparation and regrading of the building footprint area and any excavated remedial areas outside the building footprint boundary to support planned construction.

- Development and approval of a site management plan (including health and safety plan) for any soil removed below the cover system at the Site. The SMP will also include details for the operation of the SSDS and post-remedial groundwater-monitoring program.

- Implementation of post-remediation ground water monitoring and institutional controls.

- An Environmental Easement that will be enforceable by the State, acting through the NYSDEC, and the City of New York and will require all owners and users of the Site lands to comply with the use restrictions and the engineering and institutional controls called for in the NYSDEC-approved RWP and SMP for the Site.

- Periodic inspection and certification to confirm appropriate use of the Site, and to ensure that engineering and institutional controls included in this remedy are in place and remain effective to control the identified potential exposures.

The proposed remedy fully achieves the remedial goals set forth above. Its implementation would remove the potential sources of contamination (UST 4 and 4a) as well as shallow soils (to a maximum depth of approximately 10 feet below the cgs) identified by HOTSPOTS 3a, 4c, 6, 7, 8, 9a, 9b, 9c, 10a, 10b, 10c, 11, and 12. Any remaining contaminated soil would be managed by institutional/engineered controls, which would include the construction of a large commercial building structural foundation slab (employing a soil vapor barrier and SSDS under its foundation), an asphalt and minimum 1-foot thick clean fill/subbase gravel covering for parking, and a minimum 2-foot thick clean fill cover for any unpaved areas.

As discussed in Section 3.3, the removal of all urban fill and native soils that exceed Track 2 Restricted-Commercial Use SCOs is not practicable. Benzo(a)Pyrene, Benzo(a)anthracene, and Benzo(b)fluoranthene are the only known contaminants that will remain in on-Site soils at concentrations above the Track 2 Restricted-Commercial SCOs subsequent to the implementation of the proposed Track 4 Restricted Use Site Specific remedy. The Benzo(a)anthracene and Benzo(b)fluoranthene impacted soils (one order of magnitude above Track 2 Restricted-Commercial Use SCOs) are located in HOTSPOT 7 at a depth below the groundwater table and approximately 10 feet below the proposed redevelopment grade. The Benzo(a)Pyrene impacted soils (within the same order of magnitude as Track 2 Restricted-Commercial Use SCOs) are located in

HOTSPOTS 7, 9a and 9c at a depth at or below the groundwater table and approximately 10 to 13 feet below the proposed redevelopment grade. The absence of dissolved-phase Benzo(a)Pyrene, Benzo(a)anthracene, and Benzo(b)fluoranthene in groundwater samples collected from the Site suggest that these high molecular weight PAHs are remaining sorbed to subsurface soils (i.e., not being desorbed and transported by groundwater).

Documentation samples (discussed in Section 5.3.5) collected from the sides and bottoms of the remedial excavations will be used to characterize the remaining urban fill and native soils encapsulated by the cover. A Site Management Plan (SMP) will be developed to establish a set of Site procedures and restrictions to manage any potential future human exposure to soils left in place below the clean fill cover that will be installed at the Site as part of the remedy, and to ensure that the remedy remains protective of human health and the environment.

Monitoring wells will be utilized to track the improvements to groundwater quality via natural attenuation, and from the removal of potential source contamination (UST 4 and 4a) and contaminated soil from the hotspots. Wells will also be used to monitor any impacts to on-Site ground water quality from upgradient off-Site areas.

4. REMEDIAL DESIGN PROCESS

The remedial design process for this project includes two stages of design document preparation: (1) conceptual design document (50 percent completion); and (2) final design document (100 percent completion and suitable for obtaining contractor bids). This RWP represents the 50 percent conceptual design document. The final remedial documents will be incorporated into the construction design documents being developed for the WFM development. The final design documents will include:

- Detailed design drawings
- Technical specifications
- A construction quality assurance project plan (CQAPP)
- A construction health and safety plan (CHASP)
- Community Air Monitoring Plan (CAMP)
- A construction schedule
- A post-construction-Site Management Plan

Collectively, these documents will represent the complete, detailed plan for Site remediation. Each part of the final design document is further described in the following sections.

4.1 Detailed Design Drawings

The preliminary list includes the following plans and details:

- Existing Conditions
- Pre-Construction Site Management Plan
- Security Plan
- Stormwater and Erosion Control Plan
- Traffic Plan
- Soil Management Plan

- Air Monitoring, Vapor and Dust Control Plan
- Excavation Plan and Profile
- Final Site Plan
- Foundation Plan and Profile
- Sub Slab Depressurization System Plan
- Pavement Section
- Bulkhead Design
- Design Criteria for Excavation Support and Dewatering
- Remedial Grading and Cover Plan

Drawings completed, as part of the final design document will be sealed by a professional engineer licensed in New York State. Specifications completed as part of the final design document will be presented in Construction Specification Institute (CSI) format.

4.2 Specifications

The preliminary list of specification sections includes the following:

- Summary of Work
- Work Restrictions
- Contractor Submittal Procedures
- Temporary Facilities and Controls
- Erosion and Sedimentation Control
- Vehicle Access and Parking
- Site Preparation
- Excavation
- Dewatering and Water Treatment
- Sub Slab Depressurization System
- Excavated Materials Management
- Off-Site Transportation and Disposal
- Sampling and Analysis
- Imported Backfill
- Site Redevelopment

4.3 Quality Assurance Project Plan (QAPP)

The QAPP will establish the analytical testing criteria for all remedial activities. The QAPP will include sampling frequency for disposal and documentation, sampling protocols, glassware requirements, test parameters, test methods, quality assurance/quality control requirements, and reporting requirements. All samples collected for chemical characterization during remediation activities will be submitted to a laboratory approved by the Environmental Laboratory Accreditation Program. The QAPP will be based on NYSDEC requirements and guidance.

4.4 Construction Health and Safety Plan (CHASP)

The CHASP will establish the minimum health and safety requirements for site workers, including training and health monitoring requirements; site physical and chemical hazards; monitoring requirements; action levels; personal protective equipment (PPE) requirements; and personnel decontamination requirements.

4.5 Schedule

The estimated construction schedule will be provided in critical-path format broken down by major activities.

4.6 Site Management Plan (SMP)

The SMP will establish the schedule and procedures for post-remediation activities such as periodic inspections and certifications, notifications, management of materials removed from below the cover, maintenance of SSDS, and ground water monitoring.

5. EXECUTION OF THE REMEDY

This section describes the fundamental criteria and procedures that will be used to perform the various elements of the proposed remedy. As described in Section 4 of this RWP, these elements will be further expanded upon in the design documents, which include plans and specifications.

5.1 Mobilization/Site Preparation

Prior to mobilization, March Associates Construction, Inc., WFM's contractor (Contractor) will prepare and submit all required documents for review and approval by WFM and the NYSDEC, as appropriate. Contractor submittals typically include a CHASP, construction schedule and permits that the Contractor is responsible for obtaining. Submittals may also include some detailed designs for specialty items, such as the dewatering system and excavation support system.

The Contractor will apply for and obtain all necessary federal, state, and local permits associated with remediation for which WFM is not responsible. These permits may include, but are not limited to, traffic routing, stormwater discharge, wastewater discharge, construction/ zoning, air emissions and noise.

The Contractor will be responsible for contacting the Underground Facilities Protective Organization (UFPO) to request that all utilities on the Site are located and marked as appropriate.

Prior to mobilization, WFM will also conduct a pre-construction Site meeting with the Contractor and consulting engineer to review the construction sequence, confirm the responsibilities of each of the parties, and establish formal lines of communication for the project. NYSDEC will be notified prior to conducting any on-Site work.

After the pre-construction Site meeting, the Contractor will mobilize all necessary labor, equipment, supplies and materials to perform the remedial work in accordance with the plans and specifications. Initial activities will consist of establishing temporary site facilities, project controls, equipment laydown areas, and material stockpiling areas. These activities are discussed in more detail in the following sections.

5.2 Project Controls

5.2.1 Temporary Site Facilities

Temporary Site facilities will include office trailers, storage trailers, portable toilets, material storage, and equipment lay down areas. Based on the excavation location it is likely that the majority of the temporary Site facilities will be located on Lot 23 and/or the Gowanus Point property, northwest of the 220 3rd Street property. After installation, the

Contractor will establish temporary electric, water, telephone, and other services as required. The office space will be sized to accommodate, at a minimum, the Contractor's staff and one WFM representative, and the consulting engineer.

5.2.2 Security

The current fence that surrounds the perimeter of the 220 3rd Street Site, Lot 23 and Gowanus Point will be maintained during the duration of the remedial Construction activities. All vehicles and/or equipment left in the work area will be secured at the end of each working day. Essential equipment that must run overnight and/or on non-working days, such as dewatering systems, will be designed and managed with appropriate automatic shutoffs and/or alarms to prevent unsafe operation. All personnel working at the Site will be required to sign in and out on a daily basis. The gates to the Site will be closed during working hours except to allow vehicle traffic to pass in and out of the Site. Warning signs, in English and Spanish, will be placed on the gates and perimeter fence to alert passersby and discourage trespassing.

Full-time on-Site security will also be present during non-working periods of the week (nights, weekends, holidays) until the remedial work is completed.

5.2.3 Traffic Plan

All traffic is expected to enter and leave the Site via the existing gates or new gates to 3rd Street. The Contractor's personnel will direct the arrival or departure of construction vehicles and provide flag services as needed to maintain safe travel on 3rd Street. The complete haul route(s) will be identified following the selection of an off-Site disposal facility(s). The haul routes and staging of clean, empty dump trucks or barges waiting to be loaded with excavated material for off-Site disposal will be designed to minimize or eliminate the time trucks will be on local streets or barges will be in the 4th Street Basin. Site personnel will be required to park on-Site or in legal all-day on-street parking spaces, if available.

5.2.4 Exclusion Zone

The exclusion zone is the area within the Site where all worker activity is subject to the monitoring, work procedures, and PPE requirements set out in the consulting engineers' HASP (see Appendix B) and the CHASP. For this project, the exclusion zone will include the remedial excavation areas and any areas used to temporarily store, handle, or treat any of the impacted soil and ground water removed from the excavation. The exclusion zone will be separately and clearly delineated from the rest of the Site and the perimeter security fencing. All personnel and equipment leaving the exclusion zone will be subject to the decontamination requirements described in Subsection 5.2.8 of this RWP.

5.2.5 Health and Safety Plan

All Site personnel will be required to read, sign, and comply with the requirements of the project CHASP and consulting engineers' HASP (see Appendix B) at all times. The project CHASP will be included in the 75 percent pre-final design document, as discussed in Section 4 of this report.

5.2.6 Perimeter Air Monitoring and Vapor Control Plan

A Site-specific Community Air Monitoring Plan (CAMP) will be implemented at the Site in accordance with all provisions of the NYSDOH Generic CAMP. The CAMP will provide real-time continuous monitoring for VOCs and particulates (dust) at the down gradient perimeter of each designated work area when ground intrusive activities are in progress at the Site. Periodic monitoring for VOCs will be conducted during non-intrusive activities such as the collection of surface soil and sediment samples or the collection of ground water samples from existing monitoring wells. A copy of the CAMP is presented in Appendix C.

5.2.7 Survey Control

During mobilization, a licensed surveyor will establish a temporary baseline grid and benchmarks for the remedial work. The grid and benchmarks will be established in English Units (feet). The surveyors will return as needed to establish other reference points, layout work and survey record information.

5.2.8 Decontamination Plan

The Contractor will establish decontamination areas for the following activities.

- Personnel decontamination
- Equipment decontamination

A personnel decontamination station will be set up at a designated exit from the exclusion zone where workers can drop equipment and remove PPE. It will be equipped with basins for water and detergent, and trash bags or cans for containing disposable PPE and discarded materials. Once personnel have decontaminated at this station and taken off their PPE, they will, if necessary, proceed to an adjacent wash facility as a secondary means of personal hygiene (e.g., hands, face, etc.). The specific personnel decontamination procedures and requirements are provided in the consulting engineers' HASP.

All materials and equipment (except disposable items) will be decontaminated on specially constructed "pads" located at exit points from the exclusion zone. At a minimum, the pads will consist of a layer of crushed stone underlain by an impervious plastic liner that has been graded to drain to a collection sump. The pad will be sized to

accommodate the largest piece of equipment used on the project. Where effective, the equipment will be "dry" decontaminated using a broom and/or brushes. If significant amounts of soil or other contaminants remain after the dry decontamination, the equipment will also be pressure washed before leaving the Site.

Wastewater from equipment decontamination will be collected in a sump and treated with the dewatering effluent from the excavation.

Soil collected from the decontamination pads will be combined with the excavated impacted material for off-Site disposal.

Disposable items will be containerized within the exclusion zone and transported for appropriate off-Site disposal. The specific material and equipment decontamination procedures and requirements will be provided in the CHASP.

5.2.9 Stormwater and Erosion Control Plan

The Contractor, prior to mobilization to the Site, will complete a stormwater and erosion control plan. The plan will discuss the means and methods to be used to minimize off-Site sediment transport during storm events.

The ground surface surrounding the excavation will be sloped to drain toward the excavation in areas disturbed by remedial excavations. In this way, any precipitation that comes into contact with potentially impacted soil will be directed into the excavation where it may be collected by the dewatering system and pumped to the dewatering effluent treatment plant.

5.3 Excavation

5.3.1 Excavation Sequence

As presently configured, the remedial excavation consists of two main components: the "construction" excavation areas that are within the footprint of the WFM construction, and the "non-construction" excavation areas that are outside the footprint and/or below depths needed solely for the construction of the WFM project. The construction excavation areas include all areas associated with the proposed construction of the market, including the building, outside parking lot, drainage system and bulkhead. The non-construction excavation areas include identified hotspot areas below the elevation needed for construction. General soil conditions in the excavation area consist of 5 to 25 feet of urban fill, overlying 10 to 25 feet of organic soils, overlying glacial deposits.

The remedial contractor, prior to the implementation of the selected remedy, will determine the exact sequence of excavation.

5.3.2 Excavation Support

Excavation support may be required to maintain vertical sidewalls in excavations below the water table, including areas of foundation pile caps and possibly along the canal bank adjacent to the southwest side of the building excavation. The type of excavation support that will be used will be determined by the Contractor. The excavation support stabilizes the sidewall soils, which would likely collapse into the excavation in an open excavation scenario, and cuts off much of the ground water that would otherwise enter the excavation and require treatment. Upon completion of backfilling the excavation, any excavation support will be removed, if feasible, after backfilling.

5.3.3 Excavation Dewatering and Effluent Treatment

It is anticipated that excavation activities for construction and non-construction (remediation) activities will extend below the water table. The need for construction dewatering to complete these activities will be evaluated and determined by the Contractor. It may be necessary to install a network of sumps and wells that will be pumped such that the ground water level in the excavation is maintained at least 1 foot below the excavation bottom during soil removal and backfilling. This will provide for observation of the excavation bottom, inspection of improvements and facilitate compaction of the backfill.

Excavation dewatering will most likely consist of a combination of shallow sumps and dewatering wells. The sumps and/or wells will be located within the excavations. Both the sumps and wells will be fitted with submersible pumps or contractor pumps. The means and methods for completing construction dewatering will be at the discretion of the Contractor.

All water pumped from the sumps and wells will be directed to a dewatering effluent treatment plant (located within the property) where it will be treated to appropriate standards and discharged to either the sanitary sewer or the 4th Street Basin. At a minimum, the treatment plant will consist of the following components, listed in the order of flow from the excavation:

- Primary settling tanks/oil water separators
- Sand filter
- Bag filter
- Carbon treatment for organic contaminants

The system will be designed with redundant components and back-flushing capabilities to ensure continuous operation. The determination of the discharge point for the treated dewatering effluent will be determined based on the permits that can be obtained from

the regulating authorities. The options for discharge of appropriately treated dewatering effluent to the sanitary sewer or surface water of the 4th Street Basin will be considered. The final design documents will provide the most viable discharge alternative, and will also indicate the criteria used for its selection. For example, for the sanitary sewer option, such criteria could include the availability and capacity of nearby sanitary sewerage piping, available capacity of the municipal sewage treatment plant and pretreatment requirements. Discharge to the sanitary sewer would require submittal of an application to discharge to the New York City Department of Environmental Protection (NYCDEP) and subsequent approval of the application by NYCDEP. Discharge to the Gowanus Canal would require the application and subsequent approval by NYSDEC of the discharge, the implementation of an on-Site treatment system, and compliance with stringent water quality requirements.

5.3.4 Pipe Management

Piping encountered within the soil remedial excavation limits will be removed for off-Site disposal. Each pipe that extends beyond the soil remedial excavation limit will be evaluated to determine if the pipe should be cut and capped or plugged at the excavation limit, traced outside the excavation limit, or traced and removed. The evaluation will be made in the field in consultation with the NYSDEC field staff. The criteria used to evaluate piping that extends beyond the limits of the excavation (if present) will include the following:

- Purpose of the pipe
- Pipe size
- Pipe depth below the proposed ground surface grade
- Contents inside the pipe or pipe bedding
- Possible location of the beginning and terminus of the pipe
- Possible relation of the pipe to previously identified AOC structures

Pipe evaluations and the location of all cut and capped pipes, traced pipe and pipe removed from areas beyond the soil excavation limit will be documented and presented in a post-remediation report.

5.3.5 Documentation Sampling

Documentation samples will be collected on a maximum 40-foot grid from the sides and bottoms of the excavations and tested for VOCs, SVOCs, TAL metals and total cyanide to characterize the soils encapsulated by the cover. Samples will be collected when the excavation limits have been achieved.

5.3.6 Backfilling

As discussed in the Soil Management Plan presented in Appendix A, the remedial excavations will be backfilled with a combination of on-Site excavated subsurface native soils, on-Site urban fill, and imported clean fill/subbase gravel for the soil cover. Stockpiled subsurface soils will be sampled and analyzed in accordance with Section 4.5 of the Soil Management Plan (Appendix A) If backfill is required to establish the redevelopment grade, the bottom of the remedial excavations will be backfilled with stockpiled subsurface soils that do not exceed the draft Track 2 Restricted-Commercial Use SCOs. Imported clean fill will be used for the upper one foot of soil cover (minimum) in asphalt/concrete paved areas not covered by the WFM building structural foundation slab or parking garage. A minimum two-foot thick clean fill soil cover will be placed in areas not covered by a building, garage or parking lot. Prior to transport to the Site, the source of the clean fill will be tested to ensure that chemical concentrations are below the applicable NYSDEC SCGs. The imported fill used beneath the parking lot bituminous concrete surface will consist of clean gravel and clean processed aggregate.

5.3.7 Demarcation Barrier

A demarcation barrier will be placed below the clean fill cover in all areas outside the WFM building footprint. The demarcation barrier will likely consist of permeable, brightly colored netting or mesh type material. Details of the demarcation barrier will be provided in the final design document.

5.3.8 Vapor Barrier/Subslab Depressurization System

A chemical vapor barrier will be placed under the structural foundation slab component of the WFM building to prevent potential soil vapor from penetrating into the building. In addition, a subslab depressurization system (SSDS) will be installed in the sand layer above the structural foundation slab, but below the floor in order to capture any vapors that may penetrate the vapor barrier. The SSDS will be designed to achieve a minimum negative pressure of 1 Pascal (0.004 inch of water column) below the full extent of the building. The placement of the vapor barrier and venting system is illustrated in Figure 8. Details of the venting system and vapor barrier will be provided in the final design documents.

5.3.9 Bulkhead Design

The existing bulkhead, located adjacent to the 4th Street Basin, will be reconstructed. The proposed construction design, presented in Figure 9, has been reviewed and approved by NYSDEC Region 2. The design includes excavation of existing fill behind the existing bulkhead to allow installation of new timber walls and framework, construction of a 2 to 1 sloped bank from mean low water to the base of a Gabion wall, installation of a four-foot Gabion wall on top of bulkhead framework to the

redevelopment grade, and installation of a two-foot-thick imported clean cover along the promenade. A fence or guardrail will be placed between the 4th Street Basin and the promenade. The entire promenade will be landscaped.

5.3.10 Final Grading/Soil Cover

Backfill will be placed to redevelopment grade, minus the thickness of surface features proposed for the WFM. The thickness of the clean backfill required for the soil cover will be referenced from the final remedial excavation grade. It should be noted that the "upper most" portion of all areas of the Site will consist of a building, pavement, or clean topsoil and grass placed by WFM above the grade to be left after remedial actions. Although these final cover materials are not part of the proposed remedy, WFM will provide oversight during the installation of final cover materials to ensure that the proper buffer zones placed beneath the final cover are established**.** Figure 8 illustrated the location of the final cover material.

5.4 Materials Management

5.4.1 Soil Management Plan

Excavated soils will be managed according to the Soil Management Plan included in Appendix A. In general, excavated soil will be stockpiled and tested for reuse and/or transport to the disposal facility. A secured stockpile location will be constructed to ensure proper isolation of the stockpiled material. If possible, based on approval from the selected disposal facility, excavated soil to be transported off-Site will be loaded directly to trucks or barges. All soil will be handled in accordance with local, State and Federal regulations in a manner protective of public health and the environment. Proper protocols will be implemented to prevent the migration of soil beyond the boundaries of the Site, except in covered trucks or barges.

5.4.2 Off Site Transport and Disposal

Hauling companies with appropriate permits and/or licenses will perform all off-Site waste transport. At a minimum, trucks or barges hauling contaminated soils will be required to have a current permit that meets the requirements presented in New York Codes, Rules and Regulations (NYCRR) Part 364: Waste Transporter Permits. Other types of waste may require additional permits. The Contractor will be required to document truck or barge permits prior to transporting waste from the Site.

Dump trucks used to haul any liquid waste must have watertight tailgates. Prior to filling, the beds of the dump trucks will be lined with plastic sheeting. After filling, similar plastic sheeting will be used to cover the soil in the bed. The plastic sheeting will be secured using the truck's standard roll tarp.

After the load is covered and secured, the trucks will be decontaminated in accordance with Subsection 5.2.8 of this RWP.

5.4.3 Liquid Waste

Although not expected to be present on-Site, any liquid wastes that cannot be managed using the dewatering effluent treatment plant will be collected in fractionalization (frac) tanks, characterized and transported to an appropriate off-Site treatment/disposal facility.

5.5 Laboratory Analyses and Data Validation

Severn Trent Laboratories (STL) located in Shelton, Connecticut has been selected to perform all laboratory analyses on the soil, and ground water samples collected as part of future remediation activities. STL is a NYSDOH ELAP CLP certified laboratory for analysis for chlorinated and non-chlorinated VOCS by EPA Method 8260B, PAHs by EPA Method 8270, PCBs by EPA Method 8082, metals by EPA Method 6010, and total cyanide by EPA Method 9012.

During all sampling events, appropriate field and laboratory Quality Assurance/Quality Control (QA/QC) methods will be employed. Field blanks, trip blanks, method blanks, and duplicate samples will be run on a routine basis.

The analytical methods used will conform to the NYSDEC Analytical Services Protocol (ASP). Category B laboratory deliverables as defined in the NYSDEC ASP will be submitted for all samples.

A Data Usability Summary Report (DUSR) will be prepared as required by the BCA in order to provide a thorough evaluation of the analytical data collected at the Site. The primary objective of the DUSR is to determine if the data meet the project specific criteria for data quality and data use.

The data shall be reviewed for contractual compliance in accordance with the requested methodologies, and qualifications shall be applied as specified in the NYSDEC Guidance for the Development of Data Usability Summary Reports (6/99).

For each sample, any positive detection reported for the VOCs and/or SVOC analyses shall be confirmed via visual review of chromatograms and ion spectra. Quality controls indicators, where applicable, shall be used to evaluate the usability of the analytical data within each data package: Sample Integrity, Holding Times, Blank Contamination, Calibration information, Laboratory Control Sample and/or Blank Spike, Matrix Spike Analysis, Dilutions Performed, Laboratory Duplicate Analyses, Chromatogram Evaluation, and Calculations. In addition, a verification of the reporting limits, method detection limits (MDLs), and units used to report all data shall also be assessed.

5.6 Institutional Controls

The proposed remedy relies on a set of restrictions and procedures, collectively referred to as institutional controls, to manage potential future human exposure to impacted soil and ground water left in place below the remedial cover (the Cap). The proposed institutional controls include:

- An Environmental Easement that will be enforceable by the State, acting through the NYSDEC, and the City of New York and that will require all owners and users of the Site lands to comply with the use restrictions and the engineering and institutional controls called for in the NYSDEC-approved RWP and SMP for the Site.

- A prohibition of land development for any use other than commercial/retail/industrial without prior written approval of the NYSDEC, provided that Site conditions are protective of the proposed new use or made protective for such use by additional remediation (if necessary). Without such approval, only appropriate commercial/retail or industrial use will be allowed.

- Worker notification if utility or other excavation work below the Cap is planned on the Site.

- Notification to the NYSDEC prior to any action that could jeopardize the integrity of the remedy.

- Development and approval of a Site Management Plan (including a health and safety plan) for any soil removed from below the Cap at the Site. The SMP will also include details for the operation of the SSDS and post-remediation groundwater-monitoring program.

- A prohibition on the development of water supply or irrigation wells on the Site.

- Periodic inspection and certification to confirm appropriate use of the Site, and to ensure that engineering and institutional controls included in this remedy are in place and remain effective to control the identified potential exposures.

