

EXECUTIVE SUMMARY

Site Description, Physical Setting and Site History

MJM Construction Services is filing an application to enter two sites into the New York City Brownfield Cleanup Program (NYC BCP) under the management of the Mayor's Office of Environmental Remediation (NYCOER) as a Volunteer. These Sites are associated with Brownfield Cleanup Program, Sites Nos. 11CBCP002X and 11CBCP003X.

The Sites are a total of approximately 0.6-acre in area, consist of two adjacent lots identified as Lot 35 and 38 and are located at the block front (Block 2697) on the southern-southeastern end of Westchester Avenue between Rogers Place and Intervale Avenue in the central section of the Borough of the Bronx, New York. The Sites are currently vacant and do not have any building improvements. The topography of the Sites is generally level. Lot 35 is associated with BCP #11CBCP002X and Lot 38 is associated with BCP #11CBCP003X.

The applicant is proposing to make the Sites protective of human health and the environment consistent with the contemplated end use for residential and commercial purposes. Proposed development of the Sites will consist of a mixed-use residential and commercial building with a community facility and a full basement. The basement will consist of a parking area and will be developed over both entire Sites.

Summary of Past Uses of Sites and Areas of Concern

Three Phase I Environmental Site Assessment (ESA) Reports for the Applicant by Don Carlo Environmental Services, Inc. and Hydro Tech Environmental Corp. were reviewed to establish the site history. Lot 35 was historically utilized as gasoline station from at least 1977 to 1981 and was recently utilized as an auto maintenance facility. Two open New York State Department of Environmental Conservation (NYSDEC) Spill Numbers and one closed NYSDEC Spill Number are associated with Lot 35. NYSDEC Spill #06-13228 was issued to Lot 35 on March 9th, 2007, following a tank test failure of underground storage tank (UST) containing waste oil. NYSDEC Spill #07-00175 was issued to Lot 35 on April 4th, 2007, following the identification of soil impact in the vicinity of abandoned gasoline USTs. All USTs identified at

Lot 35 were closed and removed in August 25th, 2008. During tank removal activities, approximately 366 tons of petroleum contaminated soil was properly disposed off-site and a Spill #08-03439 was called in. This spill case was then closed on September 3rd, 2008.

Lot 38 consisted of a 1-story warehouse with a full basement. Lot 38 was historically utilized as a bottling facility and was most recently utilized for the storage of various beverages.

Areas of Concerns (AOCs) are listed below:

1. The presence of Poly Aromatic Hydrocarbons (PAHs), VOCs and metals at concentrations exceeding the Soil Clean up Objectives on Lot 35. PAHs associated with fill material are present in shallow soil from zero to 7 feet in the western and southern portions of Lot 35. VOCs associated with Open NYSDEC Spills #06-13228 & #07-00175 are present in deep soil throughout Lot 35. These VOCs extend from 7 feet to the groundwater present at the Site. Presence of metals in fill throughout Site. Lot 38 soils meet Track 1 unrestricted Soil Cleanup Objectives.
2. The Presence of VOCs and SVOCs associated with NYSDEC Spills #06-13228 & #07-00175 in groundwater beneath Lot 35. Presence of total and dissolved metals in groundwater throughout the Site.
3. Presence of VOCs in soil vapors attributed to NYSDEC Spills 06-13228 & #07-00175 on Lot 35 throughout the Sites (with lower concentrations on Lot 38) and beneath the Sidewalks on the south side of Westchester Avenue and the west side of Rogers Place.

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a Ground Penetrating Radar (GPR) survey over approximately 90 percent of Lot 35 and approximately 60 percent of Lot 38;
3. Installed eighteen soil borings throughout the Sites, and collected twenty five soil samples for chemical analysis from the soil borings to evaluate soil quality. These included seven shallow soil samples zero to 2 feet below grade and seven deep soil samples ranging from 6 to 10 feet below grade collected at Lot 35. A total of eight soil

samples were collected from zero to 2 feet beneath the former basement slab at Lot 38, which was approximately 8 feet below grade. Three deep soil samples were collected at depths ranging from 6 to 12 feet below grade from off-site soil probes;

4. Installed six on-site and four off-site groundwater monitoring wells to establish groundwater flow and collected nine groundwater samples for chemical analysis to further evaluate groundwater quality;
5. Installed ten soil vapor probes around perimeter of the Sites and collected ten samples for chemical analysis.

Summary of the Geological and Hydrogeological Findings

The Geology and Hydrogeology of the Sites have been thoroughly investigated. Findings of the investigations indicate:

1. Elevation of the properties ranges from 35 to 37 feet.
2. Depth to groundwater ranges from 7 to 11 feet at the Sites.
3. Groundwater flow is generally from north to south beneath the Sites.
4. Depth to bedrock ranges from 10 to 53 feet.
5. The stratigraphy, from grade surface at Lot 35 to groundwater down, consists of historic fill ranging in thickness from zero to 7 feet (asphalt fragments, of brick tiles and loose to medium compact, brown fine to coarse sand with traces of silt); the fill layer is underlain by natural soil to variable depths ranging from 7 to 17 feet (fine compact sand with trace of silt, gravel, pebbles and decomposed rocks). Rock is located immediately beneath the sand and down to variable depths from 10 to 53 feet (decomposed and fragmented rocks with evidence of mica schist).
6. Medium to fine grained sand underlies the basement slab at Lot 38. Rock is located immediately beneath the sand and down to variable depths from 10 to 53 feet (decomposed and fragmented rocks with evidence of mica schist).

