

A. INTRODUCTION

The potential for impacts relating to the presence of hazardous materials in soil, groundwater, and building materials resulting from previous and existing uses of the site are summarized here, based on a Phase I and Phase II Environmental Site Assessment performed by Langan Engineering & Environmental Services, P.C. (Langan), dated 6 January 2004; an ongoing remedial investigation started on 27 September 2004; correspondence from the New York State Department of Environmental Conservation (NYSDEC), dated 7 January 2004 related to the removal of underground storage tanks and 29 September 2004; and correspondence from the New York City Department of Environmental Protection (NYCDEP) containing their recommendations for addressing constituents of concern at the Site. The Phase I study included a visual inspection of the site; a review of existing data on geology and hydrology of the area; an examination of historical maps; interviews with persons knowledgeable about the site; and a review of federal and state databases regarding the site and surrounding areas. The Phase II study included sampling and analysis of soil and groundwater. As of February 2005, the ongoing site remedial investigation included a geophysical survey and additional sampling and analysis of the soil and groundwater. As of October 2005, additional soil, soil gas, and groundwater sampling has been performed, with data yet to be validated or published. The validated remedial investigation analytical data generated through February 2005 is included in Langan's February 2005 Soil and Groundwater Investigation Summary–Eastern Parcel and Park Area report submitted to the NYSDEC on 11 February 2005 under the auspices of the NYSDEC's Brownfield Cleanup Program (BCP). Current remedial investigation activities are being conducted pursuant to a Supplemental Remedial Investigation Work Plan dated March 2005, Addendum No. 1 dated 28 July 2005, and Addendum No. 2 dated 15 September 2005. The data being produced from the Supplemental Remedial Investigation (data produced after February 2005) has not been validated and is not available for publication.

B. EXISTING CONDITIONS**SITE CONDITIONS***GEOLOGY AND HYDROGEOLOGY*

The majority of the project site is relatively flat with elevations varying from approximately five to ten feet above mean sea level, according to the USGS Topographic Central Park, New York Quadrangle. The topography rises sharply along the eastern site limits along River Avenue. Elevations along River Avenue vary from 15 feet at 149th Street to 30 feet at the Metro North Bridge. The specific geology of the project site is summarized herein and is based on investigations as of February 2005.

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Surface cover is primarily composed of cobblestone, asphalt and concrete, with small areas of sand, vegetation and gravel. In general, fill composed of brick, asphalt, sand and gravel extends from beneath the surface cover to a depth of \pm el 0 (Borough President of Bronx Datum, which is 2.608 feet above USGS NGVD mean sea level at Sandy Hook, New Jersey). In the northeast portion of the site, where the elevation is higher, the fill layer generally raises to \pm el 15. On the west side of the site the fill is underlain by silty clay, which pinches out to the east. On the east side, the fill is generally underlain by sand. The depth to bedrock is \pm el 0 to \pm el -15 in the northeast corner of the project site and slopes down to the south and west to \pm el -40 to \pm el -70.

Groundwater underlying the site was found at \pm el 1 to \pm el 2.5. Groundwater was generally found to flow to the southwest toward the Harlem River, based on area topography and the monitoring of fifteen wells installed by Langan. This direction is generally consistent with regional maps published by the U.S. Geological Survey.

SITE HISTORY

Development at the site dates back to prior to 1891, based on Sanborn fire insurance maps. Historical operations included rail yards, toy and refrigerator manufacturing, a New York City Department of Sanitation (NYCDOS) facility, fuel oil storage, a paint shop, a lumber yard, a sawmill, photographic mounts manufacturing, a New York City Police Department motorcycle storage and/or maintenance facility, and a jailhouse (the Bronx House of Detention).

CURRENT CONDITIONS

The site contains four buildings constructed and modified at various times between the 1920s and the mid-1970s. These buildings include two wholesale food market buildings on the east side of Exterior Street (Buildings B and D), one wholesale food market building between Cromwell and River Avenues (Building C), and the Bronx House of Detention. The three market buildings now generally consist of vacant space and wholesale stores. The Bronx House of Detention is in reserve status, and is currently closed. Building A, a 6-story cold storage warehouse building formerly located on the northeast portion of the site, has been demolished because of its poor condition. (Building A was also referred to as Building WH-1 in some places in the DEIS.) The slab and foundation of the cold storage warehouse building remain intact.

PETROLEUM STORAGE TANKS

The Phase I and II reports and the remedial investigation identified the probable existence of 17 underground storage tanks on the project site, though none are active. Four tanks at the Bronx House of Detention, one of which had leaked, were removed in 2003. Four new tanks, to replace the former tanks, were installed in a similar location at the Bronx House of Detention following the removal. Eleven other tanks are listed as having been closed in place in 2001. Two other locations that may have underground tanks were identified: one under the sidewalk on the east side of Exterior Street, in front of a market building on the southern side of the site; and one in the location of the former NYCDOS garage facility (no longer extant).