The institutional controls will be memorialized in the SMP, with the approval of the NYSDEC and NYSDOH. The institutional controls will only apply to the area within the boundary of the Site being remediated under the BCA between WFM and the NYSDEC,

5.7 Post-Remedial Ground Water Monitoring

After the remedial excavation is completed, WFM will perform periodic ground water sampling to confirm the improvement of ground water quality. The exact number and placement of post-remediation monitoring wells will be established subsequent to the completion of the construction activities on the Site.

During each sampling round, samples from each well will be tested for VOCs and SVOCs. Ground water samples will be collected periodically for a minimum of two years. The first sampling round will be performed six months after construction is completed. The post-remedial groundwater-monitoring program will be discussed in detail in the SMP.

6. REPORTING/RECORD KEEPING

6.1 Monthly Progress Report

During the preparation and execution of the selected remedy, WFM will provide monthly progress reports to NYSDEC summarizing the status of ongoing activities and the anticipated schedule of future activities.

6.2 On Site Record Keeping

Records that will be kept during execution of the remedy include, but are not limited to:

- Daily field reports prepared by the resident engineer
- Construction photographs
- Air monitoring measurements
- Backfill sampling records
- Contractor submittals
- Documentation sample results
- As-built locations of excavation limits and documentation samples
- Dewatering effluent discharge testing results
- Transporter permit verification
- Waste transport manifests
- Weight tickets for bulk materials transported to or from the Site
- Quantities related to pay items

The records will be kept in the field office and periodically transferred to WFM and/or NYSDEC as required.

6.3 Remedial Action Final Reports

Within 90 days of the conclusion of remedial activities and construction activities, a final report will be prepared and submitted to NYSDEC documenting the implementation of

the remediation. The report will include: a summary of the work conducted, noting any deviations from the RWP; as-built drawings; disposal records; air monitoring records; documentation sampling results; water treatment testing results; other testing results; evidence that the institutional controls are in place; and a final SMP for post-remediation activities.

7. SCHEDULE

A preliminary schedule of major construction submittals, remedial implementation and post-construction reports is contained in Table 5. The schedule is referenced in months from stakeholder review of the RWP to the NYSDEC review of the remedial post-construction reports. Based on the schedule the total estimated projected duration from RWP acceptance to NYSDEC review of the post-construction reports is 14 months.

8. PROJECT ORGANIZATION

8.1 Project Roles and Responsibilities

The primary participants in the remediation are:

Volunteer:	Whole Foods Market Properties Brooklyn, LLC n/k/a 190-220 Third Street Store Brooklyn NY, LLC
Property Owner:	Whole Foods Market Properties Brooklyn, LLC n/k/a 190-220 Third Street Store Brooklyn NY, LLC
Regulatory Oversight:	New York State Department of Environmental Conservation New York State Department of Health
Consulting Engineer:	BL Companies, Inc.
Contractor:	March Associates Construction, Inc.

8.2 Project Communication

Successful project implementation will include regular internal communication between the project participants and external communication with the community and public officials at important milestones.

The main mechanism for internal communication during the remediation will be weekly on-Site progress meetings. At a minimum, participants in these meetings will include WFM's project manager, the Contractor's project manager, and the resident engineer. Representatives from NYSDEC and NYSDOH may participate in the weekly meetings when appropriate.

Important external communication milestones (beyond regular public participation activities) include:

- Pre-construction meeting with local public safety officials.
- Start of on-Site work.
- Significant work shutdowns (more than one day) due to air monitoring criteria above standards.
- Start of pile driving and associated vibration and noise.

- Start of excavation and backfilling.
- Completion of environmental excavation and backfilling.
- Completion of construction activities.
- Store opening date.

The milestones will be communicated using letters and/or public notices as appropriate. WFM will address any questions or concerns that are raised by the public during remedial activities.

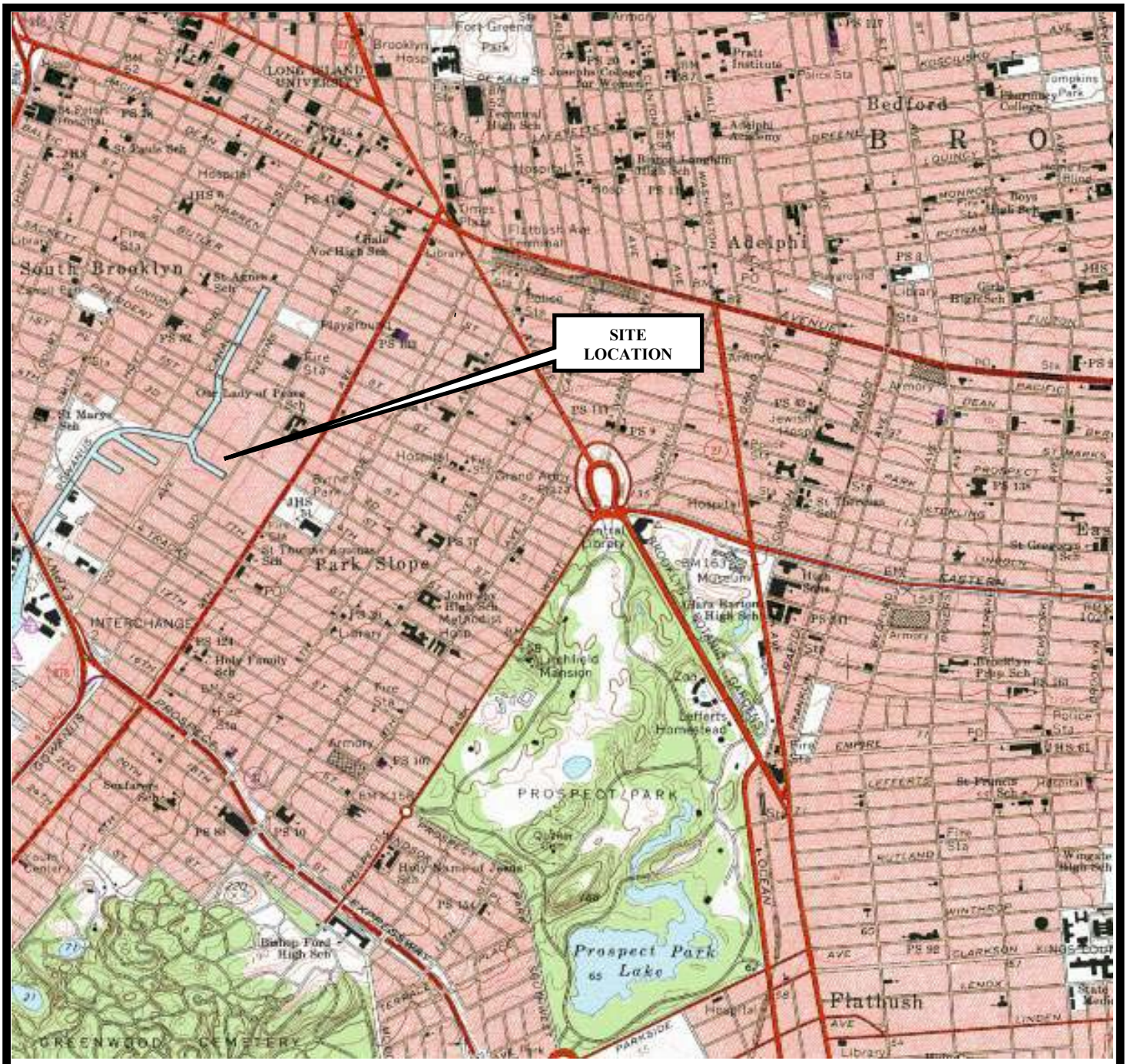
8.3 Project Management

Overall management of the project will be the responsibility of the WFM's project manager. He/she will be supported by a design engineer and resident engineer from BL Companies, Inc., and other environmental and engineering professionals as required. The project manager will also be the primary point of contact for the state agencies and local public officials.

FIGURES

Figure 1

Site Location Map



Base map is a reproduction of the U.S.G.S. 7.5 Minute Topographic Quadrangle of Brooklyn, New York, 1967, photo revised 1979.

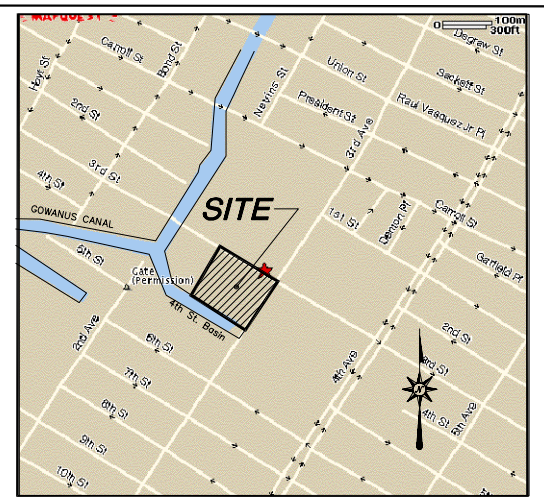
BL Companies

FIGURE 1
SITE LOCATION MAP
PROPOSED WHOLE FOODS MARKET
220 3RD STREET / NYSDEC BCP SITE No. C224100
CITY OF NEW YORK, KINGS COUNTY, BROOKLYN, NEW YORK

Project No. 03C497-B

Figure 2

Site Plan



LOCATION MAP

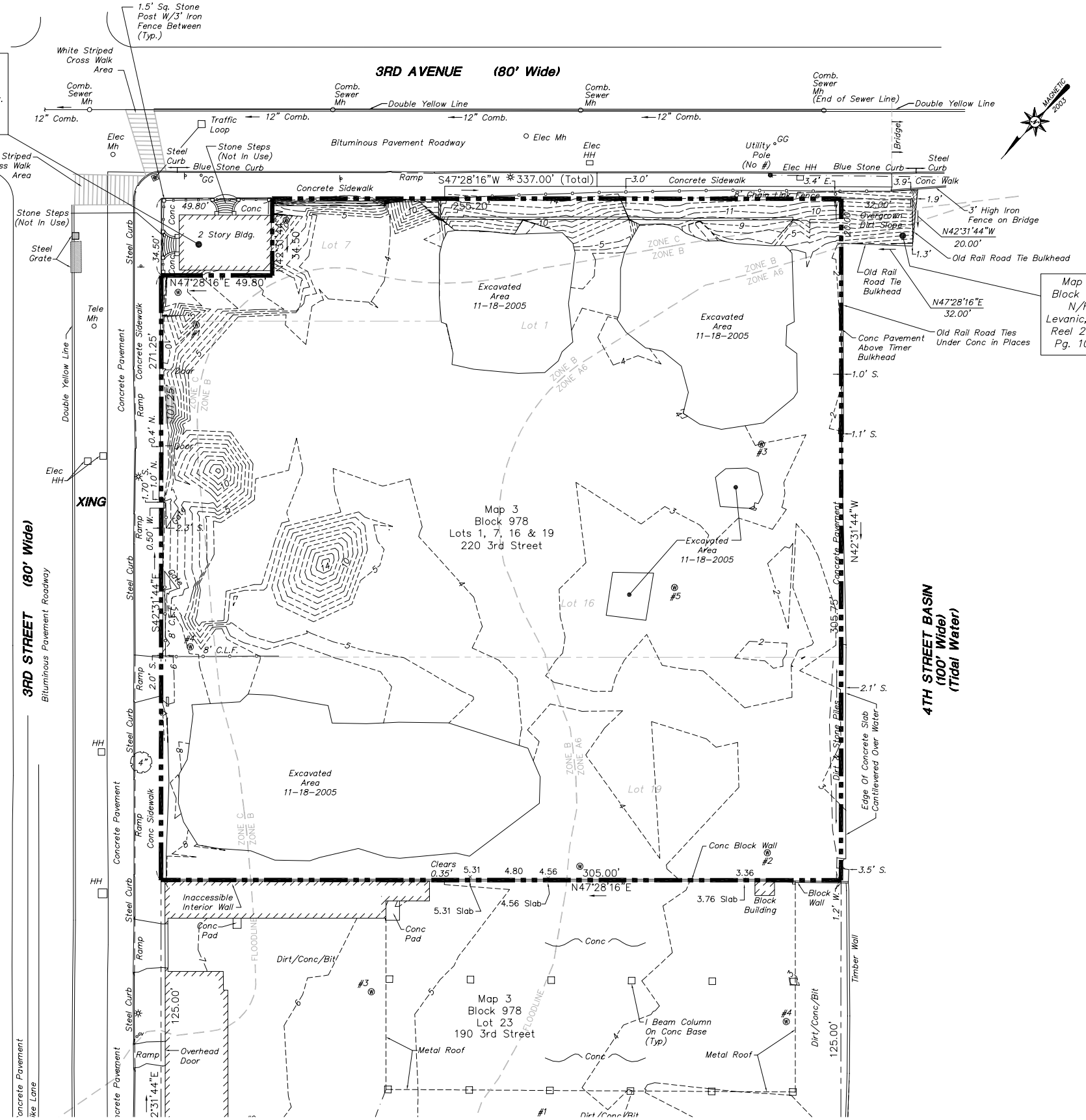
NOT TO SCALE

LEGEND

- Property Boundry of the BCP Project in Accordance with the BCA
- Overhead Wires
- Topographic Contour
- Chain Link Fence
- Utility Pole
- Utility Pole W/ Light
- Light Pole
- Steel Span Pole
- HH — Hand Hole
- CB — Catch Basin
- MH — Manhole
- Cleanout
- Hydrant
- WV — Water Valve
- GG — Gas Valve
- Bollard
- Sign
- FFE — First Floor Elevation
- X 10.20 — Spot Elevation

GENERAL NOTES

1. NORTH ARROW AND BEARINGS BASED ON MAGNETIC NORTH 2003.
2. ELEVATIONS AND CONTOURS ARE U.S.C.G.S.(1929).
3. LOCATIONS BASED ON FIELD SURVEY BY BL COMPANIES ON MARCH 24–25, 2003 (LOTS 1, 7, 16 & 19) AND OCTOBER 4, 2005 (LOT 23).
4. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED THOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION.
5. REFERENCE IS MADE TO THE FOLLOWING MAP:
   A. "ALTA/ACSM LAND TITLE SURVEY PROPERTY LOCATED AT 200–210, 212–214 3RD STREET AND 216–222 3RD STREET/ 360–70 3RD AVENUE KINGS COUNTY, BROOKLYN, NEW YORK" SCALE 1"=20' DATE 9/30/2003 REV. 10/8/2003 SHEET NO. AL–2 BY BL COMPANIES MERIDEN, CONNECTICUT.
6. PARCEL IS LOCATED IN FLOOD HAZARD ZONE C, AREAS OF MINIMAL FLOODING, ZONE B, AREAS BETWEEN LIMITS OF THE 100–YEAR FLOOD AND 500–YEAR FLOOD AND ZONE A6, AREAS OF 100–YEAR FLOOD WITH A BASE ELEVATION OF 10 AS DEPICTED ON F.I.R.M. COMMUNITY PANEL NO. 360497 0063 B EFFECTIVE DATE: NOVEMBER 16, 1983 CITY OF NEW YORK, NEW YORK BRONX, RICHMOND, NEW YORK, QUEENS AND KINGS COUNTIES PANEL 63 OF 131.



THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES

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(212) 529-4774 Fax

Site Plan

220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS

No.	Date	Desc.

Surveyed	E.S./J.T.
Drawn	J.S.
Checked	J.M.
Approved	R.H.R.
Scale	1"=20'
Job No.	030497
Date	4/3/2006
CAD File:	FIGURE 02
Field Book:	320

Title

CURRENT SITE LAYOUT

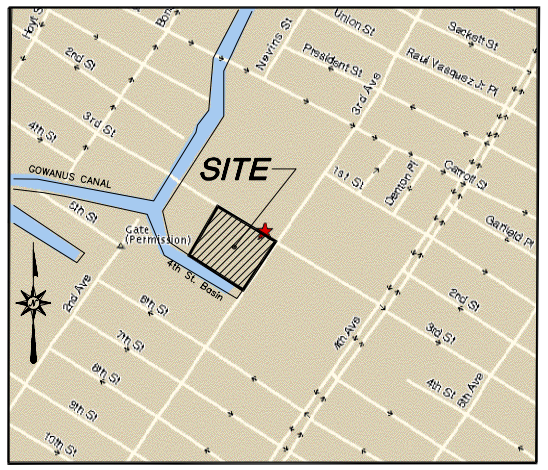
Sheet No.

FIGURE 2

Xref (s): XYS030497DS, XYS030497DE

Figure 3

Proposed WFM Development

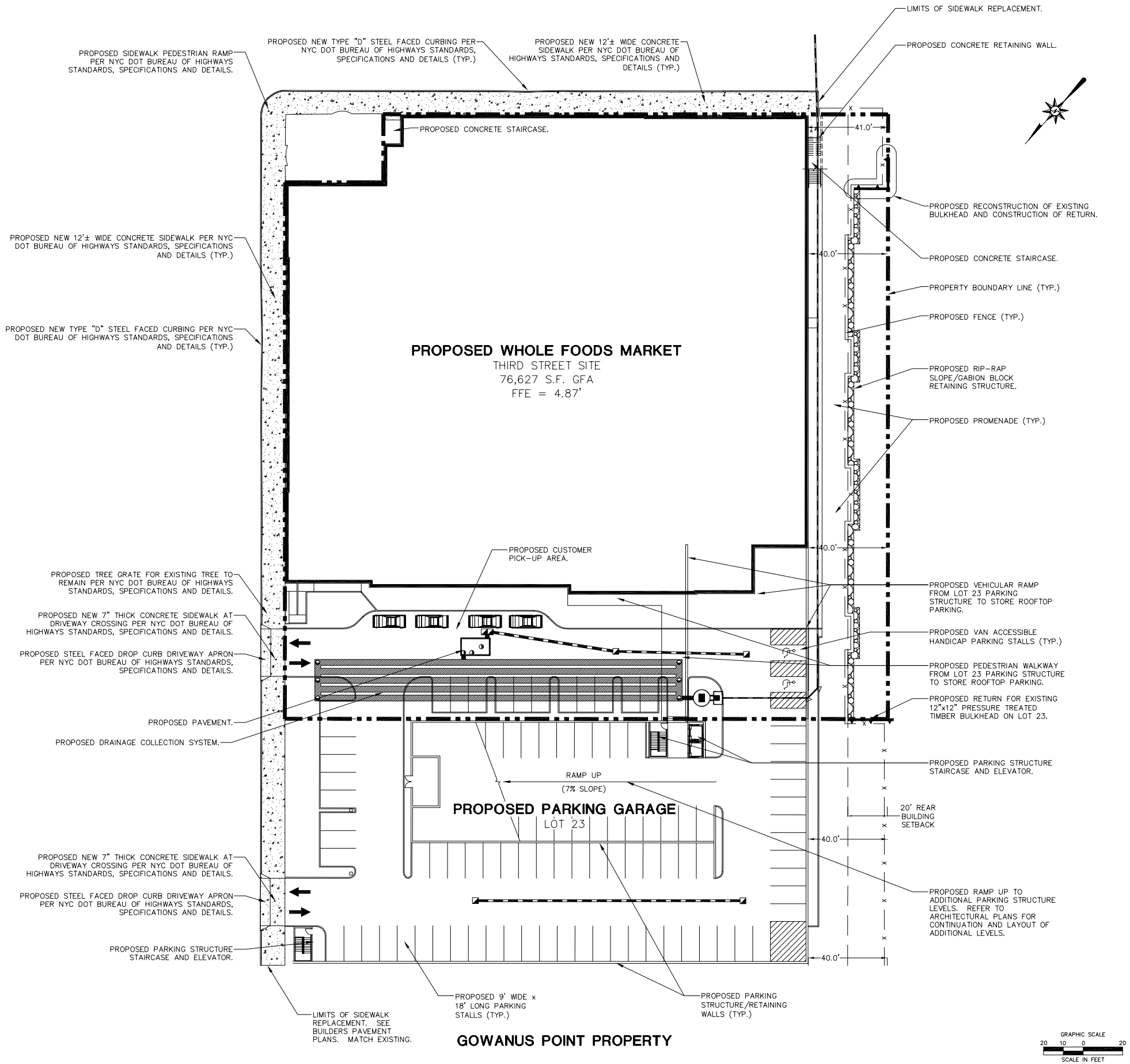


LOCATION MAP

NOT TO SCALE

LEGEND

PROPERTY BOUNDRY OF THE BCP PROJECT IN ACCORDANCE WITH THE BCA.



GOWANUS POINT PROPERTY

GRAPHIC SCALE
20 10 0 20
SCALE IN FEET

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Proposed Whole Foods Market
220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS
No. Date Desc.

Designed	C.A.F.
Drawn	C.A.F.
Checked	
Approved	
Scale	1"=20'
Project No.	030497
Date	07/28/06
CAD File	FIGURE 03

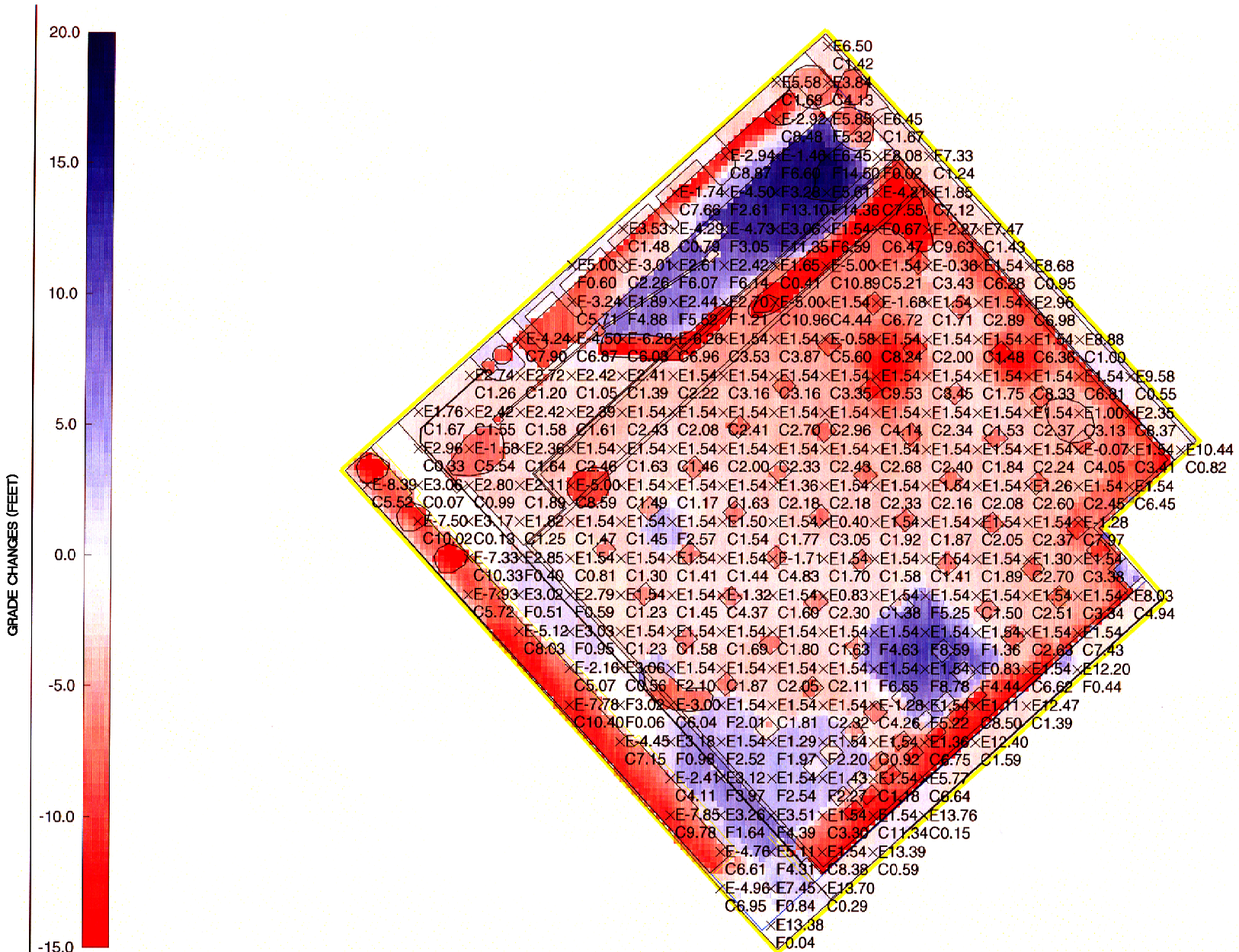
Title
PROPOSED WHOLE FOODS MARKET DEVELOPMENT

Sheet No.
FIGURE 3

Xref (s): XYDS240706

Figure 4

Proposed Excavation Limits and Grade Changes



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Proposed Whole Foods Market
220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS
No. Date Desc.