Summary of the Environmental Contamination

1. Six samples from Lot 38 met Track 1 unrestricted Soil Cleanup Objectives (USCO). VOCs are not observed above Track 1 SCOs on Lot 38.
2. Boring samples collected during the RI indicate the presence of historic fill material in shallow soil (0 to 7 feet) at Lot 35. The fill material mainly consists of coal, glass and brick fragments. Soil samples collected during the RI confirm the presence of semi-volatile organic compounds (SVOCs) and metals and are attributable to the presence of historic fill on Lot 35. SVOCs, specifically classified as Poly Aromatic Hydrocarbons (PAHs) are present in the western and southern portions of Lot 35 at concentrations exceeding the USCO. Metals were detected across Lot 35 at concentrations exceeding the USCO.
3. Soil samples collected during the RI also confirm the presence of VOCs typical of gasoline constituents in the deep soil throughout Lot 35. These VOCs are directly related to NYSDEC Spill #'s 06-13228 and 07-00175 and are present at concentrations exceeding their respective USCOs. These elevated levels of gasoline compounds extend from 7 feet to the groundwater present at the Site. The total volatile organic compounds (VOCs) concentration (245,000 µg/kg) was detected at the capillary fringe in the central portion of Lot 35 (SP-5).
4. Groundwater samples collected during the RI confirmed the presence of COCs on-Site in the form of VOCs and SVOCs at Lot 35 and low level metals throughout the Lot. Dissolved trace metals in groundwater exhibit several minor metals above applicable groundwater standards including iron, manganese, magnesium and sodium. Toxic metals (arsenic, lead, cadmium, chromium, mercury etc.) were not detected in dissolved groundwater samples above applicable groundwater standards. Heavy metals were detected in unfiltered groundwater throughout the Sites at concentrations exceeding their respective 6NYCRR Part 703.5 groundwater quality standard and strongly indicate influence of sample turbidity. The gasoline compounds are directly related to NYSDEC Spill # 06-13228 and 07-00175. The greatest levels of dissolved gasoline compounds were detected during the RI investigation beneath the southeastern portion of Lot 35

(MW-7) at total concentrations of 4,637 µg/L. The groundwater plume does not extend downgradient beyond the commercial property located to the south of the Site.

5. All contamination related to spills identified on Lot 35 are being managed under a separate remedial action approved by New York State DEC.
6. Soil vapor samples collected during the RI confirmed the presence of COCs on both Sites. The COCs are typical gasoline VOCs and are identified beneath the Sidewalks on the south side of Westchester Avenue and the west side of Rogers Place. The soil vapors are attributed to NYSDEC Spill # 06-13228 and #0700175 on Lot 35. The on-site vapor concentrations (total concentrations) range from 262 microgram per cubic meter (mcg/m³) detected in the western portion of Lot 38 (SG-4) to 294,300 mcg/m³ detected in the vicinity of the former gasoline UST in the northwestern portion of Lot 35 (SG-10). Off-site vapor concentrations range from 173 mcg/m³ to the north of Lot 38 (SG- 2) to 7,658 mcg/m³ to the north of Lot 35 (SG-1). Evidence presented in the RIR suggests that there is some influence of an offsite gasoline source contributing soil vapor on the Site.
7. Aboveground Storage Tanks (ASTs) are absent at the Site.

Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment (QHHEA) was performed and indicated that that potential exposure pathways are considered incomplete for future remediated conditions and complete under remedial conditions. The latter requires appropriate Health and Safety program and community air monitoring program during remedial action.

Summary of the Remedy

The preferred remedy listed below achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative achieves all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective, implementable and uses standards methods that are well established in the industry.

The preferred remedial alternative is the Track 1 Alternative through the excavation and disposal of all contaminated soil present at Lot 35. One of the two sites (Lot 38) has already achieved Track 1 cleanup requirements (the highest level of soil quality required under the cleanup program) without any active cleanup or removal action. On the second property (Lot 35), most of the active remedial work has already been performed under a remedial action plan approved separately by NYSDEC. This cleanup plan will assess the need for long-term Site Management for Lot 35. The petroleum spill beneath Lot 35 is currently being remediated under an approved RAP under the authority of NYS DEC will be administered separately from this remedial action. Dissolved petroleum constituents in groundwater are also being managed under the DEC approved plan within a bioremediation program. A soil vapor barrier will be installed beneath the proposed building and a fully ventilated sub-grade parking garage will be built at the base of the building below grade. The preferred remedy achieves protection of public health and the environment for the intended use of the two properties. The preferred remedial action alternative achieves all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective, implementable and uses standard methods that are well established in the industry.