Designed C.A.F.
Drawn C.A.F.
Checked
Approved
Scale AS NOTED
Project No. 030497
Date 07/28/06
CAD File FIGURE 04

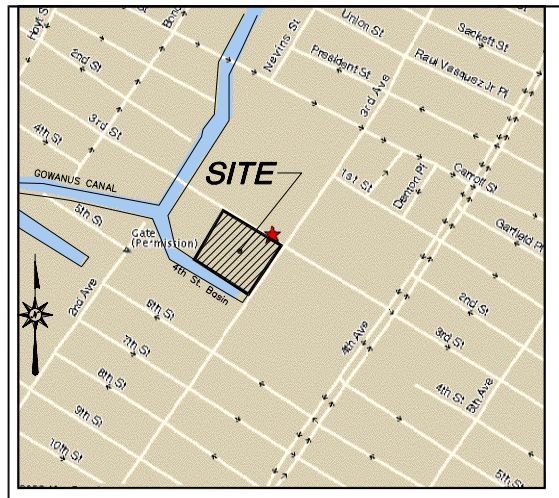
Title
PROPOSED
EXCAVATION LIMITS
AND GRADE CHANGES

Sheet No.
FIGURE
4

Xref (s):

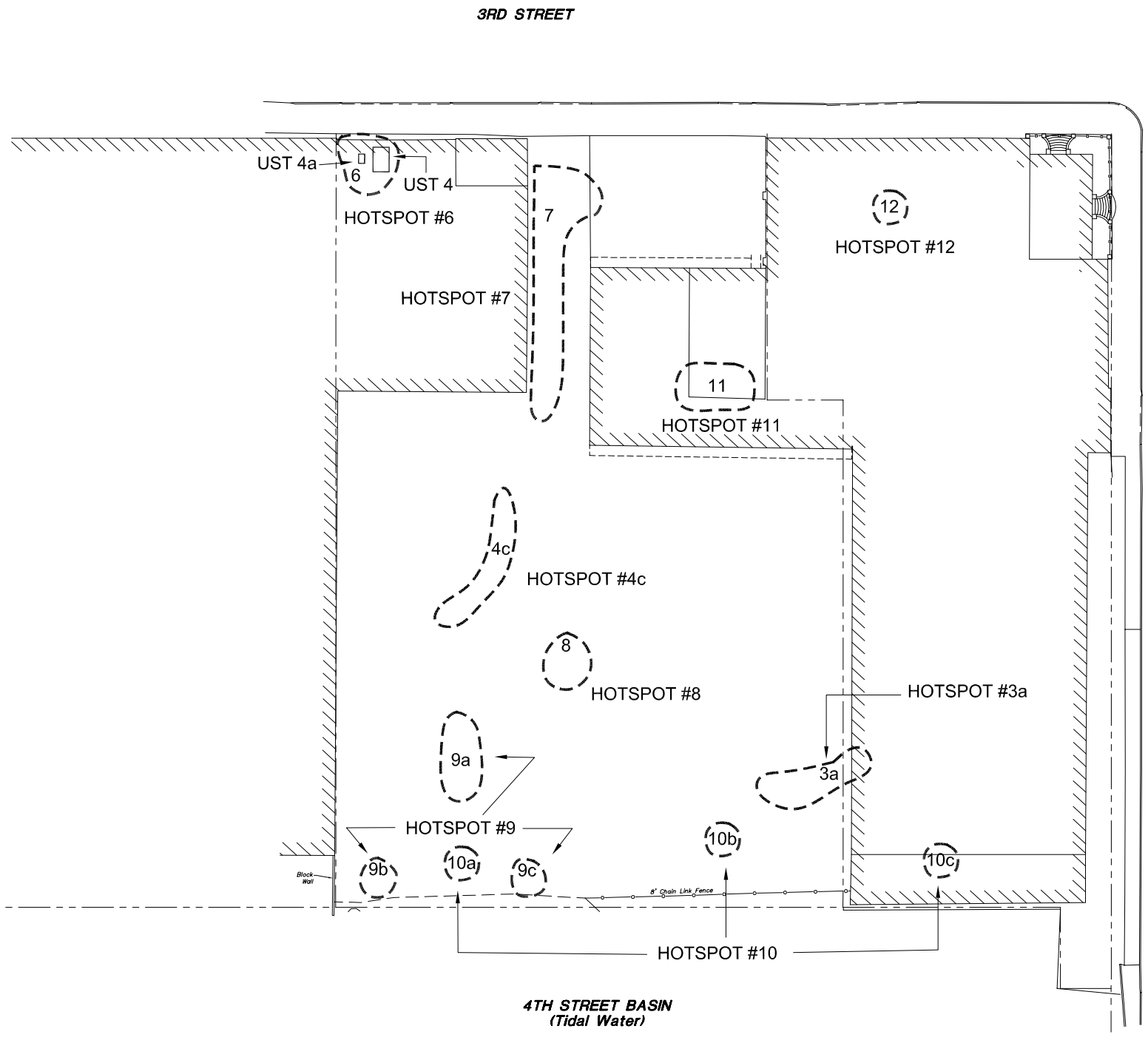
Figure 5

Hotspot Locations and Identifications



LOCATION MAP

NOT TO SCALE



LEGEND

HOTSPOT AREA

FORMER BUILDING

GRAPHIC SCALE
20 10 0 20
SCALE IN FEET

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Proposed Whole Foods Market
220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS
No. Date Desc.

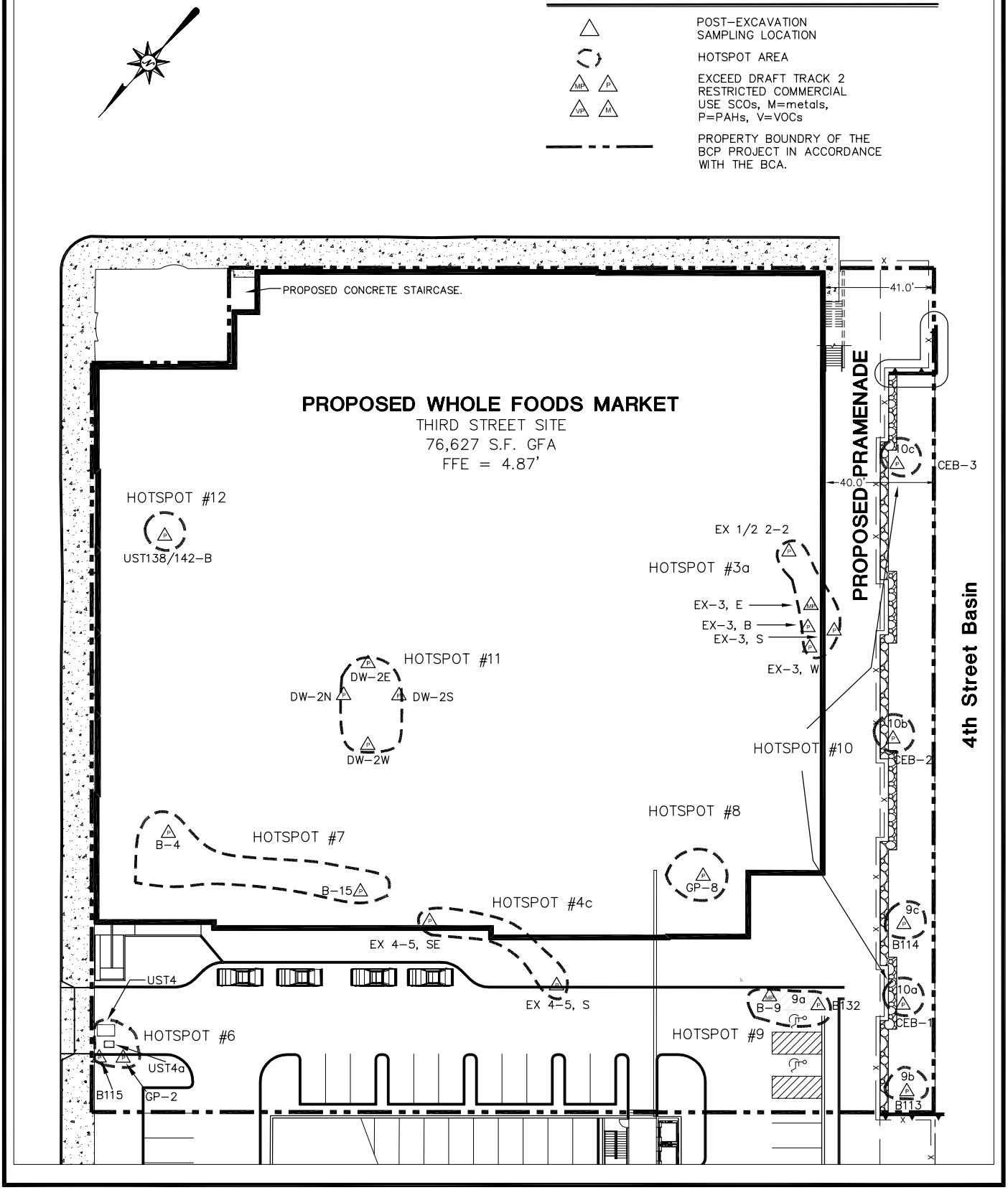
Designed	C.A.F.
Drawn	C.A.F.
Checked	
Approved	
Scale	1"=20'
Project No.	030497
Date	07/28/06
CAD File	FIGURE 05

Title
HOTSPOT LOCATIONS AND IDENTIFICATIONS

Sheet No.
FIGURE 5

Figure 6

Hotspot/Draft Track 2
Restricted-Commercial Use Exceedances



Boring Locations and Site-Specific/SB Exceedances

220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

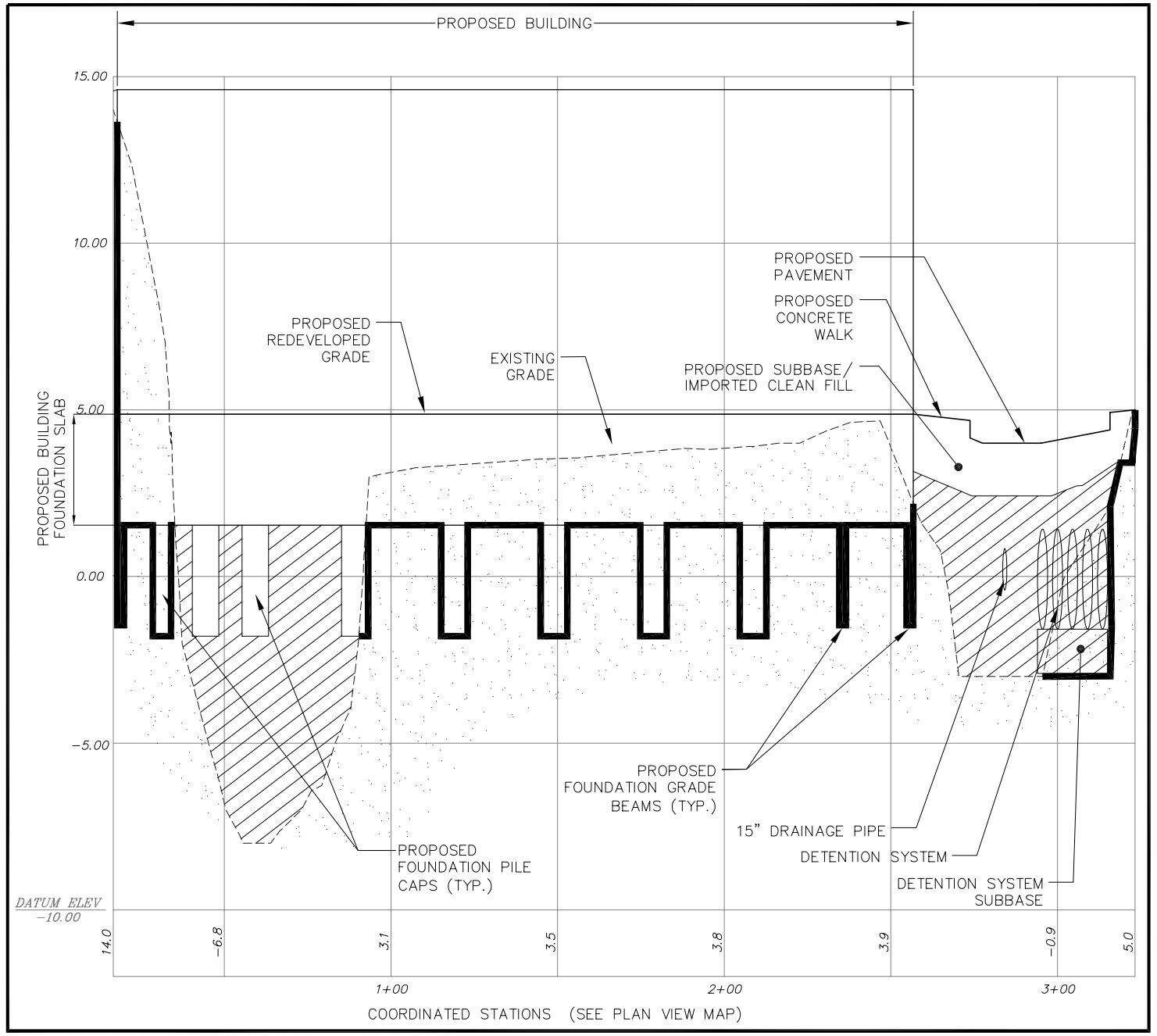
Designed	J.B.
Drawn	J.A.B.
Checked	
Approved	
Scale	1" = 50'
Project No.	03C497
Date	11/14/06
CAD File	FIGURE 06

FIGURE 6

Xref(s): XXXXXXXX

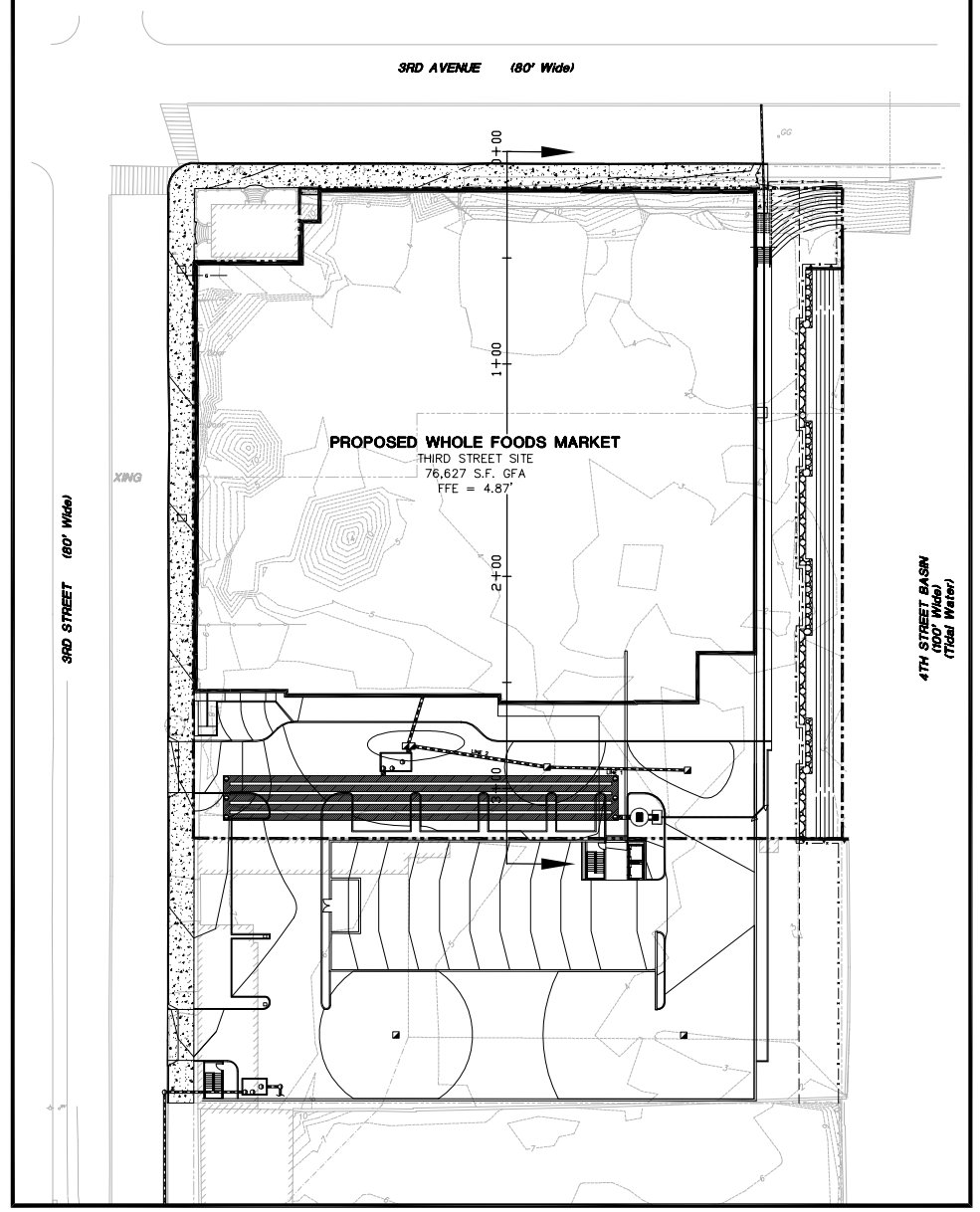
Figure 7

Geologic Cross-Section



CROSS SECTION OF PROPOSED CONDITIONS

HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=2'



PLAN VIEW OF PROPOSED CONDITIONS

SCALE: 1"=40'

LEGEND

- PROPOSED EXCAVATION LIMITS
- EXISTING URBAN FILL
- PROPOSED CLEAN IMPORTED FILL AND/OR REUSED SOIL BACKFILL
- PROPERTY BOUNDRY OF THE BCP PROJECT IN ACCORDANCE WITH THE BCA.

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(203) 630-2615 Fax

Proposed Whole Foods Market
220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS
No. Date Desc.

Designed	C.A.F.
Drawn	C.S.H.
Checked	
Approved	
Scale	AS NOTED
Project No.	03C497
Date	08/02/06
CAD File	FIGURE 07

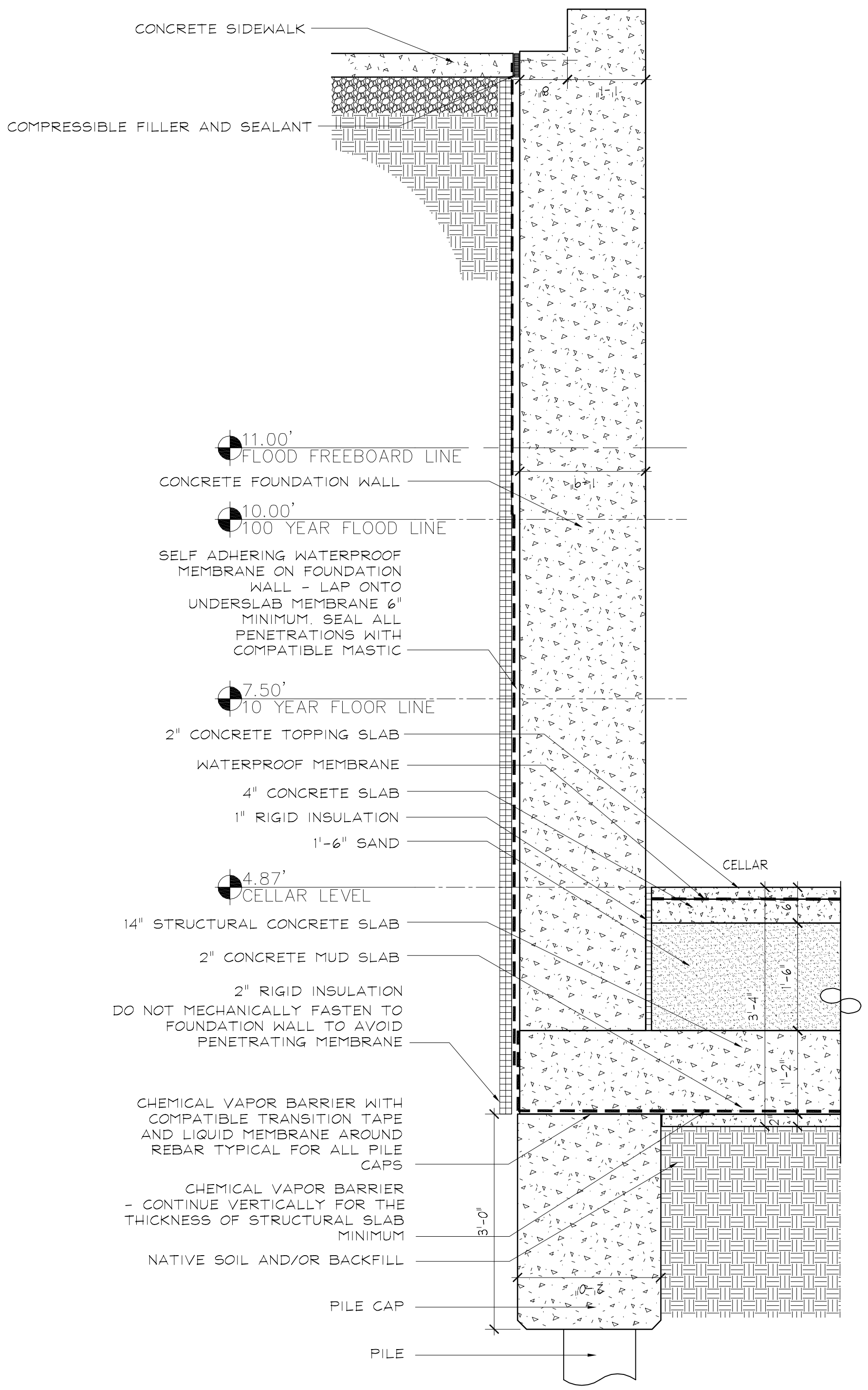
Title
SITE CROSS SECTION

Sheet No.
FIGURE 7

Xref (s): BDC49701,

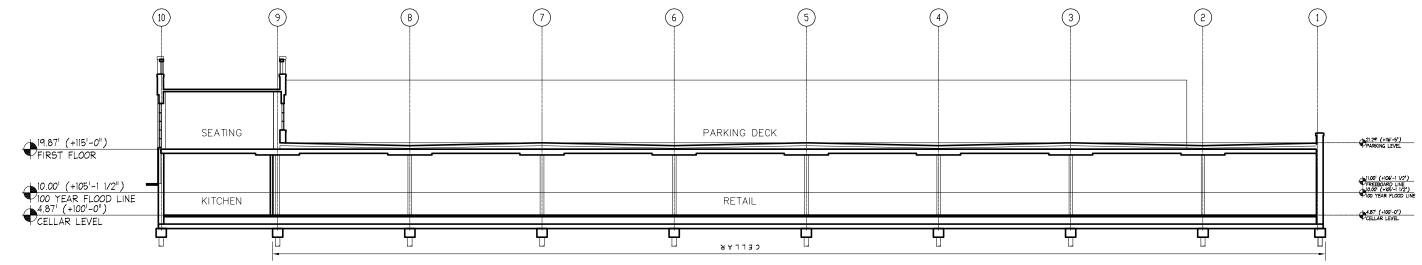
Figure 8

Cover Plan and Cross-Section



FOUNDATION COVER SECTION

N.T.S.

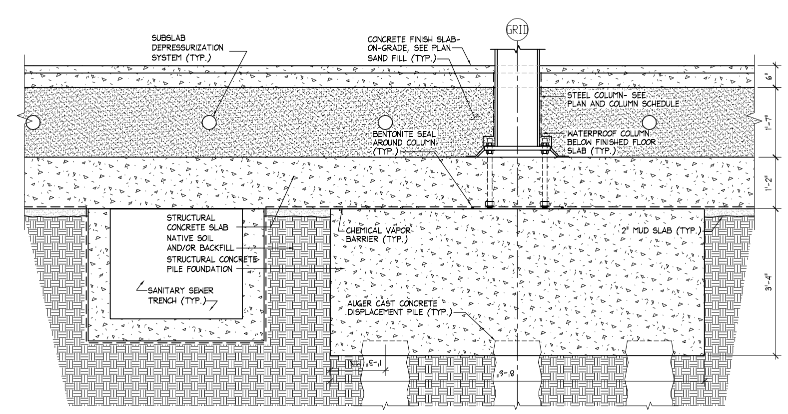


BUILDING SECTION

N.T.S.

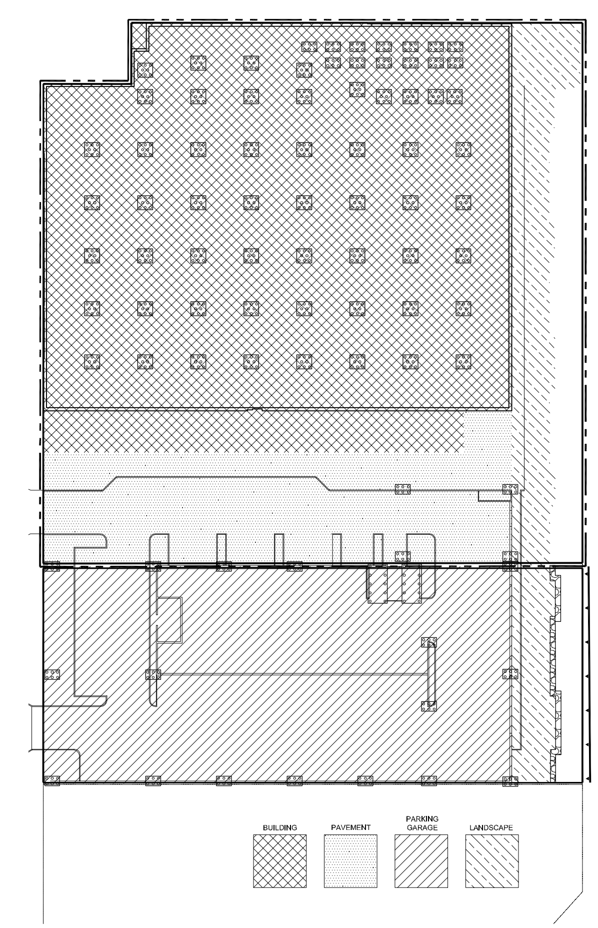
NOTE:
MINIMUM TWO-FOOT-THICK COVER OF CLEAN FILL BELOW THE FINAL REDEVELOPED GRADE IN AREAS OF LANDSCAPE.

MINIMUM ONE-FOOT-THICK COVER OF CLEAN FILL/GRAVEL SUBASE BELOW THE FINAL REDEVELOPED GRADE IN AREAS OF PAVEMENT.



TYPICAL PILE CAP SECTION

N.T.S.



SITE PLAN

N.T.S.

PROPERTY BOUNDRY OF THE BCP PROJECT IN ACCORDANCE WITH THE BCA.

Xref (s): BDC49701,

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Proposed Whole Foods Market

220 3rd Street / NYSDEC BCP Site No. C224100
Brooklyn, Kings County, New York

REVISIONS

No.	Date	Desc.

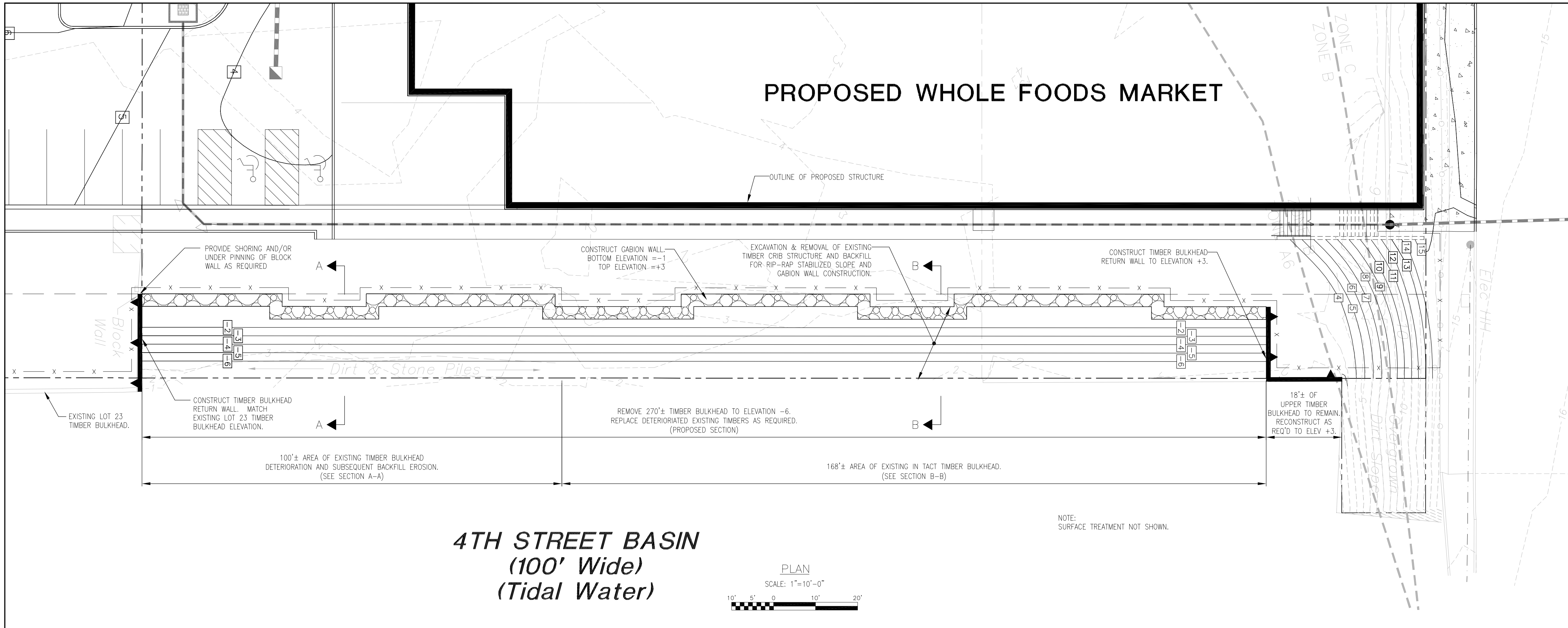
Designed	C.A.F.
Drawn	C.S.H.
Checked	
Approved	
Scale	AS NOTED
Project No.	03C497
Date	08/02/06
CAD File	FIGURE 08

Title
SITE CROSS SECTION

Sheet No.
FIGURE 8

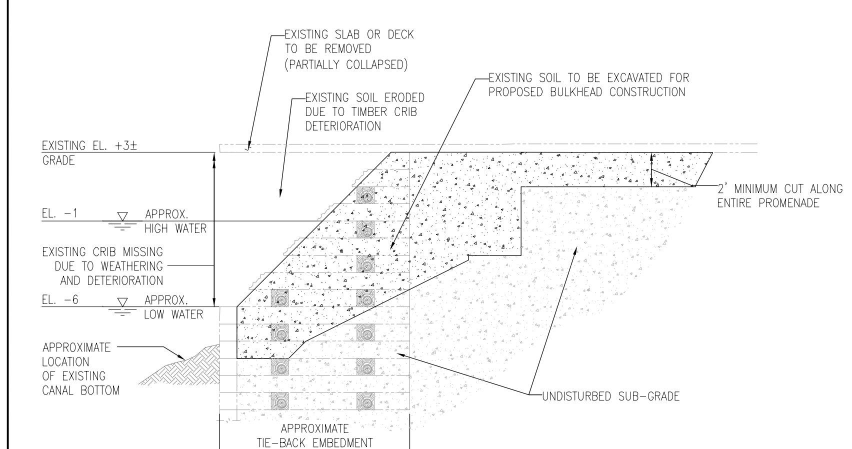
Figure 9

Bulkhead Design and Cross-Section



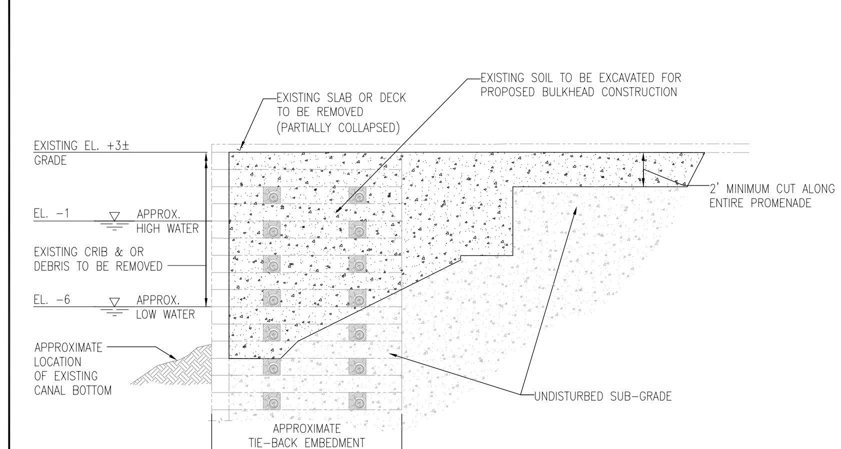
PLAN

SCALE: 1"=10'-0"



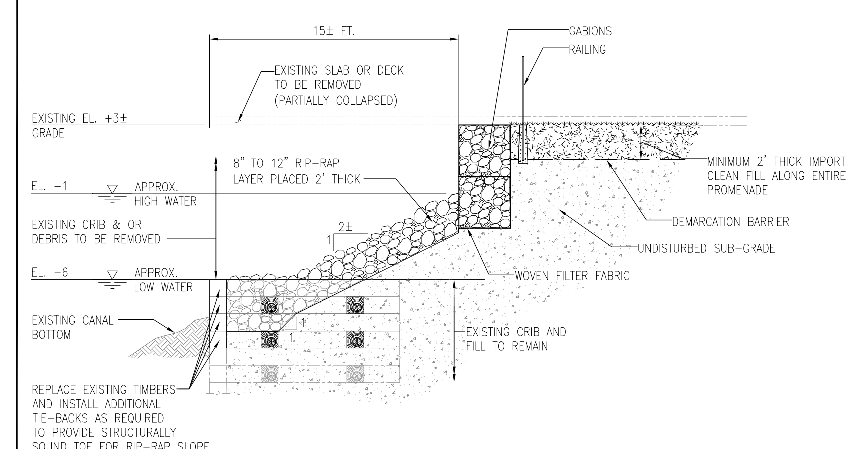
EXISTING SECTION A-A

SCALE: 1/4"=1'-0"



EXISTING SECTION B-B

SCALE: 1/4"=1'-0"



PROPOSED SECTION

SCALE: 1/4"=1'-0"

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Proposed Whole Foods Market

220 3rd Street / NYSDEC BCP Site No. C224100

Brooklyn, Kings County, New York

REVISIONS

No.	Date	Desc.

Designed	C.A.F.
Drawn	C.A.F.
Checked	
Approved	
Scale	AS NOTED
Project No.	03C497
Date	08/02/06
CAD File	FIGURE 09

Title

BULKHEAD DESIGN AND CROSS SECTION

Sheet No.

FIGURE 9

Xref (s): ; XCC49702 ; XCC49703 ; XYD3C49706 ; CPS3C49702

TABLES

TABLE 1

Soil Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID {Hotspot ID}	Track 2 Criteria*	NY RSCO		EX3, B {3a}	EX3, S {3a}	EX3, E {3a}	EX3, W {3a}	EX 1/2 2-2 {3a}	EX4-5, S {4c}	EX4-5, SE {4c}	GP-2/S1 {6}	GP-2/S-2 {6}	B115 (0-4) {6}	B115 (4-8) {6}
Date Sampled				4-Oct-05	4-Oct-05	4-Oct-05	4-Oct-05	15-Sep-05	4-Oct-05	4-Oct-05	19-Jan-04	1/19/2004	1-Nov-04	11/1/2004
VOCs (ppb)														
1,2,4-Trimethylbenzene	190,000	NE		<1.9 UJ	<1.8 UJ	<1.7 UJ	<1.8 UJ	< 20	<2.0 UJ	<1.8 UJ	<5.0 U	10	NA	NA
1,3,5-Trimethylbenzene	190,000	NE		<2.0 UJ	<1.9 UJ	<1.8 UJ	<1.9 UJ	< 20	<2.1 UJ	<1.9 UJ	<5.0 U	<5.0 U	NA	NA
2-Butanone (MEK)	500,000	300		12 J	11 UJ	11 UJ	11 UJ	NR	12 UJ	11 UJ	NR	NR	NA	NA
Benzene	45,000	60		<1.7 UJ	<1.6 UJ	<1.5 UJ	<1.5 UJ	<20	<1.7 UJ	<1.5 UJ	<5.0 U	<5.0 U	NA	NA
Carbon disulfide	NE	2,700		<2.0 UJ	<1.9 UJ	<1.8 UJ	<1.9 UJ	NR	<2.1 UJ	<1.9 UJ	NR	NR	NA	NA
Ethylbenzene	390,000	5,500		<2.1 UJ	<2.1 UJ	<1.9 UJ	<2.0 UJ	< 20	<2.2 UJ	<2.0 UJ	<5.0 U	25	NA	NA
Isopropylbenzene	NE	NE		<2.2 UJ	<2.2 UJ	<2.0 UJ	<2.1 UJ	< 20	<2.3 UJ	<2.1 UJ	<5.0 U	23	NA	NA
Methylene chloride	500,000	100		12 J	39 J	45 J	14 J	NR	21 J	7.7 J	<1 U	<5.0 U	NA	NA
n-Butylbenzene	500,000	NE		<1.8 UJ	<1.7 UJ	<1.6 UJ	<1.6 UJ	< 20	<1.8 UJ	<1.6 UJ	<5.0 U	25	NA	NA
n-Propylbenzene	500,000	NE		<2.2 UJ	<2.2 UJ	<2.0 UJ	<2.1 UJ	< 20	<2.3 UJ	<2.1 UJ	<5.0 U	<5.0 U	NA	NA
o-Xylene	500,000	NE		<1.4 UJ	<1.4 UJ	<1.3 UJ	<1.3 UJ	<40	<1.5 UJ	<1.3 UJ	<5.0 U	12	NA	NA
p-&m-Xylene		NE		<3.9 UJ	<3.8 UJ	<3.5 UJ	<3.6 UJ	NR	<4.0 UJ	<3.6 UJ	20	24	NA	NA
p-Isopropyltoluene	130,000	NE		<2.2 UJ	<2.2 UJ	<2.0 UJ	<2.1 UJ	NR	<2.3 UJ	<2.1 UJ	<5.0 U	21	NA	NA
sec-Butylbenzene	500,000	NE		<2.4 UJ	<2.3 UJ	<2.1 UJ	<2.2 UJ	< 20	<2.5 UJ	<2.2 UJ	<5.0 U	<5.0 U	NA	NA
tert-Butylbenzene	500,000	NE		<2.4 UJ	<2.3 UJ	<2.1 UJ	<2.2 UJ	< 20	<2.5 UJ	<2.2 UJ	<5.0 U	24	NA	NA
Tetrachloroethylene	25,000	1,400		<2.2 UJ	<2.2 UJ	<2.0 UJ	<2.1 UJ	< 20	<2.3 UJ	<2.1 UJ	17	<5.0 U	NA	NA
Toluene	500,000	1,500		<2.0 UJ	<1.9 UJ	<1.8 UJ	<1.9 UJ	< 20	<2.1 UJ	<1.9 UJ	8	<5.0 U	NA	NA
Xylenes (Total)	500,000	1,200		NR	NR	NR	NR	<40	NR	NR	20	36	NA	NA
SVOCs (ppb)														
2-Methylnaphthalene	NE	36,400		72 J	<240 UJ	<220 UJ	<230 UJ	NR	960 J	320 J	NR	NR	1,600 J	<60 U
Acenaphthene	500,000	50,000		210 J	<240 UJ	<230 UJ	<240 UJ	661	2,100 J	460 J	<1,700 U	<330 U	2,200 J	<63 U
Acenaphthylene	500,000	41,000		210 J	200 J	350 J	620 J	< 330	1,900 J	250 J	NR	NR	1,700 J	<47 U
Anthracene	500,000	50,000		470 J	370 J	430 J	990 J	2,130	6,600 J	1,400 J	<1,700 U	<330 U	5,800 J	<63 U
Benzo(a)anthracene	5,600	224 or MDL		**2,100 J**	**1,100 J**	**1,300 J**	**2,400 J**	**4,630**	**20,000 J**	**2,600 J**	**4,700**	<330 U	**14,000**	<51 U
Benzo(a)pyrene	1,000	61 or MDL		**1,900 J**	**1,200 J**	**1,800 J**	**2,500 J**	**2,430**	**19,000 J**	**2,400 J**	**4,500**	<330 U	**13,000**	54 J
Benzo(b)fluoranthene	6,000	1,100		**2,100 J**	**1,300 J**	**2,000 J**	**2,900 J**	**2,960**	**20,000 J**	**2,800 J**	**4,500**	<330 U	**12,000**	<110 U
Benzo(g,h,i)perylene	500,000	50,000		1,400 J	1,200 J	1,600 J	1,800 J	2,350	16,000 J	2,600 J	<1,700 U	<330 U	7,400 J	<42 U
Benzo(k)fluoranthene	56,000	1,100		900 J	610 J	560 J	1,100 J	**2,560**	**8,600 J**	1,100 J	**5,000**	<330 U	**11,000**	43 J (M)
Chrysene	56,000	400		**2,100 J**	**1,200 J**	**1,500 J**	**2,700 J**	**4,530**	**22,000 J**	**2,900 J**	**5,000**	<330 U	**14,000**	51 J
Dibenzo(a,h)anthracene	560	14 or MDL		**380 J**	**280 J (M)**	**380 J**	**520 J**	**598**	**4,200 J**	**610 J**	<1,700 U	<330 U	**2,600 J (M)**	<42 U
Fluoranthene	500,000	50,000		4,100 J	2,200 J	2,500 J	5,000 J	15,800	40,000 J	5,700 J	11,000	580	41,000	54 J
Flourene	500,000	50,000		190 J	<190 UJ	<180 UJ	260 J	563	2,100 J	600 J	<1,700 U	<330 U	2,000 J	<49 U
Indeno(1,2,3-cd)pyrene	5,600	3,200		1,200 J	920 J	1,300 J	1,600 J	2,610	**14,000 J**	2,000 J	<1,700 U	<330 U	**6,300 J**	<39 U
Naphthalene	500,000	13,000		430 J	310 J	270 J	280 J	646	2,500 J	430 J	<1,700 U	640	2,200 J	<65 U
Phenanthrene	500,000	50,000		1,600 J	1,500 J	1,500 J	3,100 J	9,820	28,000 J	5,300 J	5,300	590	36,000	<44 U
Pyrene	500,000	50,000		4,500 J	1,800 J	2,300 J	3,400 J	9,600	37,000 J	5,100 J	9,300	510	28,000	66 J
PCBs (ppb)														
PCB 1248	1,000	1,000 (Surface)		<3.1 UJ	<3.0 UJ	63 J	18 UJ	NA	<3.3 UJ	<2.9 UJ	NA	NA	NA	NA
PCB 1254		10,000 (Subsurface)		<1.4 UJ	25 NJ	52 NJ	63 J	NA	21 UJ	<1.3 UJ	NA	NA	NA	NA
PCB 1260				<4.6 UJ	24 J	69 J	81 J	NA	6.9 J	<4.3 UJ	NA	NA	NA	NA
RCRA Metals (ppm)		**NY RSCO**	**SB**											
Arsenic	16	7.5 or SB	<0.1 - 73	4.2 J	4.1 J	5.2 J	3.4 J	NA	7.4 J	2.4 J	NA	NA	3.1 B (N)	4.3 B (N)
Barium	400	300 or SB	10 - 1,500	64.3 J	145 J	300 J	205 J	NA	113 J	52.9 J	NA	NA	210 (*N)	91.2 (*N)
Cadmium	9.3	1 or SB	0.1 - 1**	<1.1 U	**1.1 B**	**1.9 B**	**1.4 B**	NA	<1.2 U	<1.3 U	NA	NA	<1.1 U	<1.2 U
Chromium	400-1,500	10 or SB	1 - 1,000	7.7 J	19.8 J	21.2 J	14.8 J	NA	12.6 J	9.5 J	NA	NA	14.2	19.5
Lead	1,000	SB	<10 - 300	195	**617**	**1,370**	**507**	NA	**466**	273	NA	NA	**865 (*)**	247 (*)
Selenium	1,500	2 or SB	<0.1 - 3.9	<1.8 U (N)	<1.7 U (N)	<1.6 U (N)	<1.5 U (N)	NA	<1.9 U (N)	<2.0 U (N)	NA	NA	<1.8 U (N)	<1.9 U (N)
Silver	1,500	SB	NE	0.81 J	<0.34 UJ	0.37 J	<0.31 UJ	NA	<0.39 UJ	<0.41 UJ	NA	NA	<0.35 U	<0.39 U
Mercury	2.8	0.1		**0.90**	**0.19**	**0.48**	**0.21**	NA	**0.88**	**0.24**	NA	NA	**0.42**	**0.48**

TABLE 1

Soil Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID {Hotspot ID}	Track 2 Criteria+	NY RSCO		B-4,S-2/4-8 {7}	B-15/S-3 (8-12) {7}	B-15/S-4 (12-16) {7}	GP-8/S-2A {8}	B-9/S-2 (4-8) {9a}	B-9/S-3 (8-12) {9a}	B132 (0-4) {9a}	B132 (4-8) {9a}	B132 (12-16) {9a}
Date Sampled				5-Dec-03	9-Dec-03	9-Dec-03	20-Jan-04	9-Dec-03	9-Dec-03	3-Nov-04	3-Nov-04	3-Nov-04
VOCs (ppb)												
1,2,4-Trimethylbenzene	190,000	NE		<5.0 U	18	23,000	58,000	10	1,000	<58 UJ	<58 U	NA
1,3,5-Trimethylbenzene	190,000	NE		<5.0 U	5	4,600	52,000	<5.0 U	500	<58 UJ	160	NA
2-Butanone (MEK)	500,000	300		NR	NR	NR	NR	NR	NR	NR	NR	NA
Benzene	45,000	60		<5.0 U	<5.0 U	<100 U	**750**	<5.0 U	<100 U	<58 UJ	<58 U	NA
Carbon disulfide	NE	2,700		NR	NR	NR	NR	NR	NR	NR	NR	NA
Ethylbenzene	390,000	5,500		<5.0 U	13	**20,000**	**150,000**	15	830	<58 UJ	93	NA
Isopropylbenzene	NE	NE		<5.0 U	16	2,100	11,000	<5.0 U	430	<58 UJ	<58 U	NA
Methylene chloride	500,000	100		<5.0 U	<5.0 U	<100 U	<100 U	<5.0 U	<100 U	NR	NR	NA
n-Butylbenzene	500,000	NE		<5.0 U	18	4,400	230,000	<5.0 U	340	<58 UJ	650	NA
n-Propylbenzene	500,000	NE		<5.0 U	18	2,000	19,000	<5.0 U	330	<58 UJ	<58 U	NA
o-Xylene	500,000	NE		<5.0 U	21	3,000	68,000	27	180	<58 UJ	<58 U	NA
p-&m-Xylene		NE		<5.0 U	38	1,900	140,000	50	280	<120 UJ	180	NA
p-Isopropyltoluene	130,000	NE		<5.0 U	23	3,000	14,000	<5.0 U	290	<58 UJ	260	NA
sec-Butylbenzene	500,000	NE		<5.0 U	32	350	77,000	<5.0 U	100	<58 UJ	880	NA
tert-Butylbenzene	500,000	NE		<5.0 U	<5.0 U	1,800	<100 U	6	<100 U	<58 UJ	560	NA
Tetrachloroethylene	25,000	1,400		<5.0 U	<5.0 U	<100 U	<100 U	<5.0 U	<100 U	NR	NR	NA
Toluene	500,000	1,500		<5.0 U	15	220	**1,600**	40	170	<58 UJ	190	NA
Xylenes (Total)	500,000	1,200		NR	NR	NR	**208,000**	NR	NR	NR	NR	NA
SVOCs (ppb)												
2-Methylnaphthalene	NE	36,400		<1,700 U	3,400	**62,000**	NR	<660 U	4,200	9,200 J	NA	17,000 J
Acenaphthene	500,000	50,000		<1,700 U	8,500	**73,000**	**1,800,000**	<660 U	13,000	19,000 J	NA	35,000 J
Acenaphthylene	500,000	41,000		3,000	<1,700 U	11,000	NR	<660 U	<1,700 U	<4,600 UJ	NA	<3,500 UJ
Anthracene	500,000	50,000		<1,700 U	6,800	42,000	**960,000**	<660 U	5,000	38,000 J	NA	<4,700 UJ
Benzo(a)anthracene	5,600	224 or MDL		**1,800**	**3,200**	**27,000**	<830,000 U	**950**	**3,600**	**67,000 J**	NA	<3,900 UJ
Benzo(a)pyrene	1,000	61 or MDL		**3,700**	<1,700 U	**27,000**	<830,000 U	<660 U	**4,100**	**52,000 J**	NA	<3,500 UJ
Benzo(b)fluoranthene	6,000	1,100		**1,700**	**2,200**	**29,000**	<830,000 U	<660 U	**1,800**	**28,000 J**	NA	<8,000 UJ
Benzo(g,h,i)perylene	500,000	50,000		3,000	<1,700 U	<8,300 U	<830,000 U	<660 U	<1,700 U	33,000 J	NA	<3,200 UJ
Benzo(k)fluoranthene	56,000	1,100		**2,000**	**3,200**	**32,000**	<830,000 U	<660 U	**2,500**	**53,000 J**	NA	<3,200 UJ
Chrysene	56,000	400		**2,500**	**4,000**	**30,000**	<830,000 U	**970**	**3,800**	**74,000 J**	NA	<3,600 UJ
Dibenzo(a,h)anthracene	560	14 or MDL		<1,700 U	<1,700 U	<8,300 U	<830,000 U	<660 U	<1,700 U	**9,500 J (M)**	NA	<3,200 UJ
Fluoranthene	500,000	50,000		3,800	7,300	**61,000**	**1,300,000**	1,200	7,900	**120,000 J**	NA	4,800 J
Flourene	500,000	50,000		<1,700 U	6,000	**54,000**	**1,000,000**	<660 U	7,400	25,000 J	NA	8,100 J
Indeno(1,2,3-cd)pyrene	5,600	3,200		1,700	<1,700 U	<8,300 U	<830,000 U	<660 U	<1,700 U	**29,000 J**	NA	<2,900 UJ
Naphthalene	500,000	13,000		<1,700 U	7,200	**140,000**	**15,000,000**	<660 U	7,600	**18,000 J**	NA	**120,000 J**
Phenanthrene	500,000	50,000		<1,700 U	13,000	**110,000**	**3,400,000**	1,900	14,000	**170,000 J**	NA	20,000 J
Pyrene	500,000	50,000		7,400	11,000	**85,000**	**2,100,000**	1,400	12,000	**190,000 J**	NA	6,300 J
PCBs (ppb)												
PCB 1248	1,000	1,000 (Surface)		<20 U	<20 U	<20 U	NA	<20 U	<20 U	NA	NA	NA
PCB 1254		10,000 (Subsurface)		<20 U	<20 U	<20 U	NA	<20 U	<20 U	NA	NA	NA
PCB 1260				<20 U	<20 U	<20 U	NA	<20 U	<20 U	NA	NA	NA
RCRA Metals (ppm)		**NY RSCO**	**SB**									
Arsenic	16	7.5 or SB	<0.1 - 73	2.79	4.28	3.26	NA	3.49	3.54	9.8 B (N)	NA	NA
Barium	400	300 or SB	10 - 1,500	42.6	39.9	50.2	NA	23.7	106	79.5 (*N)	NA	NA
Cadmium	9.3	1 or SB	0.1 - 1**	<0.50 U	<0.50 U	<0.50 U	NA	**9.53**	0.52	<1.3 U	NA	NA
Chromium	400-1,500	10 or SB	1 - 1,000	10.0	16.7	18.1	NA	8.42	9.70	53.1	NA	NA
Lead	1,000	SB	<10 - 300	66.9	56.4	86.6	NA	**632**	21.4	117 (*)	NA	NA
Selenium	1,500	2 or SB	<0.1 - 3.9	1.62	1.73	1.48	NA	1.69	1.62	<2.0 U (N)	NA	NA
Silver	1,500	SB	NE	<0.50 U	<0.50 U	<0.50 U	NA	<0.50 U	<0.50 U	<0.41 U	NA	NA
Mercury	2.8	0.1		**0.29**	**0.57**	<0.10 U	NA	<0.10 U	**0.29**	**0.18**	NA	NA