Remedial elements to be implemented at Lot 38 will include:

1. Performance of all required NYC BCP citizen participation activities according to an approved Citizen Participation Plan (CPP).
2. Establishment of Track 1 Soil Cleanup Objectives (SCOs). The site already achieves Track 1 SCOs and removal action is not required.
3. Submission of a RAR which describes the remedial activities including any changes from this RAWP, certifies that the remedial requirements have or will be achieved, and defines the Site boundaries of the Site.

In addition to these elements, a continuous vapor barrier will be installed beneath the building slab to prevent human exposure to residual soil vapor from off site. In addition, the basement of the building will consist of a ventilated sub-grade parking garage that will also prevent the buildup of any vapors within the structure.

The elements to be implemented during remediation of Lot 35 will include:

1. Performance of all required NYC BCP citizen participation activities according to an approved Citizen Participation Plan (CPP).
2. Establishment of Track 1 Soil Cleanup Objectives (SCOs).
3. The remediation removal action and all associated excavation, transport and disposal is currently being managed separately under a remedial work plan approved by DEC. That plan will generally include the items listed in 4 through 15, below, which are included here for informational purposes:
4. Removal of Underground Storage Tanks that may be encountered during the soil excavation under proper authority and their proper registration with the NYSDEC Petroleum Bulk Storage (PBS) unit.
5. The closure of petroleum spills under authority of New York State Department of Environmental Conservation. The NYSDEC has approved plans known as Remedial Action Plan dated February 24, 2010, Groundwater Remediation Action Plan dated July 15, 2010 and Vapor Barrier Design Specifications dated August 5, 2010, which describe the remediation of soil and groundwater on Lot 35.
 - a. Injection of oxygen release compound and performance of post-remedial monitoring for volatile organic compounds, semi-volatile organic compounds and aquifer parameters to evaluate the effectiveness of the treatment. This work is being performed under the approval of the NYSDEC.
 - b. Installation of a continuous vapor barrier beneath the entire building slab to prevent human exposure to residual soil vapor remaining under the Site; this work is being performed under the approval of the NYSDEC. In addition, the basement of the building will consist of a ventilated sub-grade parking garage that will also prevent the buildup of any vapors within the structure.
 - c. Excavation and removal of soil containing gasoline compounds. Transportation and off-Site disposal of all soil at permitted facilities in accordance with all Federal, State and City laws and regulations for handling, transport, and disposal. This work is being performed under the approval of the NYSDEC.

6. Collection and analysis of end-point samples to evaluate the performance of the remedy.
7. Performance of Community Air Monitoring Program for particulates and volatile organic carbon compounds.
8. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
9. Implementation of storm-water pollution prevention measures.
10. Performance of all activities associated with the remedial action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and City laws and regulations.
11. Excavation and transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with all Federal, State and City laws and regulations for handling, transport, and disposal.
12. Sampling and analysis of excavated media as required by disposal facilities.
13. Excavation of contaminated media from areas of concern identified during RI.
14. Appropriate segregation of excavated media.
15. Screening for indications of contamination (by visual means, odor, and monitoring with a photo ionization detector (PID)) of excavated soil/fill during all intrusive work.
16. Under this remedy, if Track 1 cannot be achieved, recording of a Declaration of Covenants and Restrictions that includes a full listing of Engineering Controls and Institutional Controls and notice that these controls must be maintained within a Site Management Plan to prevent future exposure to any residual contamination remaining at the Site.
17. Under this remedy, if Track 1 cannot be achieved, establishment in a recorded Declaration of Covenants and Restrictions, a series of Institutional Controls on the Site, including: (1) compliance with the provisions of the recorded Declaration of Covenants and Restrictions; (2) compliance with provisions of the approved Site Management Plan; (3) operation and maintenance of Engineering Controls as specified in the Site

Management Plan; (4) inspection and certification of all Engineering Controls at a frequency and in a manner defined in the Site Management Plan; (5) performance of environmental and public health monitoring as defined in the Site Management Plan; (6) reporting at a frequency and in a manner defined in the Site Management Plan; (7) protection of on-Site monitoring devices in a manner specified in the SMP; and (8) prohibition of discontinuation of Engineering Controls without an OER-approved amendment or extinguishment of the Declaration of Covenants and Restrictions.

18. Under this remedy, if a Track 1 remedy cannot be achieved, establishment in a recorded Declaration of Covenants and Restrictions, a series of site restriction Institutional Controls on the Site, including: (1) prohibition of vegetable gardening and farming; (2) prohibition of the use of groundwater without treatment rendering it safe for the intended use; (3) prohibition on all disturbance of residual contaminated material unless it is conducted in accordance with the provisions in the Site Management Plan; and (4) prohibition on higher level of land usage without an OER-approved amendment or extinguishment of this Declaration of Covenants and Restrictions.
19. Under this remedy, submission of a RAR which describes the remedial activities including any changes from this RAWP including the RAP approved by DEC, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any Engineering and Institutional Controls to be implemented at the Site.
20. Under this remedy, if Track 1 Objective is not achieved, an approved Site Management Plan will be submitted in the Remedial Action Report for long-term management of residual contamination, including plans for Institutional and Engineering Controls for: (1) inspection and certification, (2) monitoring, (3) operation and maintenance, and (4) reporting.