TABLE 1

Soil Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID {Hotspot ID}	Track 2 Criteria+	NY RSCO		B113-S1 {9b}	B113-S3 {9b}	B114-S1 {9c}	B114-S2 {9c}	B114-S3 {9c}	B114-S4 {9c}	CEB-1/S-4 {10a}	CEB-1/S-5 {10a}
Date Sampled				29-Oct-04	29-Oct-04	29-Oct-04	29-Oct-04	29-Oct-04	29-Oct-04	17-Aug-05	17-Aug-05
VOCs (ppb)											
1,2,4-Trimethylbenzene	190,000	NE		1,100 J	9,800 J	<43 UJ	<57 UJ	230 J	<45 UJ	<64 U	<1,600 U
1,3,5-Trimethylbenzene	190,000	NE		65 J	<2,700 UJ	<43 UJ	<57 UJ	<66 UJ	<45 UJ	<64 U	<1,600 U
2-Butanone (MEK)	500,000	300		NR	NR	NR	NR	NR	NR	NR	NR
Benzene	45,000	60		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	<66 UJ	<45 UJ	**74**	<1,600 U
Carbon disulfide	NE	2,700		NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	390,000	5,500		<51 UJ	<2,700 UJ	<43 UJ	59 J	<66 UJ	<45 UJ	<64 U	<1,600 U
Isopropylbenzene	NE	NE		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	230 J	<45 UJ	<64 U	<1,600 U
Methylene chloride	500,000	100		NR	NR	NR	NR	NR	NR	<64 U	<1,600 U
n-Butylbenzene	500,000	NE		1,700 J	6,500 J	<43 UJ	<57 UJ	430 J	160 J	<64 U	2,000
n-Propylbenzene	500,000	NE		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	200 J	<45 UJ	<64 U	<1,600 U
o-Xylene	500,000	NE		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	180 J	<45 UJ	<64 U	<1,600 U
p-&m-Xylene		NE		<100 UJ	<5,300 UJ	<87 U	<110 UJ	<130 UJ	<89 UJ	<130 U	<3,200 U
p-Isopropyltoluene	130,000	NE		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	160 J	<45 UJ	<64 U	<1,600 U
sec-Butylbenzene	500,000	NE		500 J	4,600 J	<43 UJ	<57 UJ	150 J	<45 UJ	<64 U	<1,600 U
tert-Butylbenzene	500,000	NE		<51 U	<2,700 UJ	<43 UJ	<57 UJ	160 J	<45 UJ	<64 U	<1,600 U
Tetrachloroethylene	25,000	1,400		NR	NR	NR	NR	NR	NR	<64 U	<1,600 U
Toluene	500,000	1,500		<51 UJ	<2,700 UJ	<43 UJ	<57 UJ	<66 UJ	<45 UJ	<64 U	<1,600 U
Xylenes (Total)	500,000	1,200		NR	NR	NR	NR	NR	NR	NR	NR
SVOCs (ppb)											
2-Methylnaphthalene	NE	36,400		480 J	6,800 J	<58 UJ	<65 UJ	<5,300 UJ	<680 UJ	<260 U	20,000
Acenaphthene	500,000	50,000		240 J	**77,000 J**	<60 UJ	<67 UJ	**53,000 J**	5,300 J	19,000	**54,000**
Acenaphthylene	500,000	41,000		270 J	9,900 J	64 J	<50 UJ	14,000 J	1,400 J	1,800	1,900 J
Anthracene	500,000	50,000		390 J	33,000 J	120 J	<67 UJ	20,000 J	6,900 J	970 J	9,000 J
Benzo(a)anthracene	5,600	224 or MDL		**1,000 J**	**13,000 J**	**290 J**	<55 UJ	**27,000 J**	**3,800 J**	**2,100**	**3,700 J**
Benzo(a)pyrene	1,000	61 or MDL		**1,200**	**14,000 J**	**280 J**	<50 UJ	**40,000 J**	**4,200 J**	**3,700**	**3,600 J**
Benzo(b)fluoranthene	6,000	1,100		**1,600 J**	**5,800 J**	450 J	<110 UJ	**14,000 J (M)**	**3,000 J**	**2,000**	<2,700 U
Benzo(g,h,i)perylene	500,000	50,000		850 J	8,400 J	210 J	<45 UJ	25,000 J	2,500 J	3,800 (M)	2,600 J (M)
Benzo(k)fluoranthene	56,000	1,100		< 92 UJ	**7,000 J**	<41 UJ	<45 UJ	**18,000 J (M)**	<470 UJ	**1,200 J**	1,100 J
Chrysene	56,000	400		**1,300 J**	**13,000 J**	350 J	<51 UJ	**29,000 J**	**3,500 J**	**2,200**	**3,300 J**
Dibenzo(a,h)anthracene	560	14 or MDL		**330 J**	<2,200 UJ	**89 J**	<45 UJ	<3,700 UJ	<470 UJ	<180 U	<1,100 U
Fluoranthene	500,000	50,000		2,300 J	40,000 J	710 J	71 J	**78,000 J**	14,000 J	4,100	14,000
Flourene	500,000	50,000		340 J	29,000 J (M)	55 J	<53 UJ	<4,300 UJ	2,200 J	960 J	15,000
Indeno(1,2,3-cd)pyrene	5,600	3,200		690 J	**4,800 J**	160 J	<42 UJ	**14,000 J**	1,400 J	2,000 (M)	1,100 J
Naphthalene	500,000	13,000		810 J	**44,000 J**	<63 UJ	<70 UJ	<5,700 UJ	2,800 J	1,700	**110,000**
Phenanthrene	500,000	50,000		1,600 J	**98,000 J**	520 J	<48 UJ	8,600 J	22,000 J	2,500	41,000
Pyrene	500,000	50,000		2,000 J	**58,000 J**	590 J	67 J	**120,000 J**	25,000 J	8,100	20,000
PCBs (ppb)											
PCB 1248	1,000	1,000 (Surface) 10,000 (Subsurface)		NA	NA	NA	NA	NA	NA	NA	NA
PCB 1254				NA	NA	NA	NA	NA	NA	NA	NA
PCB 1260				NA	NA	NA	NA	NA	NA	NA	NA
RCRA Metals (ppm)		**NY RSCO**	**SB**								
Arsenic	16	7.5 or SB	<0.1 - 73	14.7	20.2	7.2 B	5.1 B	13.0	8.2 B	NA	NA
Barium	400	300 or SB	10 - 1,500	113	38.0	43.1	49.0	36.0	89.9	NA	NA
Cadmium	9.3	1 or SB	0.1 - 1**	<1.3 U	<1.1 U	<1.3 U	<1.1 U	<1.1 U	<1.1 U	NA	NA
Chromium	400-1,500	10 or SB	1 - 1,000	10.9	7.0	13.9	17.7	11.5	17.9	NA	NA
Lead	1,000	SB	<10 - 300	263	117	65.6	152	80.2	108	NA	NA
Selenium	1,500	2 or SB	<0.1 - 3.9	2.3 B	2.9 B	<2.0 U	<1.8 U	**5.0 B**	2.6 B	NA	NA
Silver	1,500	SB	NE	<0.40 U	<0.35 U	0.66 B	<0.36 U	<0.35 U	<0.37 U	NA	NA
Mercury	2.8	0.1		**0.29 (*)**	**0.30 (*)**	0.068 (*)	**0.5 (*)**	**0.52 (*)**	0.049 B (*)	NA	NA

TABLE 1

Soil Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID {Hotspot ID}	Track 2 Criteria*	NY RSCO		CEB-2/S-4 {10b}	CEB-2/S-5 {10b}	CEB-3/S-2 {10c}	CEB-3/S-3 {10c}	DW-2 N {11}	DW-2 S {11}	DW-2 E {11}	DW-2 W {11}	UST138/142-B {12}
Date Sampled				17-Aug-05	17-Aug-05	17-Aug-05	17-Aug-05	12-Sep-05	12-Sep-05	12-Sep-05	12-Sep-05	17-Oct-05
VOCs (ppb)												
1,2,4-Trimethylbenzene	190,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
1,3,5-Trimethylbenzene	190,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
2-Butanone (MEK)	500,000	300		NR	NR	NR	NR	NR	NR	NR	NR	13 UJ
Benzene	45,000	60		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	<1.8 U
Carbon disulfide	NE	2,700		NR	NR	NR	NR	NR	NR	NR	NR	3.3 J
Ethylbenzene	390,000	5,500		220	<4,400 U	<700 U	71	<64 U	<58 U	<55 U	<69 U	<2.3 U
Isopropylbenzene	NE	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
Methylene chloride	500,000	100		<140 U	<4,400 U	<700 U	<64 U	NR	NR	NR	NR	13 UJ
n-Butylbenzene	500,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
n-Propylbenzene	500,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
o-Xylene	500,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
p-&m-Xylene		NE		<270 U	<8,900 U	<1,400 U	<130 U	<130 U	<120 U	<110 U	<140 U	NR
p-Isopropyltoluene	130,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
sec-Butylbenzene	500,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
tert-Butylbenzene	500,000	NE		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	NR
Tetrachloroethylene	25,000	1,400		<140 U	<4,400 U	<700 U	<64 U	NR	NR	NR	NR	<2.4 U
Toluene	500,000	1,500		<140 U	<4,400 U	<700 U	<64 U	<64 U	<58 U	<55 U	<69 U	<2.2 U
Xylenes (Total)	500,000	1,200		NR	NR	NR	NR	NR	NR	NR	NR	<5.7 U
SVOCs (ppb)												
2-Methylnaphthalene	NE	36,400		740	**38,000**	4,400	520	87 J	220 J	170 J	250 J	<130 U
Acenaphthene	500,000	50,000		1,900	**120,000**	21,000	1,800	160 J	370	420 J	1,200 J	150 J
Acenaphthylene	500,000	41,000		110 J	3,700 J	970 J	190 J	340 J	230 J	350 J	190 J	900
Anthracene	500,000	50,000		600	31,000	4,500	600	650	760	1,200	2,300	500 J
Benzo(a)anthracene	5,600	224 or MDL		**780**	**14,000 J**	**2,600**	**580**	**3,000**	**2,600**	**4,200**	**7,600**	**3,100**
Benzo(a)pyrene	1,000	61 or MDL		**610**	**13,000 J**	**2,800**	**720**	**2,900**	**2,900**	**3,700**	**6,000**	**5,300**
Benzo(b)fluoranthene	6,000	1,100		610	**9,700 J**	**1,500 J**	720	**3,700**	**3,300**	**4,300**	**6,500 (M)**	**5,300**
Benzo(g,h,i)perylene	500,000	50,000		410	6,700 J (M)	2,100	250 J	2,800 J	2,700 J	2,400 J	3,300	4,800
Benzo(k)fluoranthene	56,000	1,100		250 J	**3,500 J**	790 J	280 J	**1,300 (M)**	920	**1,300 (M)**	**3,100 (M)**	**1,700**
Chrysene	56,000	400		**650**	**13,000 J**	**2,700**	**630**	**3,300**	**2,900**	**4,700**	**7,600**	**3,300**
Dibenzo(a,h)anthracene	560	14 or MDL		<46 U	<2,500 U	<210 U	<44 U	**640 J**	**700 J**	**620 J**	**870 J (M)**	**600 J**
Fluoranthene	500,000	50,000		1,400	45,000	7,500	1,500	6,100	5,100	7,600	14,000	4,900
Flourene	500,000	50,000		620	38,000	5,700	610	170 J	360 J	430 J	840 J	140 J
Indeno(1,2,3-cd)pyrene	5,600	3,200		300 J	<2,300 U	1,200 J (M)	180 J (M)	2,200 J	2,300 J	2,000 J	**3,400**	**3,400**
Naphthalene	500,000	13,000		3,800	**180,000**	**22,000**	2,700	150 J	390	330 J	540 J	150 J
Phenanthrene	500,000	50,000		2,400	**110,000**	18,000	2,200	3,200	3,600	6,200	13,000	1,900
Pyrene	500,000	50,000		1,500	**79,000**	7,800	1,200	5,300	5,300	6,500	15,000	7,200
PCBs (ppb)												
PCB 1248	1,000	1,000 (Surface) 10,000 (Subsurface)		NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB 1254				NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB 1260				NA	NA	NA	NA	NA	NA	NA	NA	NA
RCRA Metals (ppm)		**NY RSCO**	**SB**									
Arsenic	16	7.5 or SB	<0.1 - 73	NA	NA	NA	NA	5.9 B	5.9 B	7.4 B	6.7 B	9.6 B
Barium	400	300 or SB	10 - 1,500	NA	NA	NA	NA	92.9	116	120	190	244 (N)
Cadmium	9.3	1 or SB	0.1 - 1**	NA	NA	NA	NA	<1.5 U	<1.3 U	<0.96 U	<1.4 U	<1.3 U (N)
Chromium	400-1,500	10 or SB	1 - 1,000	NA	NA	NA	NA	18.4	12.0	14.5	14.8	8.8 (N)
Lead	1,000	SB	<10 - 300	NA	NA	NA	NA	296	238	**542**	**904**	182
Selenium	1,500	2 or SB	<0.1 - 3.9	NA	NA	NA	NA	<2.4 U	<2.1 U	<1.5 U	<2.3 U	<2.0 U
Silver	1,500	SB	NE	NA	NA	NA	NA	<0.49 U	<0.42 U	<0.31 U	<0.45 U	<0.40 U (N)
Mercury	2.8	0.1		NA	NA	NA	NA	**0.59 (*)**	**0.63 (*)**	**0.94 (*)**	**1.1 (*)**	**0.40 (*N)**

TABLE 1

Soil Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

NOTES

Only compounds detected are listed
NY RSCO = TAGM #4046 Technical and Administrative Guidance Memorandum Soil Cleanup objectives
+ = Draft Track 2 Restricted Commercial Use Soil Cleanup Objectives Presented in Subpart 375-3 of Draft Brownfield Cleanup Program Guide Document, November 2005.
** Eastern USA Background (NYSDEC)
SB = Site Background for Eastern U.S. (Shacklette & Boerngen, 1984)
Bold indicates exceedance of NY RSCO and/or SB Levels.
Shading indicates exceedance of Track 2.
NE = None Established by NYSDEC
NR = Not Reported
NA = Not Analyzed
ppm = parts per million
ppb = parts per billion
J = (Organic Qualifiers) The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit, but greater than or equal to the Instrumment Detection Limit/Method Detection Limit.
U = (Organic/Inorganic Qualifiers) The analyte was not detected at or above the reporting limit.
UJ = (Orgainic Qualifiers) The analyte was not detected above the reported sample quantitation limit (QL).
However, the reported QL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
* = (Flag) In description = dry weight
(B) = (Organic Flags) Compound was Found in the Blank and Sample
(M) = (Organic Flags) Manually Integrated Compound
(N) = (Inorganic Flags) MS, MSD: Spike Recovery Exceeds the Upper or Lower Control Limits

Table 2

Groundwater Analytical Results
BL Companies Project No. 03C497
220 3rd Street / NYSDEC BCP SITE No. C224100
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID	TOGS	GW-MW-1A	GW-MW-2A	GW-MW-3A	GW-MW-4A	GW-MW-5A
Date Sampled		26-Apr-06	26-Apr-06	26-Apr-06	26-Apr-06	26-Apr-06
VOCs (ppb) TCL						
Acetone	50	8.6 UJ	5.0 UJ	<0.64 UJ	5.0 UJ	5.0 UJ
Methylene chloride	5**	<0.97 U	<0.97 U	<0.97 U	<0.97 U	<0.97 U
2-Butanone	NE	5.0 U	<0.58 U	<0.58 U	<0.58 U	<0.58 U
Benzene	1	**66**	<0.090 U	<0.090 U	0.58 J	<0.090 U
Toluene	5**	0.54 J	<0.10 U	<0.10 U	<0.10 U	<0.10 U
Ethylbenzene	5**	0.36 J	<0.22 U	<0.22 U	<0.22 U	<0.22 U
Xylenes (Total)	5**	1.6	<0.34 U	<0.34 U	<0.34 U	<0.34 U
SVOCs (ppb) TCL						
Acenaphthene	20	<0.8 U	<0.8 U	<0.8 U	<0.8 U	**24**
Flourene	50	<0.8 U	<0.8 U	<0.8 U	<0.8 U	2 J
Phenanthrene	50	<0.7 U	<0.7 U	<0.7 U	<0.7 U	0.8 J
Phenol	1	**5 J**	<0.4 U	<0.4 U	<0.4 U	<0.4 U
Total Metals (ppb)						
Aluminum	NE	2,770	198 B	142 B	617	142 B
Arsenic	25	10.3 B	5.3 B	<3.9 U	5.2 B	<3.9 U
Barium	1,000	121	215	151	202	189
Beryllium	3	0.71 B	<0.54 U	<0.54 U	<0.54 U	<0.54 U
Calcium	NE	85,200	161,000	253,000	148,000	138,000
Chromium	50	4.9 B	1.5 B	<1.3 U	<1.3 U	<1.3 U
Cobalt	NE	4.6 B	<1.8 U	3.4 B	3.1 B	<1.8 U
Copper	200	12.2	<4.3 U	<4.3 U	<4.3 U	<4.3 U
Iron	300	**5,440**	**1,200**	**13,500**	**2,300**	**15,400**
Lead	25	16.9	9.4 B	7.6 B	**27.5**	<3.0 U
Magnesium	35,000	**53,500**	**168,000**	**52,200**	**35,100**	**35,500**
Manganese	300	**2,340**	**585**	**1,660**	**5,080**	**1,900**
Nickel	100	11.2	<1.9 U	9.3 B	6.9 B	<1.9 U
Potassium	NE	43,200 J	115,000 J	39,600 J	20,000 J	35,000 J
Sodium	20,000	**167,000 JJ**	**195,000 JJ**	**153,000 JJ**	**92,600 JJ**	**132,000 JJ**
Vanadium	NE	13.8	3.4 B	1.8 B	5.0 B	<1.5 U
Zinc	2,000	34.5 B	<11.0 U	90.5	22.8 B	<11.0 U
PCBs (ppb)						
PCB 1248	0.09	0.50 U	<0.060 U	<0.060 U	<0.060 U	0.50 U
Pesticides (ppb)						
Aldrin	ND	**0.0079 J (M)**	<0.0058 U	<0.0058 U	<0.0058 U	<0.0058 U
alpha-BHC	NE	0.014 J (M)	<0.011 U	<0.011 U	<0.011 U	<0.011 U
beta-BHC	NE	0.025 J	<0.013 U	<0.013 U	0.050 U	0.032 J (M)
Chlordane-alpha	0.05	<0.0055 U	<0.0055 U	<0.0055 U	<0.0055 U	0.013 J
Chlordane-gamma	0.05	<0.0061 U	<0.0061 U	<0.0061 U	<0.0061 U	0.018 J
gamma-BHC (Lindane)	NE	0.034 J	<0.0052 U	0.0072 J (M)	0.018 J (M)	<0.0052 U
Heptachlor epoxide	0.03	<0.0057 U	<0.0057 U	<0.0057 U	<0.0057 U	0.050 U

NOTES

Only compounds detected are listed
TOGS = Technical and Operational Guidance Series (1.1.1).
Ambient water quality standards and guidance values and groundwater effluent limitations.
Bold and Shading indicates exceedance of TOGS Criteria
** = The principal organic contaminant standard for groundwater of 5 ug/L applies to this substance.
NE = None Established by NYSDEC
ND = Non-detectable concentration by the approved analytical methods referenced in TOGS 1.1.1 Section 700.3
< = Less than Laboratory Method Detection Limit (MDL)
GW-MW-1A is identified as GW-MW-A in the laboratory analytical reports
ppb = parts per billion
U = (Organic/Inorganic Qualifiers) The analyte was not detected at or above the reporting limit.
J and JJ = (Organic Qualifiers) The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = (Orgainic Qualifiers) The analyte was not detected above the reported sample quantitation limit (QL). However, the reported QL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit, but greater than or equal to the Instrumment Detection Limit/Method Detection Limit.
(M) = (Organic Flags) Manually Integrated Compound

Table 3
Pre-IRM Soil-Gas Analytical Results
BL Project No. 03C497
220 3rd Street and 360 3rd Avenue
City of New York, Bourough of Brooklyn, Kings County, New York

Sample ID	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10	SG-11	SG-12
Date Sampled	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	15-Dec-03	31-Mar-05	31-Mar-05
VOCs [ug/m3]												
1,1,1-Trichloroethane	11.65	13.87	<5.55	<5.55	9.99	12.21	14.98	<5.55	9.43	7.77	<130 U	<160 U
1,1-Dichloroethane	<4.12	<4.12	<4.12	<4.12	<4.12	<4.12	6.59	<4.12	<4.12	<4.12	<94 U	<120 U
1,2,4-Trimethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	140.00	<5.00	<5.00	<110 U	<140 U
1,3,5-Trimethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	150.00	<5.00	<5.00	<110 U	<140 U
Benzene	17.54	<3.25	<3.25	4.22	<3.25	<3.25	<3.25	35.74	16.25	4.22	<74 U	<91 U
Dichlorodifluoromethane	<5.03	<5.03	22.63	60.34	<5.03	18.11	<5.03	9.56	<5.03	<5.03	<110 U	<140 U
Ethylbenzene	25.17	<4.42	<4.42	1.0	<4.42	<4.42	<4.42	35.33	<4.42	<4.42	<100 U	<120 U
o-Xylene	<4.42	<4.42	<4.42	<4.42	<4.42	<4.42	<4.42	114.83	<4.42	5.30	<100 U	<120 U
p-&m-Xylene	7.06	<4.42	<4.42	<4.42	<4.42	<4.42	<4.42	83.91	<4.42	5.30	<100 U	<120 U
Tetrachloroethylene	<6.90	<6.90	<6.90	<6.90	<6.90	<6.90	28.97	40,008.90	46.91	89.68	<160 U	<190 U
Toluene	42.15	6.51	5.36	5.75	5.37	6.13	6.52	111.15	27.60	19.16	<87 U	<110 U
Trichloroethylene	<5.47	<5.47	<5.47	<5.47	<5.47	<5.47	<5.47	43.18	<5.47	<5.47	<120 U	<150 U
Trichlorofluoromethane	211.4	46.84	257.1	13,710.46	182.86	56.00	17.71	2,514.26	19.43	<5.71	<130 U	<160 U
Total VOCs	314.94	67.22	285.06	13,781.77	198.22	92.45	74.77	43,246.86	119.62	131.43	0.00	0.00

NOTES
Only compounds detected are listed
*NYSDEC has not established regulatory levels for compounds in soil gas
ug/m3 = micrograms per meter cubed
U = (Organic Qualifiers) The analyte was not detected at or above the reporting limit.

Table 4

Soil-Gas Analytical Results
BL Project No. 03C497
220 3rd Street and 360 3rd Avenue
City of New York, Bourough of Brooklyn, Kings County, New York

Sample ID	SV-1	SV-2	SV-3	SV-4	SV-5
Date Sampled	26-Apr-06	3-Mar-06	3-Mar-06	3-Mar-06	3-Mar-06
VOCs (ug/m^3)					
Dichlorodifluoromethane	4.0 U	3.0	< 25 U	< 4.9 U	2.8
Chloromethane	2.0 U	< 1.0 U	< 10 U	< 2.1 U	1.4
Trichlorofluoromethane	2.1 U	1.8	< 11 U	4.1	1.5
Acetone	24 J	< 12 U	< 120 U	< 24 U	20 J
Isopropyl Alcohol	29.0 J	< 12 U	< 120 U	< 25 U	29 J
Carbon Disulfide	4.7	6.9	44	12	< 1.6 U
Methylene Chloride	19	< 1.7 U	< 17 U	< 3.5 U	< 1.7 U
n-Hexane	9.9	< 1.8 U	< 18 U	< 3.5 U	1.9
Methyl Ethyl Ketone	4.7	4.1 J	< 15 U	< 2.9 U	< 1.5 U
Chloroform	1.5	5.9	< 9.8 U	< 2.0 U	< 0.98 U
Cyclohexane	2.0	< 0.69 U	< 6.9 U	< 1.4 U	0.69
2,2,4-Trimethylpentane	56	38	170	130	37
Benzene	1.4 U	1.7	< 6.4 U	< 1.3 U	0.96
n-Heptane	2.4	< 0.82 U	< 8.2 U	< 1.6 U	< 0.82 U
Toluene	17.0 U	7.2	1,000	210	4.9
Tetrachloroethylene	1.4	4.1	< 14 U	< 2.7 U	< 1.4 U
Ethylbenzene	3.0	6.1	< 8.7 U	< 1.7 U	< 0.87 U
Total xylenes	13	18	< 8.7 U	< 1.7 U	< 0.87 U
4-Ethyltoluene	1.8	7.4	< 9.8 U	< 2.0 U	< 0.98 U
1,2,4-Trimethylbenzene	2.0	5.4	< 9.8 U	< 2.0 U	< 0.98 U
1,4-Dichlorobenzene	6.0	< 1.2 U	< 12 U	< 2.4 U	< 1.2 U
1,3,5-Trimethylbenzene	< 0.98 U	4.5	< 9.8 U	< 2.0 U	< 0.98 U
Total VOCs	187.9	114.1	1,214.0	356.1	100.2

NOTES
Only compounds deected are listed
*NYSDEC has not established regulatory levels for compounds in soil gas
ug/m^3 = micrograms per cubic meter
U = (Organic Qualifiers) The analyte was not detected at or above the reporting limit.
J = (Organic Qualifiers) The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

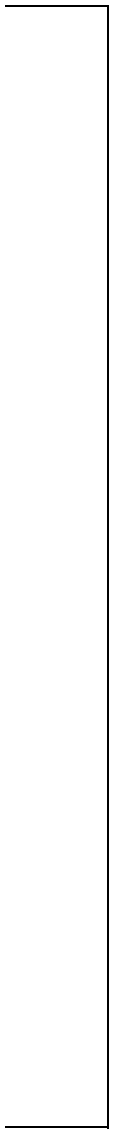
TABLE 5
Preliminary Schedule - Whole Foods Market Brooklyn Remediation

Task Description	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Final Draft RWP Public Notice Process (including public and NYSDEC review)																								
NYSDEC Approval of Final RWP and Issue Construction Notice																								
Prepare Final Design Document																								
Contractor Procurement/Bidding																								
Pre-Construction Preparation																								
Remedial Construction[1]																								
Prepare Post-Remediation Reports																								
NYSDEC Review of Post-Remediation Reports																								
Non-Remedial Construction																								
Store Opening Activity																								

Notes:

1. Includes remedial excavation, remedial backfilling, installation of foundation, installation of demarcation barrier, and installation of a portion of the clean cover fill/gravel subbase in areas of parking lot and promenade. Clean cover fill/gravel subbase will be placed to redevelopment grade, minus the thickness of topsoil, pavement, or other surface features to be placed on top of clean cover fill/gravel subbase during final non-remedial construction activities.

Activity



APPENDICES

Appendix A	Soil Management Plan
Appendix B	Health and Safety Plan
Appendix C	Community Air Monitoring Plan

APPENDIX A

Soil Management Plan

SOIL MANAGEMENT PLAN

220 3rd Street

City of Brooklyn, Kings County
New York

NYSDEC BCP SITE No. C224100

Prepared For:

WFM Properties Brooklyn, LLC

Cambridge, Massachusetts

Project No. 03C497-B

December 7, 2006

CONTENTS

1.0 INTRODUCTION

The purpose of this Soil Management Plan is to define a program for handling, testing, reusing, and/or disposing of certain soils encountered during the remediation of the property located at 220 3rd Street, Brooklyn, Kings County, New York (the Site). Specifically, the Soil Management Plan outlines the handling requirements for soils excavated during site redevelopment that will be displaced by Site remediation activities, that are unsuitable for re-use on-Site due to failure to meet geotechnical and compaction criteria, and soils that exceed Track 2 Restricted-Commercial Use Soil Cleanup Objects (SCOs) listed in Subpart 375-3 of the Brownfield Cleanup Program Public Review Draft dated November 16, 2005. WFM has proposed utilizing the NYSDEC and NYSDOH developed draft Track 2 Restricted-Commercial Use SCOs as a general guideline for soil removal on the Site, which are fairly conservative generic soil cleanup standards reflective of the anticipated future use of the Site for commercial purposes. Excavated soils that exceed draft Track 2 Restricted-Commercial Use SCOs will be removed from the Site for off-Site disposal. Excavated soils containing contaminants at levels at or below draft Track 2 Restricted-Commercial Use SCOs may be re-used on-Site, and will not be placed in areas subject to erosion, in areas within one foot of a concrete/asphalt final cover materials, in locations within two feet of areas not covered asphalt/concrete (e.g., landscaped areas), or in other areas that are not permitted by local, state, or federal laws. In addition, the Soil Management Plan will follow any recommendations in the NYSDEC draft Generic List of Agreements that may apply to any specific action. The handling and management of soils will also follow any applicable design documents (e.g., pre-construction Site management plan) supplied by the engineer and/or remedial Contractor prior to the start of the remediation. The implementation of this Soil Management Plan will minimize impacts to the environment and the potential for human exposure during construction activities.

The Site consists of approximately 2.155-acres of land located on the southern side of 3rd Street, approximately 30-feet west of the 3rd Street and 3rd Avenue intersection in the Borough of Brooklyn, City of New York, Kings County, New York. The City of New York Assessor's office lists the parcels as Block 978, Lots 1, 16, and 19. The property covers the following addresses, 210 to 220 3rd Street, and 370 and 376 to 384 3rd Avenue.

The Site used to consist of several interconnected buildings and an open, rear area at the northwest corner of 3rd Street and 3rd Avenue. The former buildings consisted of a one-story warehouse building, a two-story auto repair shop that was located on the eastern portion of the Site, and a one/two-story building used for truck repairs that was located on the northwestern portion of the Site. The Site also contained a one/two-story building/loading dock that was located on the northern portion of the Site. The remaining area (rear) was an open area that bordered the Gowanus Canal and was used for parking and/or storage when the Site was occupied. Access to the Site was from 3rd Street via a paved driveway. Public water and natural gas serviced the buildings. Two septic systems provided on-Site wastewater treatment.

Based on information obtained from geotechnical and environmental exploration borings, the Site is underlain by fill that varies in thickness from approximately 5 feet to 25 feet. The fill is underlain by an organic layer composed of varying proportions of silt and clay that varied in thickness from approximately 10 feet to 25 feet. The organic layer is underlain by a mixture of fine to coarse sands with increasing percentages of gravel and coarser sands with depth (coarsening downward sequence). Exploration borings were advanced to a total depth of approximately 77 feet below grade. The urban fill and native soils extending to a depth of approximately 16 ft bg contain regulated compounds at concentrations both above and below the draft Track 2 Restricted-Commercial Use SCOs and/or NYSDEC TAGM #4046 Recommended Soil Clean-up Objectives.

The information presented in this Soil Management Plan provides guidelines for management, handling, and disposal of unsuitable materials and impacted soil during the remediation project based upon BL Companies current understanding of the Site and project parameters. The specific details and logistics of implementing this Soil Management Plan shall be developed by the Contractor and approved by the Engineer or the Owners representative.

This Soil Management Plan is not intended to provide detail with regard to Site-specific health and safety procedures. For the purposes of this Plan, at all times, work shall be conducted in a manner that safeguards the health, safety and welfare of Site workers, the general public, and the environment. A Health and Safety Plan (HASP) has been prepared by BL Companies for the excavation and movement of impacted soil and will apply to personnel involved in activities related to the Remedial Work Plan (RWP). All contractors will be required to provide their own construction HASPs prior to working on the Site. At this time, based on the available data, it is anticipated that all work can be performed with Level D personal protective equipment and that the primary Health and Safety measure will be dust control.

The scope of the guidance contained in this Plan relates to handling and management of at grade and below grade-impacted soils and soils unsuitable for use as on-Site backfill. This plan is not intended to be used for guidance relating to demolition, handling, removal, management, and/or disposal of buildings or other above grade structures or materials. This Plan is also not intended for use to manage potential future human exposure to soils or ground water left in place below the cover system that will be installed at the Site as part of the Site remediation. These topics are or will be addressed in other documents relating to existing building surveys, hazardous materials removal, building demolition and Site management.

2.0 BACKGROUND

2.1 Proposed Development

Under the proposed use, the Site will be occupied by Whole Foods Market in a building with 9,900 sq. ft. of office and accessory uses, and 50,100 sq. ft. of retail and storage/food preparation space. The Site will also include paved surface parking. A forty-foot wide area of open space/promenade is planned along the 4th Street Basin (Gowanus Canal), which borders the Site. The existing two-story off-Site structure at the corner of 3rd Avenue and 3rd Street will remain.

2.2 Environmental Investigation

A Phase I Environmental Site Assessment (ESA) was completed by BL Companies in December 2003. A Phase II Site Investigation (SI) was completed by BL Companies in February 2004. During completion of the Phase II SI, VOCs, PAHs, PCBs and metals were identified in the soil and/or ground water beneath the Site. Copies of the Phase I and II reports were submitted with the BCP application and prior to the September 8, 2004 pre-application meeting. Additional subsurface investigations were completed at the Site at the end of 2004 to further delineate the presence of regulated compounds encountered during the Phase II work.

A draft Remedial Investigation Report (RIR) was completed by BL Companies in April 2006 and submitted to the NYSDEC on April 14, 2006. The draft RIR was revised based on NYSDEC comments and a final draft RIR was submitted to NYSDEC in August 2006. The report defined the nature and extent of contamination at the Site, both laterally and vertically. In addition, it produced data of sufficient quantity and quality to support the development of an acceptable RWP. Included in the RIR, a Fish and Wildlife Impact Analysis (FWIA) was conducted at the Site, which focused on the Site's actual, on-going potential contributions of contaminants to the 4th Street basin. The FWIA concluded that there was no reasonably clear indication chemical contamination present at the Site had adversely impacted the basin, and that contamination in the basin sediments was more likely a result of area wide filling activities, with potential contributions from any former and existing sites along the canal.

Draft Interim Remedial Measure Reports (IRM #1 [UST/Septic Removal] and IRM #2 [Hotspot Removal]) were submitted by BL Companies to the NYSDEC on April 14th and April 21st, 2006, respectively, under separate covers. Based upon the findings detailed in the IRM reports, BL Companies recommended the submission of a RWP to the NYSDEC to address the removal of remaining Underground Storage Tanks (USTs) (IRM #1), and the remediation of remaining hotspots (IRM #2).

3.0 REGULATORY FRAMEWORK

The Soil Management Plan has been designed to comply with the requirements of the New York State and Federal guidelines.

The developer of the Site, WFM Brooklyn Properties, LLC, entered the Brownfields Clean-up Program (BCP) as a volunteer when the Brownfields Clean-up Agreement (BCA) was executed by the NYSDEC on April 25, 2005 making it effective as of that date. The volunteer will abide by guidelines in the BCA.

The Site Engineer and Owner's Representative will oversee compliance of all plans and/or modify plans to ensure these regulations are met at the completion of the project.

4.0 MATERIAL HANDLING AND MANAGEMENT

Based on the proposed development and remediation of the Site, there will be a significant cut required to achieve the final grades and elevations. It is estimated that approximately 9,000 cubic yards of excess soil will be generated as a result of the planned Site remediation and redevelopment activities. The goal is to re-use as much of the excavated urban fill as possible after the removal of certain hotspots identified in the RWP.

During previous investigations, the urban fill and uppermost portion of the organic layer, extending to a depth of approximately 16 ft bgs in certain spots, were determined to contain regulated compounds at concentrations both above and below proposed Track 2 Restricted-Commercial Use SCOs. An example of the proposed Track 2 Restricted-Commercial Use SCOs for some individual compounds are presented in the table below. These generic soil cleanup numbers have been proposed for use as a general guideline for soil removal because the numbers provide stringent use-based compound levels that are protective of human health and the environment.

Compound	Restricted-Commercial Use Track 2 SCOs (ppm)
Benzo(a)anthracene	5.6
Benzo(a)pyrene	1.0
Chrysene	56
Dibenzo(a,h)anthracene	0.56
Arsenic	16
Barium	400
Cadmium	9.3
Chromium	400-1,500
Lead	1,000
Selenium	1,500
Silver	1,500
Mercury	2.8

The urban fill and organic layer excavated during the proposed remedial remedy will be classified into three categories:

- Unsuitable Alluvial Soils
- Reusable fill/soils that contain regulated compounds at concentrations at or below draft Track 2 Restricted-Commercial Use SCOs.
- Impacted fill/soils that contain regulated compounds at concentrations above draft Track 2 Restricted-Commercial Use SCOs.

The handling and management of the three categories of soil are discussed separately in the following Subsections.

4.1 Unsuitable Alluvial Soils

During the installation of below grade improvements, organic-rich alluvial soils may be encountered at various depths below the existing fill material. Where the organics are found to have a direct potential impact on the stability of the proposed improvement and where directed by the Engineer's Testing Agency, the organic layer will be removed from the excavation and segregated for off-Site disposal. This soil may be impacted with regulated compounds at concentrations above draft Track 2 Restricted-Commercial Use SCOs and will be handled accordingly. It is important that this material not be mixed/stockpiled with the overlying fill material, thereby changing its classification as unsuitable alluvial soils.

4.2 Reusable Soils

Excavated fill material containing regulated compounds at concentrations at or below draft Track 2 Restricted-Commercial Use SCOs will be handled and managed as reusable soil. This soil may be reused on-Site for grading under parking lots, buildup, sidewalks etc, or for use as general fill throughout the Site. Soil that meets draft Track 2 Restricted-Commercial Use SCOs may be reused on-Site if not placed in an area subject to erosion, in areas within one foot of a concrete/asphalt cover, in locations within two feet of final grade not covered by asphalt/concrete cover, or anywhere that the draft Generic List of Agreements prohibits. Fill under the promenade will require a 2-foot separation from landscaped areas.

If these soils cannot be reused on the Site due to grading or other considerations, then the soils will be disposed of at an off-Site facility as a regulated waste. Prior to removal from the Site, the soils will require additional testing and disposal authorization by the Engineer or the Owners Representative. Stockpiled soil will not be moved for off-Site disposal or on-Site reuse until the soil reuse characterization is complete and the laboratory results are reviewed by the NYSDEC. Composite stockpile samples for on-Site reuse characterization will be analyzed for Target Compound List (TCL) SVOCs, pesticides, PCBs, Total Analyte List (TAL) metals, and total cyanide, and grabs sample will be analyzed for TCL VOCs.

4.3 Impacted Soils with concentrations of regulated compounds above Proposed Track 2 Restricted-Commercial Use SCOs

Excavated impacted soils determined to contain regulated compounds at concentrations that exceed draft Track 2 Restricted-Commercial Use SCOs will be identified as impacted soils, separated and temporarily stockpiled or direct loaded for immediate off-Site disposal at the direction of the Engineer or his/her representative. Direct loading of soils will require approval from the NYSDEC.

4.4 Handling and Stockpile Management

During excavation activities, subsurface soils will be segregated into reuse or off-Site disposal stockpiles. All soil characterization testing and disposal authorizations will be the responsibility of the Engineer or the Owners Representative. Excavated subsurface soils stockpiled on-Site will be characterized for reuse and/or acceptance at a disposal facility.

If approved by the NYSDEC and the disposal facility, soil with high concentrations of regulated compounds (as defined in the RWP as hotspot locations) may be directly loaded for transportation and off-Site disposal, and will not be stockpiled on-Site. The primary mechanism to determine whether or not soils should be considered for direct loading will be the existing laboratory data from numerous borings advanced across the Site, and photoionization detector (PID), visual, and olfactory observations made in the field during excavation activities. Excavated organic-rich soils that are geotechnically unstable for reuse may also be direct-loaded (if possible and approved by NYSDEC) for off-Site disposal. Additional laboratory characterization data may be required for direct loaded soils.

All soils disturbed during Site construction activities will be managed in a way to minimize dust and fugitive emissions. The Contractor is required to provide a soil management plan for review and approval by the Engineer. The primary dust control measures are anticipated to be applying water on exposed soil surfaces to suppress windblown dust, and covering work areas of exposed soils or stockpiles of soil with tarpaulins or other vapor controls.

A Community Air Monitoring Program has been developed for the Site and will be followed as required by the NYSDEC and NYSDOH.

Stockpiles shall be lined, covered with tarpaulins and bermed to prevent impacts to stormwater. Piles should be shaped and graded to facilitate surface drainage and surrounded with silt fence/hay bales. A Site-wide erosion and sedimentation control plan (ESCP) has been prepared in accordance with Federal and State regulations. All measures defined in the ESCP must be incorporated into this Soil Management Plan, when appropriate. Soil stockpile locations and access control restrictions will be

developed by the Contractor, approved by the Engineer and implemented at the Site for the contaminated soil/fill.

Stockpiles should be labeled in accordance with their classification and/or source location. Caution tape barriers should be placed around the piles. Piles should be inspected daily during construction activities.

Soil shall be stockpiled on 10-mil (minimum) thick polyethylene plastic or other low-permeable pad and securely covered with 6-mil polyethylene plastic at the end of each workday or prior to any storm events.

All soil handling completed during Site remedial activities must be handled on-Site by properly trained workers in accordance with the Site-specific HASP. The HASP will be prepared by BL Companies and submitted to the NYSDEC for review and approval prior to initiation of earthwork. Contractors will also be required to prepare their own HASPs for this work. At this time, based on the available data, it is anticipated that all work can be performed with Level D personal protective equipment and that the primary Health and Safety measure will be dust control.

4.5 Confirmation Sampling and Disposal Authorization

The Engineer or Owner's Representative will conduct sampling and laboratory analyses of all soil stockpiled for off-Site disposal or on-Site reuse. The testing frequency will involve the collection of one composite sample per 500 cubic yards of stockpiled soil/fill material. For soil/fill stockpiles of more than 1,000 cubic yards, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils (up to 5,000 cubic yards), if and only if the two samples from the first 1,000 cubic yards are detected at concentrations at or below the draft Track 2 Restricted-Commercial Use SCOs. Stockpiles greater than 5,000 cubic yards will have sampling frequency reduced to one sample per 5,000 cubic yards, provided earlier samples met the draft Track 2 Restricted-Commercial Use SCOs. Analytical results will be submitted to NYSDEC to obtain written authorization prior to on-Site reuse. Soils excavated from distinctive geologic strata (fill vs. organic layer) or from different contaminant areas (determined by field screening) will not be mixed together in a stockpile.

Composite samples consisting of grab samples will be collected from five locations within each stockpile. PID measurements will be collected from the individual locations with duplicate samples collected in accordance with the Site Specific Quality Assurance/Quality Control (QA/QC) requirements. One grab sample will be collected from the five individual locations (either the sample with the highest PID reading or if no PID readings are obtained, a randomly selected sample). As required, the composite sample will be analyzed by a NYSDOH ELAP-certified laboratory for pH (EPA Method 9045C), Target Compound List (TCL) SVOCs, pesticides, and PCBs, and TAL metals, and total cyanide, and the grab sample will be analyzed for TCL VOCs. The Engineer or Owner's Representative will seek

approval for off-Site disposal at a licensed and approved disposal facility. The above-mentioned sampling frequency and laboratory analyses of soil stockpiles for off-Site disposal may be revised based on specific requirements of the receiving facility. Any modifications to the above-mentioned sampling and analyses procedures must be approved by the NYSDEC prior to implementation.

Prior to transporting barrow material to the Site, each source of clean fill will be tested to ensure that chemical concentrations are below applicable NYSDEC Standards, Criteria, and Guidance (SCGs). The sample frequency and analyses of borrow source backfill will likely be the same as used for on-Site reuse, except for the following. For borrow sources of more than 1,000 cubic yards, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils, if and only if the two samples from the first 1,000 cubic yards are detected at concentrations at or below applicable SCGs. Borrow sources greater than 5,000 cubic yards will have sampling frequency reduced to one sample per 5,000 cubic yards, provided earlier samples are at or below applicable SCGs. The buffer layer fill material proposed for the area of the proposed parking lot will consist of gravel and processed aggregate placed as a subbase for the overlying bituminous concrete.

4.6 Material Loading and Transportation

All impacted soil, unusable soil, or unsuitable soil that is to be disposed of off-Site must be loaded within the Site limits. Trucks and barges must be covered before leaving the Site to prevent debris from spilling from the trucks and barges, or being tracked off-Site. Additional measures will be taken to assure that soils are not removed from the Site on truck tires. Soils should be kept moist in order to keep dust under control and limit exposure to the workers on the Site.

Uncontrolled off-Site reuse of impacted soil, unusable soil, or unsuitable soil is prohibited. The Contractor shall maintain project documentation including material shipping records, bills of laden, manifests and/or waste disposal receipts, and final destination certifications for the Engineer.

4.7 Construction Dewatering

Dewatering during Site excavation and construction activities may be necessary. It is anticipated that the discharge of treated dewatering waste will be to the sanitary sewer that discharges to the Owls Head Water Pollution Control Plants via an on-Site connection, or to the 4th Street Basin. The contractor will obtain all applicable permits for the dewatering activities.

Any soil removed from the Site must be free of any free-draining liquids prior to leaving the Site. Engineering controls will be utilized to drain and collect free draining liquids from soil stockpiles.

5.0 SUMMARY

This Soil Management Plan has been prepared due to the presence of both unsuitable soils and impacted soils at the Site. The purpose of this Soil Management Plan is to define a program for handling, testing, reusing, and disposing of material encountered during the planned remediation and construction activities of this project. This Plan will also help minimize impacts to the environment during construction activities and minimize the potential for human exposure. The goal of the Plan is to reuse as much excavated urban fill on-Site as possible.

Soil management activities will include removing the unsuitable soils consisting of organics for disposal off-Site, and excavating, stockpiling, and re-using urban fill containing regulated compounds at concentrations at or below the draft Track 2 Restricted-Commercial Use SCOs. Additionally, activities will include excavating, stockpiling, and disposal of impacted soils containing regulated compounds at concentrations that are above draft Track 2 Restricted-Commercial Use SCOs and soil containing regulated compounds at concentrations below draft Track 2 Restricted-Commercial Use SCOs that cannot be reused on-Site.

APPENDIX B

Health and Safety Plan

IMPACTED SOIL EXCAVATION
HEALTH AND SAFETY PLAN

FOR

PROPOSED WHOLE FOODS MARKET
BROOKLYN, NEW YORK

NYSDEC BCP SITE No. C224100

Prepared For

WFM PROPERTIES BROOKLYN LLC
CAMBRIDGE, MASSACHUSETTS

Prepared by:

BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450

To the best of my knowledge this Health and Safety Plan (HASP) meets the applicable OSHA standards, project specifications, and industry standards for good health and safety practices. Furthermore, this HASP provides both organizational responsibility and employee procedure to ensure that work can be conducted safely and effectively.

John K. Bogdanski, MS, PG

EMERGENCY TELEPHONE NUMBERS

A. Local Emergency Numbers

Police Department	911
Fire Department	911
Ambulance	911

B. Project Emergency Numbers

BL Companies, Inc.	(203) 630-1406
Whole Foods Market	(617) 492-5500
March Associates, Inc. (General Contractor)	(973) 904-0213

C. Hospital Location and Directions

Nearest Hospital: Interfaith Medical Center (718) 604-6000
1545 Atlantic Avenue
Brooklyn, NY

Leave Site going north on 3rd Street. Turn left onto 3rd Avenue. Turn right onto Atlantic Avenue. Go approximately 2.4 miles and arrive at hospital.

D. Additional Phone Numbers

NYSDEC Spill Hotline	(518) 457-7362
NYSDEC, Environmental Conservation Police	(718) 482-4885
U.S. EPA Emergency Response	(800) 424-8802
Poison Control Center	(800) 343-2722
Con Edison Emergency	(800) 752-6633
Keyspan Energy	(718) 643-4050
AT&T Emergency Phone	(800) 222-3000
SNET Repair Service	(800) 922-4646

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I. INTRODUCTION

The following Site Health & Safety Plan (HASP) describes standard operating procedures for worker protection during the remedial excavation and movement of impacted soil at the proposed Whole Foods Market, 220 3rd Street, Brooklyn, NY. This HASP was prepared for WFM Properties Brooklyn LLC by BL Companies, Inc. (BL), Meriden, CT and is not for construction activities; the Site GC will develop their own HASP. The protocols and procedures described below apply directly to the BL Companies' employees and subcontractors while conducting remedial excavating activities.

Employees of BL Companies and all subcontractors involved with the excavation and movement of impacted soil will be familiar with the contents of the HASP prior to entry into restricted zones on-Site. A copy of this plan will be posted on-Site at all times during Site operations. Should new information regarding conditions at the Site become available, the HASP will be updated. Employees' and subcontractors involved in Site operations will be apprised of the changes and provided with a copy of the revised HASP.

During subsurface investigations at the Site, impacted soil and ground water were encountered. BL Companies collected samples of the soil and ground water and submitted them to a state-certified laboratory for analysis. The results of the investigations identified concentrations of semi-volatile organic compounds/polynuclear aromatic hydrocarbons (SVOCs/PAHs), VOCs, metals, and PCBs. Construction will result in disturbing the contaminated material.

The purpose of this Health & Safety Plan is to communicate potential and known health and safety hazards that may be encountered during remedial activities. If additional impacts are identified during the construction phase of this project, the HASP will be revised addressing those concerns. Health and safety measures, including engineering controls, personal protective equipment and decontamination, decontamination of equipment, and personnel training are outlined in this HASP and must be adhered to in order to reduce health and safety risks to personnel working in established exclusion zones. All personnel assigned to work in an exclusion zone will be required to read and sign the HASP, thereby certifying that they have read and understand its requirements.

II. STATEMENT OF SAFETY AND HEALTH POLICY

This HASP has been developed to provide guidance for compliance to the standards set forth in the Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulations (CFR) 1926 (29CFR 1926), *Safety and Health Regulations for Construction*. This HASP was also developed in accordance with OSHA 29 CFR 1910.120 *Hazardous Waste Site Operations and Emergency Response*, which has been formerly incorporated into 29 CFR 1926.65. The policies and procedures described within the HASP are based upon existing information pertinent to the project and made available to BL Companies at the time the HASP was prepared, as well as BL Companies' past experience with similar projects.

BL Companies does not guarantee the Health and Safety of any person(s) entering the Site. Due to the potential for the presence of hazards at the site and the proposed activities scheduled to

occur within the boundaries of the Site, it is not possible to discover, evaluate, and provide protection from all potential hazards that may be encountered. Strict adherence to the specific items and procedures outlined in the HASP are intended to reduce, but not eliminate, the potential for injury to persons at the Site. Therefore, the guidelines outlined in this HASP are intended for this Site and should not be applied to other sites.

III. SITE INFORMATION AND CONTAMINATION CHARACTERIZATION

This project consists of the excavation of material for the installation of a building foundation, including the installation of several underground structures (storm water detention system, etc.), and the general redevelopment of the Site at 220 3rd Street, Brooklyn, New York as a Whole Foods Market store. Contaminated soil and ground water have been identified within the construction area. This material is to be handled, removed and/or disposed of in accordance with all local, state and federal laws.

BL Companies collected numerous soil and ground water samples from the Site. The analytical results of the sample analyzed indicated the presence of volatile organic compounds (VOCs) polynuclear aromatic hydrocarbon (PAHs), metals, and PCBs. Some of the concentrations of those compounds exceeded proposed contaminant cleanup levels. Therefore, contaminated material excavated from the Site will require special handling, disposal, and/or documentation.

IV. SAFETY AND HEALTH RISK ANALYSIS

The overall health and safety risks from construction activities performed within the established exclusion zones for this project are considered low due to the concentration of contaminants detected in the proposed construction areas.

Note: NIOSH develops and periodically revises Recommended Exposure Limits (REL) for hazardous substances or conditions in the workplace. OSHA promulgates and enforces Permissible Exposure Limits (PELs) for hazardous substances in the workplace; Threshold Limit Values (TLVs) and Short Term Exposure Limits (STELs) are recommendations of the American Conference of Governmental Industrial Hygienists (ACGIH); PELs and TLVs are normally compared to 8-hour TWA exposures. IDLH - immediately dangerous to life and health. ST = short-term exposure; C15 = ceiling 15-min (e.g.); 5 min (2) = 5 minute max peak in any 2 hours (e.g.); 10 min = 10 minute max peak; A3 = animal carcinogen (ACGIH); Ca = potential occupational carcinogen (NIOSH), A4 = not classifiable as a carcinogen (ACGIH); A1 = confirmed human carcinogen (ACGIH); A2 = suspected human carcinogen.

Exposure media includes vapors, dust, soil particulates, and groundwater. Exposure routes include inhalation, absorption, ingestion and contact.

Interim remedial measures (IRMs) were completed by BL Companies in 2005 to prevent potential risk to the environment and public health from on-Site areas of identified contamination. The following contaminants were detected in the material analyzed between December 2003 and December 2004, prior to completing the IRMs:

1. Semi-Volatile Organic Compounds (SVOCs)/Polynuclear Aromatic Hydrocarbons (PAHs)

The following SVOCs/PAHs were detected at the Site:

- 2-Methylnapthalene, ND – 170 ppm (B-148, 4-8 ft bgs)
- Acenapthene, ND – 1,800 ppm (GP-8, 4-8 ft bgs)
- Acenapthalene, ND – 49 ppm (B-148, 4-8 ft bgs)
- Anthracene, ND – 960 ppm (GP-8, 4-8 ft bgs)
- Benzo(a)anthracene, ND – 67 ppm (B-132, 0-4 ft bgs)
- Benzo(a)pyrene, ND – 80 ppm (B-148, 4-8 ft bgs)
- Benzo(b)fluoranthene, ND – 48 ppm (B-133, 0-4 ft bgs)
- Benzo(g,h,i)perylene, ND – 52 ppm (B-148, 4-8 ft bgs)
- Benzo(k)fluoranthene, ND – 53 ppm (B-132, 0-4 ft bgs)
- Chrysene, ND – 74 ppm (B-132, 0-4 ft bgs)
- Fluoranthene, ND – 1,300 ppm (GP-8, 4-8 ft bgs)
- Flourene, ND – 1,000 ppm (GP-8, 4-8 ft bgs)
- Indeno(1,2,3-cd)pyrene, ND – 29 ppm (B-132, 0-4 ft bgs)
- Napthalene, ND – 15,000 ppm (GP-8, 4-8 ft bgs)
- Pheneanthrene, ND – 3,400 ppm (GP-8, 4-8 ft bgs)
- Pyrene, ND – 2,100 ppm (GP-8, 4-8 ft bgs)

The following are available exposure limits for releases into the air:

TLV as coal tar pitch volatiles: 0.2 mg/m^3 A1 PEL: 0.2 mg/m^3 REL:0.1 mg/m^3 Ca

2. Volatile Organic Compounds (VOCs)

The following VOCs were detected at the Site:

- 1,2,4-Trimethylbenzene, ND – 58 ppm (GP-8, 4-8 ft bgs)
- 1,3,5-Trimethylbenzene, ND – 52 ppm (GP-8, 4-8 ft bgs)
- Benzene, ND – 750 ppm (GP-8, 4-8 ft bgs)
- Ethylbenzene, ND – 150 ppm (GP-8, 4-8 ft bgs)
- Isopropylbenzene, ND – 11 ppm (GP-8, 4-8 ft bgs)
- Napthalene, ND – 19,000 ppm (GP-8, 4-8 ft bgs)
- n-Butylbenzene, ND – 230 ppm (GP-8, 4-8 ft bgs)
- n-Propylbenezene, ND – 19 ppm (GP-8, 4-8 ft bgs)
- Total Xylenes, ND – 154 ppm (GP-8, 4-8 ft bgs)
- p-Isopropyltoluene, ND – 14 ppm (GP-8, 4-8 ft bgs)
- sec-Butylbenzene, ND – 8.5 ppm (B-111, 4-8 ft bgs)
- tert-Butylbenzene, ND – 77 ppm (GP-8, 4-8 ft bgs)
- Toluene, ND – 2.5 ppm (B-111, 4-8 ft bgs)
- Pheneanthrene, ND – 3,400 ppm (GP-8, 4-8 ft bgs)

The following are available exposure limits for releases into the air using benzene as the primary compound of concern:

TLV as benzene: 0.2 mg/m^3 A1 PEL: 1 mg/m^3 REL:0.1 mg/m^3 Ca

3. <u>Inorganic Metals</u>

RCRA metals were detected at the Site. The concentration of some of the detected metals exceeded the applicable standards and is discussed below.

Lead: The highest concentration of lead detected in the soil sampled was 2,320 mg/kg. According to the Federal EPA, Residential Direct Exposure Criteria, soil is considered contaminated with lead at a total concentration greater than 400 mg/kg. NYSDEC TAGM limits are based on site background levels.

The following are exposure limits for elemental lead released into the air:
REL: 0.100 mg/m^3 PEL: 0.050 mg/m^3 IDLH: 100 mg/m^3 (Pb)

Physical Description: Metal: A heavy ductile, soft gray solid. Exposure media includes dust, soil particulates, and as dissolved in water.

Chromium: the highest total concentration detected in the soil sampled was 53.1 mg/kg. The NYSDEC TAGM #4046 screening criteria for chromium is 10 mg/kg.

The following are exposure limits for chromium compounds:
REL: 0.5 mg/m^3 PEL: 1 mg/m^3 IDLH: 250 mg/m^3 (Cr)

Physical Description: Appearance and odor vary depending upon the specific chromium compound.

Arsenic: the highest total concentration detected in the soil sampled was 47.3 mg/kg. The NYSDEC TAGM #4046 screening criteria for arsenic is 7.5 mg/kg. ACGIH notes that arsenic is a confirmed human carcinogen.

The following are exposure limits for inorganic arsenic released into the air:
REL Ceiling: 0.002 mg/m^3 15 min (Ca) PEL: 0.010 mg/m^3 IDLH: 5 mg/m^3 (Ca)

Physical Description: Metal: Silver-gray or tin-white brittle, odorless solid. Exposure media includes dust, soil particulates, and as dissolved in water.

Mercury: the highest total concentration detected in the soil sampled was 2.2 mg/kg. The NYSDEC TAGM #4046 screening criteria for arsenic is 0.1 mg/kg. ACGIH notes that arsenic is a confirmed human carcinogen.

The following are exposure limits for inorganic arsenic released into the air:

REL Ceiling: 0.05 mg/m^3 PEL: 0.10 mg/m^3 IDLH: 5 mg/m^3 (Hg)

Physical Description: Metal: Silver-gray or tin-white brittle, odorless solid. Exposure media includes dust, soil particulates, and as dissolved in water.

Selenium: the highest total concentration detected in the soil sampled was 24.2 mg/kg (ppm). The NYSDEC TAGM #4046 screening criteria for selenium is 24.2 ppm.

The following are exposure limits for selenium:
REL: 0.2 mg/m^3 PEL: 0.2 mg/m^3 IDLH: 1 mg/m^3 (Se)

Physical Description: Amorphous or crystalline, red to gray solid. Exposure media includes dust and/or soil particulates.

4. PCBs

PCBs were detected solely in soil at one location at the Site. The highest concentration of PCBs detected at the Site was 55 parts per billion (ppb). The NYSDEC TAGM #4046 screening criteria for PCB is 1 mg/kg.

The following are exposure limits for PCBs released into the air:
REL: 0.2 mg/m^3 PEL: 0.5 mg/m^3 IDLH: 5 mg/m^3

Physical Description: Colorless to pale-yellow solid with mild hydrocarbon odor. Exposure media includes dust and/or soil particulates.

V. HAZARD ANALYSIS

The hazard analysis for this project is based upon the anticipated risk posed by the proposed activities. The following is a summary of each anticipated activity, associated hazard(s), and methods to minimize and/or prevent these hazards:

Typical hazards associated with movement within the Site include: tripping hazards from uneven surfaces and vegetation; exposure to plants such as poison ivy and pricker bushes (which may cause allergic reactions); wildlife hazards such as ticks (Lyme Disease), mosquitoes, bees, snakes, and rodents; exposure to on-site chemicals and contaminants; accidents with on-Site equipment and/or vehicles; heat stress; and back strain due to improper lifting of heavy loads.

The following techniques will help prevent/minimize these hazards: "be alert while walking across the Site, wear steel toed/shank construction boots, wear long pants and sleeved garments to protect against plants and wildlife; avoid wildlife such as snakes, bees and rodents; inspect driving route before moving equipment and/or vehicles, notify persons working in the area when moving equipment; wear seat belts whenever moving a vehicle; implement a heat stress reduction/monitoring program; and use proper lifting techniques to avoid back strain."

Site specific hazards that may be encountered during monitoring, sampling, and remedial excavation activities include: exposure to harmful chemicals, and/or contaminants; electrical hazards from power sources, handling glass containers, exposure to loud noises, and overhead hazards from heavy equipment.

These hazards can be prevented by using trained personnel for air monitoring and sample collection, using ground fault interrupters, using well maintained equipment, not using electrical equipment in wet or flammable areas, being aware of the action levels for the chemical contaminants on-Site, wearing personal protective equipment, and reading and understanding the HASP.

VI. RESPONSIBILITIES

The following personnel are designated to perform the stated Site activities and provide proper communications in the event of an emergency or need for medical attention.

Project Manager
John K. Bogdanski, MS, PG, BL Companies, Inc.

Health and Safety Manager
Guy F. LaBella, PhD, PE, CHMM, LEP, BL Companies, Inc.
Qualifications: Completed 40-hour and Annual 8-hour Refresher "HAZWOPER" Training
Completed 8-hour Site Supervisor Training
National Association of Safety and Health Professionals- Certified Hazardous Materials Manager (CHMM)
Professional Engineer, Licensed Environmental Professional
Experience in performing air-monitoring activities on various ConnDOT construction sites utilizing PIDs, FIDs, Dust Meters, Personal Sampling Pumps, Oxygen & Combustible Gas Meters, and Portable Gas Chromatograph
Certified First Aid and CPR

Health and Safety Officer/ Site Safety Officers
BL Companies (TBA)
Qualifications: Completed 40-hour and Annual 8-hour Refresher "HAZWOPER" Training
Completed 8-hour Site Supervisor Training
Experience in performing air-monitoring activities on various construction sites utilizing PIDs, Dust Meters, Personal Sampling Pumps, Oxygen & Combustible Gas Meters, and Portable Gas

The responsibility of the Health and Safety Manager is to review and approve the HASP.

Enforcement of this HASP will be the responsibility of the Site Safety Officer and/or the Health and Safety Officer designated for the Site, or in their absence, a designated, qualified replacement. Employees of BL Companies, subcontractors, or their employees may be excluded from the site at the discretion of the Health and Safety Officer or the Site Safety Officer, should a violation of the protocols established in this Health and Safety Plan occur.

While working within an Established Exclusion Zone, the Health and Safety Officer and Site Safety Officer will report to the Project Manager on a daily basis regarding the conformance to the protocols outlined in the HASP. The primary responsibilities of the Health and Safety Officer and Site Safety Officer are:

1. Ensure that all BL Companies personnel and subcontractors are familiar with the HASP.

2. Communicate to BL Companies personnel and subcontractors the hazards associated with Site activities within the exclusion zones.

3. Utilize engineering and administrative controls in order to reduce health and safety risks encountered during project activities.

4. Determine that BL Companies will provide personal protective equipment to their personnel, when engineering and administrative controls are known to be limited in effectiveness.

5. Require that personal protective equipment be properly utilized and maintained by project personnel.

6. Oversee the overall performance of project-related personnel and encourage safe work practices.

7. Identify and correct deficiencies and unsafe work practices.

8. Conduct field screening and monitoring procedures utilizing direct reading instrumentation in order to identify chemical hazards present in construction areas.

9. Advise the Project Manager regarding the reclassification of hazards, as well as any changes in the level of personal protective equipment to be worn.

10. Direct emergency and evacuation procedures for personnel covered under this HASP.

11. Issue stop-work orders as necessary.

The responsibilities of the Project Manager include, but are not limited to:

1. Determine if BL Companies personnel and subcontractors who will work in the exclusion zone, have successfully completed the appropriate educational requirements stipulated in 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and are physically fit for work in Level C conditions.

2. Determine availability of personal protective equipment for all BL Companies personnel who will be working in the exclusion zones.

3. Notify the Owner of any changes in actual Site conditions.

4. Notify the Owner of the reclassifications of hazards within the construction Site, as well as any changes in the levels of personal protective equipment to be worn.

5. Conduct oversight of the Site operations.

VII. EMPLOYEE TRAINING

Prior to the initiation of operations on the Site, employees and subcontractors will receive a pre-entry briefing based upon the contents of this plan. This briefing will include at a minimum the following items:

- Verbal description of the site and hazards present.
- A chemical hazard briefing.
- The location of the nearest emergency communications and emergency facilities and emergency telephone numbers.
- Emergency procedures.
- The identification of hazards that are associated with anticipated tasks of the day
- Hazards specific to the site, their chemical nature, concentrations present or expected, exposure limits, symptoms of overexposure, and emergency first response first aid.
- The inspection and use of personal safety equipment.
- A discussion of the location of safe areas if emergency evacuation is necessary.
- How to detect/eliminate/prevent hazards through the use of monitoring and control measures.

Unless the Action levels outlined in Section X are exceeded during on-Site air monitoring, BL Companies personnel and subcontractors are only required to be trained according to 29 CFR 1926.65 paragraph (c)(3)-Initial Training. However, if air monitoring determines that concentrations of contaminants have exceeded the Action Levels outlined in Section X, then all BL Companies personnel who will perform activities within an exclusion zone will be required to have successfully completed health and safety training meeting all requirements of OSHA 29 CFR 1926.65 and 29 CFR 1910.120. Should this situation occur, a copy of their training

certificate will be required on Site to confirm that every assigned person has currently received the necessary training.

The purpose of the training is to ensure that workers are aware of potential hazards they may encounter, provide knowledge and skills in order to complete tasks with minimal risk to health and safety, provide knowledge of the purpose and limitations of personal protective equipment, develop safe work practices, and inform workers of the requirement of a medical surveillance program, including the recognition of symptoms and signs that might indicate exposure to a hazard.

VIII. PERSONAL PROTECTIVE EQUIPMENT

Standard levels of personal protection have been divided into four categories by the Environmental Protection Agency, OSHA, U.S. Coast Guard, and National Institute for Occupational Safety and Health (NIOSH). These categories have been established according to the level of hazard that personnel may be exposed to. These four levels include:

Level A - Provides the highest level of respiratory, skin and eye protection.

Level B - Provides the highest respiratory protection, but lower skin protection than in Level A.

Level C - Provides the same skin protection as Level B, but has lower level of respiratory protection.

Level D - Provides no respiratory protection and minimal skin protection.

When working in an exclusion zone, the level of personal protective equipment (PPE) worn will be in conformance with OSHA 29 CFR 1926.65. The minimal level of PPE will be level D. All BL Companies personnel and subcontractors entering work zones on this project are required to wear Level D PPE at all times. This level of protection may be upgraded to a Level C (either partial or full) at the discretion of the Health and Safety Manager or Site Safety Officer, in the event that site conditions and/or air monitoring results indicate a potential exposure risk.

Level D PPE includes:
- Coveralls/Tyvek*
- Work Gloves
- Steel Toe/Shank Work Boots
- Hard Hat
- Nitrile or Latex Inner Sampling Gloves*
- Disposable Outer Boots*
- Safety Glasses/Goggles/Face Shield*
- Hearing Protection*
- Approved Safety Vests (when working within the highway R-O-W)

*When Hazards Exist/Optional

The criteria for Level D PPE include:

- No contaminants are present above the concentrations as specified in the Safety and Health Risk Analysis - Section IV of this HASP.
- Work functions preclude unexpected contact with, or inhalation of any contaminants.
- No contaminants are known or suspected to be present at the site that may cause immediate adverse effects upon contact or inhalation.
-

Level C PPE includes:

Minimum of 2 Workers
Steel Toe/Shank Boots
Hard Hat
Full Face or Half Face Respirator with Appropriate Filters (e.g. Organic vapor cartridge and/or high efficiency particulate filter)
Chemical Specific Protective Clothing
Nitrile or Latex Inner Sampling Gloves
Chemical Specific Protective Outer Gloves
Chemical Specific Protective Outer Boots
Safety Glasses/Goggles/Face Shield*
Hearing Protection*

*When Hazard Exists/Optional

The criteria for Level C include:

- Oxygen concentrations are not less than 19.5% by volume.
- Contact with atmospheric contaminants will not affect exposed areas of the body.
- Measured concentrations in air of identified constituents will be reduced below the threshold limit value (TLV) by the respirator used and the concentrations are within the service limit of the filter canister and the safety factor provided by the type of respirator used.

In the event that airborne concentrations of site contaminants exceed the established exposure action levels set by this HASP, respiratory protective equipment must be worn by OSHA-trained personnel in order to protect workers from hazardous conditions. Every effort will be made to use engineering controls to minimize exposure levels prior to the use of PPE. However, respiratory equipment should be readily available to personnel at all times. Activities associated with this project are not expected to warrant the use of Level C, Level B, or Level A type respiratory equipment.

IX. MEDICAL SURVEILLANCE PROGRAM

Medical surveillance is essential in the assessment and monitoring of worker fitness and health, both prior to employment and during the course of employment. Accurate medical records should be maintained on file. The information obtained from the program can also be used to

adjust claims, provide evidence in litigation and provide information regarding worker health and medical conditions. A medical monitoring program includes a pre-employment medical examination, periodic medical examinations based upon frequency of worker exposure, record keeping, post-injury/accident examinations, and termination medical examination. The medical surveillance program shall categorize employees as "fit for work" and able to wear respiratory protective equipment.

A medical monitoring program is required for employees engaging in operations conducted on hazardous waste sites (29 CFR 1926.65). Since previous environmental investigations conducted at the site did not detect the presence of hazardous concentrations of contaminants, this project is not considered a hazardous waste site. Therefore, BL Companies personnel and subcontractors are not required to be under a medical surveillance program unless air monitoring/laboratory analyses determines that concentrations of contaminants in the Area of Environmental Concern exceeds the Action Levels for this Site. In the event this occurs, all personnel working in the Area of Environmental Concern will be required to be provide proof of participation in a medical surveillance program.

X. MONITORING PROGRAM FOR CHEMICAL SUBSTANCES/PHYSICAL AGENTS

Personnel entering the project Site must use adequate safety precautions in order to minimize exposure to contaminants. These precautions include exposure monitoring to characterize potential Site health hazards, determine type of personal protective equipment necessary, and establish standard operating procedures. Air monitoring is one method of obtaining important information on-Site hazards. Decisions based upon air monitoring data will be used to determine the level of personal protection. In addition, the air-monitoring program will determine whether personnel need to be trained in accordance with OSHA 29 CFR 1926.65.

The Site Safety Officer, or assigned designee, will be responsible for air monitoring during activities performed in the exclusion zone. Identification and quantification of airborne contaminants is the overall objective of the air-monitoring program. Results obtained from the air monitoring activities will be carefully evaluated and used in the selection of the proper level of personal protection. These data will also help delineate areas where and when personal protection equipment is needed, identify areas where reclassification or upgrading of PPE is necessary, assess potential health effects from contaminant exposure and determine the need for specific medical monitoring of project personnel.

The air-monitoring program will employ two methods of identifying airborne contaminants. The first method will employ the use of direct reading instruments to obtain "real-time" exposure levels. Real time air monitoring will be conducted for VOCs in the work zone during soil excavation and handling activities. Monitoring for VOCs will be conducted using a photo-ionization detector (PID) equipped with a 10.6 eV lamp calibrated with isobutylene and referenced to benzene in air. Concentrations of volatile organic compounds in the air will be available immediately to personnel so that the appropriate corrective action can be taken.

Certain groups of compounds detected at this Site could present a particulate inhalation hazard (dust) if present in elevated concentrations. Real-time particulate air monitoring will be

conducted using a Particulate Material Sampler. This instrument is designed to measure the concentration of airborne particulate matter, liquid or solid, and provides a direct and continuous readout.

Monitoring for explosive atmospheres will be conducted using a LEL meter calibrated with pentane as a reference standard and with the alarm set at 10 percent LEL. Monitoring with the LEL meter are required when the potential for explosive atmospheric sources or methane sources are encountered. Hydrogen Sulfide monitoring will also be required prior to entering excavations. Hydrogen sulfide monitoring will be conducted using a Hydrogen Sulfide meter. Air monitoring will also include the use of an oxygen meter prior to entry into an excavation.

Direct reading instruments will be used continuously during excavation activities in the exclusion zone.

The second method of detection will supplement the direct reading instruments listed above. Because of the low exposure limits of benzene (1 ppm), the PID does not provide a safe screening method for benzene when used alone. Therefore, PID readings will be supplemented with specific colorimetric indicator tubes (Draegar, Sensidyne or equivalent) to detect the presence of benzene, PCE and/or hydrogen sulfide in the breathing zone of the workers during intrusive activities.

Personal sampling may be conducted for activities identified by the Site Safety Officer as requiring additional safety factors. Results of sample analysis can determine changes in personal protective equipment requirements. The Site Safety Officer will have the option of discontinuing air monitoring when conditions prove to be adequate in protecting worker health and safety.

If noise levels become a concern, a calibrated sound level meter will be used to determine employee exposure levels.

Monitoring data will be recorded and maintained by the Site Safety Officer. Notification to BL Companies will be made when airborne contaminant concentrations exceed the action levels set forth in this HASP. If the Action Levels are exceeded, all personnel will be required to leave the work area. Only OSHA-trained personnel will be allowed to return to the work area after donning the appropriate PPE. The date, time, location, sampling parameters and instrument readings will be recorded and transferred to the Project Manager for placement into the project files.

A. Direct Reading Instruments

Direct reading instruments provide information at the time of sampling, thereby enabling rapid decision making. These instruments are capable of detecting contaminant concentrations in parts per million (ppm). They are used to detect flammable or explosive atmospheres (Combustible Gas Meter), oxygen deficient atmospheres (Oxygen Sensor), certain gases and vapors (Photoionization Detector, Flame Ionization Detector, or Colormetric Detector Tubes), and certain particulates (Infrared Spectrophotometer, Miniram). Direct reading instruments are

designed to detect and measure specific classes of chemicals or conditions. Instruments designed for specific substances may also detect other substances that may result in false readings ("false-positives").

Only personnel trained in the use of this equipment and knowledgeable in their limitations will operate these instruments. Data interpretation will be based upon actual field conditions when compared to specific background information. At a minimum, monitoring equipment will be calibrated in the field at the start and end of each day, and whenever equipment operation is questionable. The Site Safety Officer will keep a log of the time and date of all field calibrations.

The Site Safety Officer will utilize a Photoionization Detector (PID) to monitor total volatile organic compounds, and a Particulate Material Sampler to monitor dust particulates. If the PID detects a sustained concentration of total volatile organic compounds above background levels, then additional equipment will be utilized (oxygen sensor, combustible gas meter, etc.).

B. Personal Air Monitoring

Whenever direct monitoring indicates that worker exposure to hazardous substances or physical agents (noise) may be at or above an Action Level (See Subsection C), personal air monitoring methods in accordance with NIOSH/OSHA guidelines will be implemented. Initially, personal air monitoring will be conducted on workers who are most likely to have the highest exposure. If personal air monitoring results indicate exposure levels at or above the PEL, personal air monitoring will be expanded to cover all employees in the work area.

C. Action Levels

If the action levels listed in Table 1 (below) are exceeded in the breathing zone of any worker for a duration of one minute or longer, all workers will be notified and required to leave the excavation area. Personal decontamination procedures may be necessary prior to leaving the area. The Site Safety Officer will brief the OSHA-trained workers prior to returning to the support zone where they will upgrade from Level D to Level C PPE (See Note):

TABLE 1

CONTAINMENT	INSTRUMENT	ACTION LEVEL
Combustible Gas	CG-1	<10% Lower Explosive Limit (LEL) is normal >10 % LEL requires immediate site evacuation
Dusts	Particulate Material Sampler	>2.5 mg/m^3
Noise		>85 decibels requires hearing protection
Oxygen	Oxygen Meter	19.5% to 23% is normal
Volatile Organic Compounds	PID/FID	>10 ppm

If the contaminant concentrations listed in Table 2 are detected in the breathing zone for a duration of one minute, the workers will then upgrade from Level C PPE to Level B PPE.

TABLE 2

CONTAINMENT	INSTRUMENT	ACTION LEVEL
Combustible Gas	CG-1	<10% Lower Explosive Limit (LEL) is normal >10% LEL requires immediate site evacuation
Dusts	Particulate Material Sampler	>5.0 mg/m^3
Noise		>85 decibels requires hearing protection
Oxygen	Oxygen Meter	19.5% to 23% is normal (Note 2)
Volatile Organic Compounds	PID/FID	>50 ppm

Note: Oxygen deficiency is not corrected with Level C air purifying respiratory protection. Only Level B supplied air respiratory protection provides this correction.

D. Community Air Monitoring Program (CAMP)

Based upon the nature of know or potential contaminants at the Site, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the Site will be necessary.

Continuous Monitoring
Continuous monitoring will be conducted for all ground intrusive remedial activities. Ground intrusive remedial activities include remedial excavation, remedial backfilling, impacted soil handling, installation of demarcation barrier, installation of a portion of proposed parking lot and promenade.

Periodic Monitoring
Periodic monitoring for VOCs will be conducted during non-intrusive activities. Non intrusive activities include the collection of subsurface soil and sediment samples, the collection of ground water samples from monitoring wells, opening a well cap, well bailing/purging, arriving at the Site, and prior to leaving the Site.

VOC Monitoring, Response Levels and Actions

VOCs will be monitored at the downwind perimeter of the Site on a continuous basis during ground intrusive activities. Upwind concentrations will be measured at the start of each workday and periodically afterwards to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contamination known or suspected to be present – Photoionization detector (PID). The PID will be calibrated at a minimum daily using an appropriate surrogate. The PID will be capable of calculating 15-

minute running average concentrations, which will be compared to the following action levels:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the site exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downgradient perimeter of the site persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the vapors identified, corrective actions will be taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the site or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm background for the 15-minute average.

- If the total organic vapor level is above 25 ppm at the perimeter of the site, activities will be shutdown.

All 15-minute readings will be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the site at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes or less for comparison to the airborne particulate actions levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assess during all work activities. The following are the action levels for particulates:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the site, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the site.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for State (DEC and DOH) personnel to review.

XI. HEAT STRESS/COLD STRESS MONITORING

1. HEAT STRESS

Due to the additional physical and psychological stress of working, employees will be monitored for signs of stress when the ambient temperature in the work area is 70^{o} F. Frequency of monitoring for signs of stress shall increase as the ambient temperature increases. In addition, a schedule for working in PPE has been included in the HASP (Table 3) as a guideline for work time duration should work be anticipated above the expected Level D personal protection. There are four levels of heat stress that workers should be aware of. The following summarizes the four levels of heat stress, their symptoms, and treatment.

A. Heat Rash: the inflammation and clogging of the sweat ducts due to overexposure to heat.

Symptoms: Appearance of small red vesicles on the skin.

Treatment: Mild drying of the skin.

B. Heat Cramps: a salt/water imbalance in the body resulting from inadequate replacement of salt in the body after over-exposure to heat.

Symptoms: Uncontrolled spasms and cramps in muscles, especially in the abdomen.

Treatment: Consume salted fluids.

C. Heat Exhaustion: mild shock caused by insufficient water and/or salt when exposed to heat for an extended period of time.

Symptoms: Fatigue, dizziness, weakness, nausea, clammy skin, and paleness.

Treatment: Go to a cool environment, consume salted fluids.

D. Heat Stroke: dangerous rise in body temperature caused by dehydration and/or lack of salt intake.

Symptoms: Nausea, headache, dizziness, delirium, hot and dry skin, and coma

Treatment: Go to a cool environmental, immerse victim in cold/iced water, fan, seek medical attention.

The monitoring of personnel during work activities can greatly reduce the risk of heat stress during hot and humid weather. To prevent workers from being overcome by heat stress, coolers of chilled water and gatorade-type liquids should be made available to the workers throughout the day. Workers should also be advised to utilize sunscreen and be provided with a cool shaded break area. Additional factors that may increase the risk of heat stress include: obesity, old age, and recent illness or alcohol intake.

TABLE 3

RECOMMENDED HEAT STRESS WORK SCHEDULE			
AMBIENT TRANSPORTATION	**PROTECTION LEVEL (USEPA)**	**MAXIMUM WORK* PERIOD (hours)**	**REST* PERIOD (hours)**
Above 90°F	A	.25	.50
	B	.50	.50
	C	.75	.25
85-90°F	A	.50	.25
	B	.50	.25
	C	.75	.20
80-85°F	A	1.0	.25
	B	1.5	.25
	C	2.5	.20
70-80°F	A	1.5	.20
	B	3.0	.15
	C	5.0	.15
60-70°F	A	2.0	.15
	B	4.0	.15
	C	6.0	.15
50-60°F	A	3.0	.15
	B	8.0	0
	C	8.0	0
30-50°F	A	5.0	.10
	B	8.0	0
	C	8.0	0
Below 30°F	A	8.0	0
	B	8.0	0
	C	8.0	0

*Wind chill, relative humidity, work load and physical ability should be taken into consideration.

2. COLD EXPOSURE

Cold injury (frostbite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor is low. Persons working outdoors in temperatures at
or below freezing may be frostbitten. Extreme cold for a short period of time may cause severe injury to exposed body surfaces, or result in profound generalized cooling, and causing death. Areas of the body that have high surface area-to-volume ratios, such as fingers, toes, and ears, are the most susceptible.

Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a

wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost nip or incipient frostbite: characterized by suddenly blanching or whiting of the skin.
- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite: tissues are cold, pale, and solid; and extremely serious injury.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages:

- Shivering,
- Apathy, listlessness, and sleepiness, and sometimes rapid cooling of the body to less than 95 degrees,
- Unconsciousness, glassy stare, slow pulse, and slow respiratory rate,
- Freezing of the extremities, and
- Death.

To guard against cold injury, wear, use appropriate clothing including hand, face and foot- wear; have warm shelter readily available; carefully schedule work and rest periods; and, monitor workers' physical conditions. Loosely layered clothing is preferred because of the added insulating properties from entrapped air between the layers. The fingers, toes, nose tips, ears, and cheeks should be periodically exercised to keep them warm and to detect any numb or hard areas indicative of frostbite. However, once frostbite occurs, the preferred method of thawing is gradual rewarming by placing body surfaces against the frostbitten part. Workers should use the "buddy system" to detect signs of frostbite on co-workers.

XII. STANDARD OPERATING SAFETY PROCEDURES & ENGINEERING CONTROLS

All personnel working in the exclusion zones will adhere to the items outlined in this HASP. A signature sheet is included at the end of the HASP and will be signed by all personnel indicating they have read and understand the contents. A daily health and safety meeting will be held at the site to discuss concerns or hazards anticipated during the day's activities. Project personnel will notify the Site Safety Officer of any unsafe condition or practices at the site so that the condition or practice can be remedied.

Engineering controls will be utilized whenever possible in order to reduce the potential for exposure to hazards, and so that changes in upgrades of personnel protective equipment and work zone delineation can be prevented. An example of a typical engineering control consists of wetting down soils with water in order to reduce airborne dust generated during construction

activities and thereby reducing or eliminating the need for respiratory protection. In addition, having workers stay upwind of potential airborne contaminants is another engineering control utilized to reduce worker exposure.

XIII. SITE CONTROL MEASURES

Restricted access and protective zones will be established with respect to the contamination hazards of the site. These zones will be determined by the Site Safety Officer and/or the Health and Safety Officer. These zones will help minimize the possibility of cross contamination of uncontaminated areas. The establishment of zones will also be used to prevent exposure of project personnel to contaminated materials. In addition, "zones" will be established to control entry by unauthorized and/or untrained personnel into these areas. The health and safety of project related personnel is the overall objective when establishing protective zones.

A. Support Zone

The support zone will be kept free of any contaminated material and is usually used for equipment storage and assembly. Support personnel are staged in this area along with vehicles and equipment not required in the work area that has been designated as contaminated. The location of the support zone will be determined by the Site Safety Officer after he/she evaluates the contaminant hazard, exposure potential, wind direction and speed, topography, visibility, or other factors that may impact personnel located in this zone.

B. Contaminant Reduction Zone

The contaminant reduction zone is the area between the support zone and the area designated as contaminated (exclusion zone). This area is a transition zone and initially is uncontaminated. Decontamination equipment is located in the contaminant reduction zone and decontamination procedures are executed in this zone for all personnel, equipment and materials passing to the support zone. Separate decontamination areas will be provided for personnel and equipment. The contaminant reduction zone will also provide support to non-construction activities such as sample preparation and packaging. The staging of equipment and personnel who will assist workers in the area of contamination also takes place in this zone. No smoking, eating, chewing gum or tobacco, drinking, taking medicine, or application of cosmetics (including chapstick and sunscreen) will be permitted in the contaminant reduction zone. These materials, in addition to lighters or matches will not be allowed in this zone.

C. Exclusion Zone

The contaminated area is known as the exclusion zone and is the area in which actual intrusive activities are performed. No person will be allowed to enter the exclusion zone without authorization from the Site Safety Officer or the Health and Safety Officer. Activities within the exclusion zone will be monitored continuously in order to prevent exposure to contaminants. Entrance and exit to the exclusion zone will be maintained at a single access point whenever practical. All equipment and personnel will enter and exit the exclusion zone through the contaminant reduction zone. In addition, there will be no smoking, eating, chewing gum,

chewing tobacco, drinking, taking medicine, or application of cosmetics in the exclusion zone. These materials, in addition to lighters and matches will not be allowed in this zone.

XIV. DECONTAMINATION PROCEDURES

To minimize contact with contaminated substances and lessen the potential for contamination, personnel will make every effort not to walk through areas of obvious contamination (i.e. liquids, discolored surfaces, smoke/vapor clouds, etc.). Personnel will not kneel or sit on the ground in the Exclusion Zone and/or Contaminant Reduction Zone.

Decontamination will be required when the airborne concentration of contaminants exceeds the action levels outlined in Section X, or in the opinion of the Site Safety Officer, significant levels of contamination may be transported off-site or between locations on the site by personnel or equipment. If the site requires the use of disposable protective equipment (Level D or above), a decontamination area will be designated within the contaminant reduction zone prior to commencement of the work.

The decontamination area will be equipped with potable and non-potable water, brushes, soap and solvents for decontamination, first aid kits, including eye wash, extra personal protective equipment, and plastic bags for disposal of contaminated material. A soap (detergent) and water wash/rinse will be used for all protective equipment. A waterless hand cleaner and paper towels may be used for hands, arms, or any skin surface potentially in contact with contaminated material. This area will be manned by personnel dressed in a level of personal protective equipment sufficient to enter the exclusion zone in the case of emergency.

Equipment decontamination may involve an initial hand wash, using a solution of water and Alconox, followed by a clean water rinse, a methanol rinse, and steam cleaning. All decontamination fluids and disposable personnel protective equipment will be collected in the proper containers (i.e., drums, garbage bags), so that they may be disposed of properly at a later time.

XV. EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

In the case of an accident, severe injury, or other medical emergency, medical assistance should be contacted immediately. First aid should be administered on-Site only by trained personnel. The Site Safety Officer has been certified in first aid and CPR. In addition, the medical facility that will receive the injured person should be notified as to the condition and the type of injury. A non-severe injury may require transportation in a site vehicle. Directions to the closest hospital and pertinent telephone numbers are listed at the beginning of this HASP. A copy of the HASP should accompany all personnel transported to the hospital in order to provide information for proper diagnosis and medical treatment. The Site Safety Officer, Health and Safety Officer and Project Manager should be notified of the injury. In addition, an Accident Report/Incident Report should be completed as soon as possible by the Health and Safety Manager. A copy of an Accident Report/Incident Report is located in Appendix B.

A. Emergency Medical Equipment

Emergency medical equipment will be kept on-site and shall include at a minimum:

First aid kit
Emergency eye wash

Should an emergency shower be required, potable or non-potable water available at the decontamination areas can be used.

B. Emergency First Aid

The following generalized emergency first aid is intended for cases where the exact cause of the symptoms is not well known.

Exposure	First Aid
Dizziness, headache, nausea	Remove to fresh air. Perform artificial respiration if necessary. Seek medical attention if persists.
Burning sensation (eyes)	Irrigate immediately for 15 minutes. Seek medical attention if persists.
Burning sensation (skin)	Decontaminate with soap and water. Remove wet or contaminated clothing. Seek medical attention if persists.
Ingestion	Get emergency medical help. Induce vomiting if conscious.

C. Personal Injury Within the Exclusion Zone

Upon notification of an injury in the exclusion zone, an emergency signal horn blast will be sounded. All site personnel will assemble in the decontamination area. The Site Safety Officer will evaluate the nature of the injury and if necessary, the affected person will be decontaminated prior to movement. No person will re-enter the exclusion zone until after the cause of injury or illness has been determined.

D. Personnel Injury Outside the Exclusion Zone

Upon notification of an injury outside of the exclusion zone, the Site Safety Officer will assess the nature of the injury. If the cause of the injury/illness does not affect the performance of site personnel, activities may continue while the injury is handled. If the injury increases the risk to others, an air horn will be sounded and site personnel will move to the decontamination area for further instructions. Activities on-site will stop until the risk has been removed or minimized.

XVI. EMERGENCY RESPONSE PLAN

In the event of an emergency, site control, communications and appropriate evacuation routines will be the responsibility of the Site Safety Officer. Emergency communication with off-site emergency response groups will be via telephone. Telephones will be located in the project trailer and in the vehicles of the Project Manager and Site Safety Officer. For on-site emergency communications, the Site Safety Officer will signal utilizing an air horn located in the trailer. Immediately after sounding the alarm, (one long blast) the Site Safety Officer will telephone all pertinent emergency personnel (ambulance, fire etc.) and notify the Project Manager and Health and Safety Officer. All personnel will leave the area via the safest route and meet at a location designated by the Site Safety Officer. The Site Safety Officer will check to determine that all personnel have been accounted for. If personnel are identified as missing, the Site Safety Officer will contact emergency services for assistance.

Environments characterized as immediately dangerous to life and health (IDLH) are not anticipated to occur at the site and are therefore not covered by this HASP. Unexpected occurrences of such conditions will necessitate immediate evacuation of the area. Emergency situations that may occur under such circumstances include uncontrolled releases of contaminants, severe weather, discovery of drums or other unknown material. These situations may require the involvement of trained and equipped emergency response personnel.

A. Emergency Communications

In the event of an emergency, the Site Safety Officer will alert the construction site by using an air horn. The following signals will be used:

Three short blasts	Personnel injury - Evacuate to designated area
One long blast	Site emergency - Everyone evacuate to designated off-site area.

When working in the exclusion zone, personnel will use the "buddy" system. Hand signals should be pre-arranged should other means of communications breakdown. The following standard hand signals should be utilized:

Thumbs up	Ok, I'm alright, I understand
Thumbs down	No, negative
Hand gripping throat	Out of air, can't breath
Grip partner's waist, wrist	Leave area immediately, no debate
Hands on top of head	Need assistance

B. Fire and Explosion

Upon notification of a fire or explosion on-Site, the emergency signal horn will be sounded and all site personnel will move to the decontamination area or to an area upwind of the fire or explosion. The fire department will then be alerted.

C. Personal Protective Equipment Failure

If any site worker experiences a failure or alteration of personal protective equipment that affects the protection factor, that person and his/her buddy (under modified Level D conditions) will immediately leave the exclusion zone and go to the decontamination area where the Site Safety Officer will assess and remedy the situation.

Under Level C conditions (or higher), failure or alteration of personal protective equipment will immediately cause all personnel present in the work area to withdraw with their assigned buddies from the exclusion zone. All personnel will assemble in the decontamination area, where the Site Safety Officer will assess the failure. Re-entry to the exclusion zone will not be permitted until the cause of the failure has been determined and the equipment has been repaired or replaced.

D. Other Equipment Failure

Should other equipment fail to operate properly, the Site Safety Officer and/or the Project Manager will be notified. The effect of equipment failure on continuing operations at the site will then be evaluated. If the failure affects the safety of personnel or prevents completion of tasks, all personnel will leave the exclusion zone until the appropriate remedial actions have been taken.

XVII. SPILL CONTAINMENT PROGRAM

If a spill or release of hazardous materials occurs at the Site, work will cease and access to the Site will be under the guidance of the Site Safety Officer. The spill area will be identified and made into an exclusion zone. All personnel on-Site will be notified of the event and evacuated to an upwind location. An evaluation of the situation will be made in order to determine the identity of the released material, as well as the hazard to the public and on-site personnel. Emergency services will be notified immediately. The Project Manager will be notified immediately of the situation. The Project Engineer will also be notified immediately of the situation in order to allow implementation of protocols within their HASP. The spill or release may also require the notification of the NYSDEC Spill Hotline. All events will be documented in detail by the Site Safety Officer in the project field book.

Once the hazards associated with the release have been recognized, a decision will be made by the Project Manager to determine if sufficient equipment and trained personnel are available on-site to control the release. If the release cannot be controlled with the personnel and equipment available, no action will be taken until appropriate support is available.

Air monitoring will be conducted by the Site Safety Officer, upwind of the spill, in order to determine the hazards associated with the release. Personal protective equipment will be determined based on air monitoring results. If the material is unknown, Level B PPE will be the minimum level of protection utilized. If appropriate equipment is available, samples of the material will be collected by OSHA-trained personnel, and submitted to a certified laboratory for analysis. The Project Manager will review the documentation regarding the spill or release in order to determine if a similar release can be avoided in the future.

XVIII. LOGS, RECORD KEEPING AND INSPECTIONS

The Site Safety Officer will keep a field log in a dedicated field book regarding daily field activities. The daily log will also document equipment calibration that has occurred each day. Copies of the field book logs, or the entire field book, will be given to the Project Manager at the completion of the project for insertion into the project file.

The daily log will also document visitors to the Site. All personnel visiting the Site must check in with the HSO or designee for orientation and briefing of site hazards.

Accidents and incidents will be recorded on an accident/incident report included in Appendix B. The Health and Safety Officer is responsible for filling out the Accident/Incident Report.

The Health and Safety Officer may inspect the site at any time in order to determine if the HASP is being implemented correctly and to determine if the Contractor's personnel are utilizing safe work practices. During the inspection, the Health and Safety Officer will document his/her observations and make notes regarding any potential hazard not addressed in this HASP. Documentation generated during the site inspection will be given to the Project Manager for incorporation into the project file.

XIX. CONFINED SPACE PROCEDURES

A *confined space* is defined as a space that has all of the following features: it is large enough for an employee to enter and perform work; it has limited or restricted entrances or exits; and, it is not intended for continuous employee occupancy. A *permit-required confined space* is a confined space that poses any one of the following hazards: a potentially hazardous atmosphere; a potential for engulfment of an employee; and, an internal configuration, such as a tapered floor, which could cause an employee to become trapped.

A potentially hazardous atmosphere is one that could cause death, incapacitation, injury, acute illness, and impairment of ability to self-rescue, and includes one or more of the following:

a. Flammable gases, vapors, and/or mists in excess of 10% of Lower Flammable Levels (LELs);

b. Airborne combustible dusts in excess of LELs;

c. Oxygen deficiency (<19.5%) or oxygen enrichment (>23.5%);

d. Acutely toxic contaminants at concentrations greater than the Permissible Exposure Limits (PEL) or equivalent; and

e. Any other condition recognized as Immediately Dangerous to Life and Health (IDLH).

If access to a permit-required confined space is necessary in order to perform this project, the Health and Safety Officer must be notified in order that he/she may coordinate a proper permit-required confined space entry program under 29 CFR 1910.146.

APPENDIX A

SIGNATURE OF FIELD TEAM MEMBERS AND OBSERVERS

I have read and understand this Health and Safety Plan.

NAME	SIGNATURE	DATE

APPENDIX B

ACCIDENT/INCIDENT REPORT

NAME: _____DATE: _____
EMPLOYER: _____JOB TITLE: _____
EVENT LOCATION & TIME: _____
****
EVENT DESCRIPTION: _____
_____
_____
_____
_____
TYPE: ___Physical ___Chemical ___Biological ___Other
INJURIES: _____
CONTRIBUTING ACTS/CONDITIONS: _____
_____
MEDICAL TREATMENT/LOCATION & TIME: _____
_____
_____
****
PROJECT MANAGEMENT REVIEW
CORRECTIVE ACTS TO BE TAKEN: _____
_____
_____
****
SIGNATURES:

_____	_____	_____
EMPLOYEE	PROJECT MANAGER	HEALTH & SAFETY OFFICER
DATE:_____	_____	_____

APPENDIX C

CALIBRATION LOG SHEET

PROJECT NAME: ____________________
PROJECT NO.: ______________________

INSTRUMENT	DATE	COMMENTS

APPENDIX D

EXCLUSION ZONE SIGN-IN SHEET

NAME/COMPANY	SIGNATURE	DATE	TIME IN	TIME OUT

APPENDIX E

LIST OF ACRONYMS

ACGIH - American Conference of Governmental Industrial Hygienists
AOEC - Area of Environmental Concern
AT&T - American Telephone and Telegraph
CFR - Code of Federal Regulations
CHM - Certified Hazards Manager
CIH - Certified Industrial Hygienist
CL&P - Connecticut Light and Power
ConnDOT - Connecticut Department of Transportation
CPR - Cardiopulmonary Resuscitation
CTDEP - Connecticut Department of Environmental Protection
DEC - Direct Exposure Criteria
FID - Flame Ionization Detector
GA/GAA - a groundwater classification code
GA/GAA PMC - GA/GAA Groundwater Pollutant Mobility Criteria
GB - a groundwater classification code, GB is poorer quality than GA/GAA
GB PMC - GB Groundwater Pollutant Mobility Criteria
HASP - Health and Safety Plan
HAZWOPER - Hazardous Waste Site Operations and Emergency Response
HSM - Health and Safety Manager
HSO - Health and Safety Officer
I/C DEC - Industrial/Commercial Direct Exposure Criteria
IDLH - Immediately Dangerous to Life or Health
LEP - Licensed Environmental Professional
NIOSH - National Institute for Occupational Safety and Health
OSHA - Occupational Safety and Health Administration
PE - Professional Engineer
PEL - Permissible Exposure Limit
PID - Photoionization Detector
PPE - Personal Protective Equipment
ppm - parts per million
RCRA - Resource Conservation and Recovery Act
REL - Recommended Exposure Limit
RES DEC - Residential Direct Exposure Criteria
RSRs - Remediation Standard Regulations
STEL - Short Term Exposure Limit
TBA - To Be Announced
TBD - To Be Determined
TLV - Threshold Limit Value
TPH - Total Petroleum Hydrocarbons
TWA - Time weighted average

U.S. EPA - United States Environmental Protection Agency
VOCs - Volatile Organic Compounds
WPCA - Water Pollution Control Authority

APPENDIX C

Community Air Monitoring Plan

WFM Properties Brooklyn LLC
Proposed Whole Foods Market
220 3rd Street
Brooklyn, New York

Community Air Monitoring Plan

Based upon the nature of known or potential contaminants at the Site, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the Site will be necessary.

Continuous Monitoring

Continuous monitoring will be conducted for all ground intrusive remedial activities. Ground intrusive activities include remedial excavation, remedial backfilling, impacted soil handling, installation of demarcation barrier, installation of a portion of the clean cover fill in areas of proposed parking lot and promenade, and the installation of monitoring wells.

Periodic Monitoring

Periodic monitoring for VOCs will be conducted during non-intrusive activities. Non intrusive activities include the collection of sub-surface soil and sediment samples, the collection of ground water samples from monitoring wells, opening a well cap, well bailing/purging, arriving at the Site, and prior to leaving the Site.

VOC Monitoring, Response Levels and Actions

VOCs will be monitored at the downwind perimeter of the immediate Site on a continuous basis during ground intrusive activities. Upwind concentrations will be measured at the start of each workday and periodically afterwards to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contamination known or suspected to be present – Photoionization detector (PID). The PID will be calibrated at a minimum daily using an appropriate surrogate. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the following action levels:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the Site exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the down gradient perimeter of the Site persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the vapors identified,

corrective actions will be taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the Site or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm background for the 15-minute average.

- If the total organic vapor level is above 25 ppm at the perimeter of the Site, activities will be shutdown.

All 15-minute readings will be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the Site at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes or less for comparison to the airborne particulate actions levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The following are the action levels for particulates:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the Site.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for State (DEC and DOH) personnel to review.