One inactive aboveground storage tank was observed in the former Building A, which has since been demolished, with the tank removed. The New York State Spills database has records of five releases on the site, three of which have been closed to the satisfaction of the NYSDEC. One of the remaining spills related to a release contained inside a manhole; the other was a 2001 release at the Bronx House of Detention, which resulted in petroleum being released to the sewer system. Further details regarding this spill are provided in Langan's Phase I and II report.

POTENTIAL PCB USAGE

No transformers or related electrical equipment potentially containing PCBs were identified. Fluorescent light ballasts in fluorescent light fixtures may potentially contain PCBs, as may the hydraulic elevators in the former Building A.

HISTORIC FILL

The surface soil on the site is fill material of unknown origin placed prior to development. The fill material covers the entire site. Fill thickness ranges from approximately 6 feet to 25 feet. Observations during site investigation describe the fill as composed of sand, gravel, ash, asphalt, porcelain, brick, cobble, coal, wood, metal debris, and pottery. River mud and sand underlie the fill material. Decomposition of organic material in the river mud can generate methane gas; however, testing at seven locations on the project site revealed no detectable levels of methane. Additional sampling for methane is being performed as part of the ongoing remedial investigation under the BCP.

LABORATORY ANALYSIS OF SOIL AND GROUNDWATER SAMPLES

Phase II Environmental Site Investigation

The following is a description of the Phase II study pertaining to the project site. Samples were also collected on adjacent properties (i.e., west side of Exterior Street) but are not discussed herein. The Phase II study was conducted in November and December of 2003.

Soil borings were advanced at eight locations on the site, based on historic usage and locations of underground storage tanks. Groundwater samples were collected from two observation wells. Locations of groundwater samples were based on historic usage of hazardous materials.

For the soil samples, no individual or total volatile organic compounds (VOCs) or PCBs were detected above the most stringent guidelines in NYSDEC's Technical and Administrative Guidance Memo (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs). As expected for fill material on a former industrial site, all the samples exceeded one or more of the RSCOs for individual semi-volatile organic compounds (SVOCs) and for metals, but the levels of total SVOCs were below 500 ppm and the levels of metals, though above normal background levels, were generally typical of urban conditions.

Although some exceedances of NYSDEC Technical and Operational Guidance Series (TOGS) Ambient Water Quality Standards (AWQS) Class GA standards were found in the groundwater samples, these standards were calculated assuming use as drinking water, and groundwater is not used for potable supply in the Bronx. In addition, the levels of sodium, calcium, magnesium, iron, and manganese are consistent with the natural brackish condition resulting from the proximity to the tidal Harlem River.

BCP Remedial Investigation

For the purpose of the BCP, the original project site (which included the area west of Exterior Street) was initially split into two parcels: the Western Parcel (i.e., the area west of Exterior Street), and the Eastern Parcel (the project site) and Park Area (i.e., the 2-acre area west of Exterior Street to be developed by the City as a public open space). The project sponsor and NYSDEC entered into a Brownfield Cleanup Agreement (BCA) for each parcel. No additional investigation beyond the Phase II was performed or is planned for the Western Parcel. In

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October 2005, the Park Area was removed from the Eastern Parcel and Park Area BCA. The revised area (the project site) is shown on Figure 11-1. Additional investigation beyond the Phase II was performed for the Park Area. While this investigation is not described in this chapter, the results confirmed the findings of the Phase II study, which was described in the DEIS.

Post Phase II site work, summarized herein, was performed under the auspices of the BCP. The results of the investigation implemented up to February 2005 are included in Langan's Soil and Groundwater Investigation Summary–Eastern Parcel and Park Area report, dated February 2005. The following is a summary of the report as it pertains to the project site.

A geophysical survey was performed on areas suspected of containing USTs from 27 September to 1 October 2004. The geophysical survey provided evidence that the tank at the former NYSDOS facility and the tank under the sidewalk on the eastern side of Exterior Street exist. Information on these two tanks can be found in Langan's Phase I.

In addition, soil borings were advanced at 51 locations to delineate the findings of the Phase II and further investigate historic usage and potential impacts due to the underground storage tanks. Groundwater samples were collected from the two Phase II observation wells and 11 wells installed during the remedial investigation. Locations of groundwater samples were based on historic usage of hazardous materials. Field observations obtained from 27 September 2004 to 18 January 2005, both visually and with field instrumentation, found several locations with petroleum contaminated soil. Locations where petroleum contaminated soil were observed can be found in the Soil and Groundwater Investigation Summary.

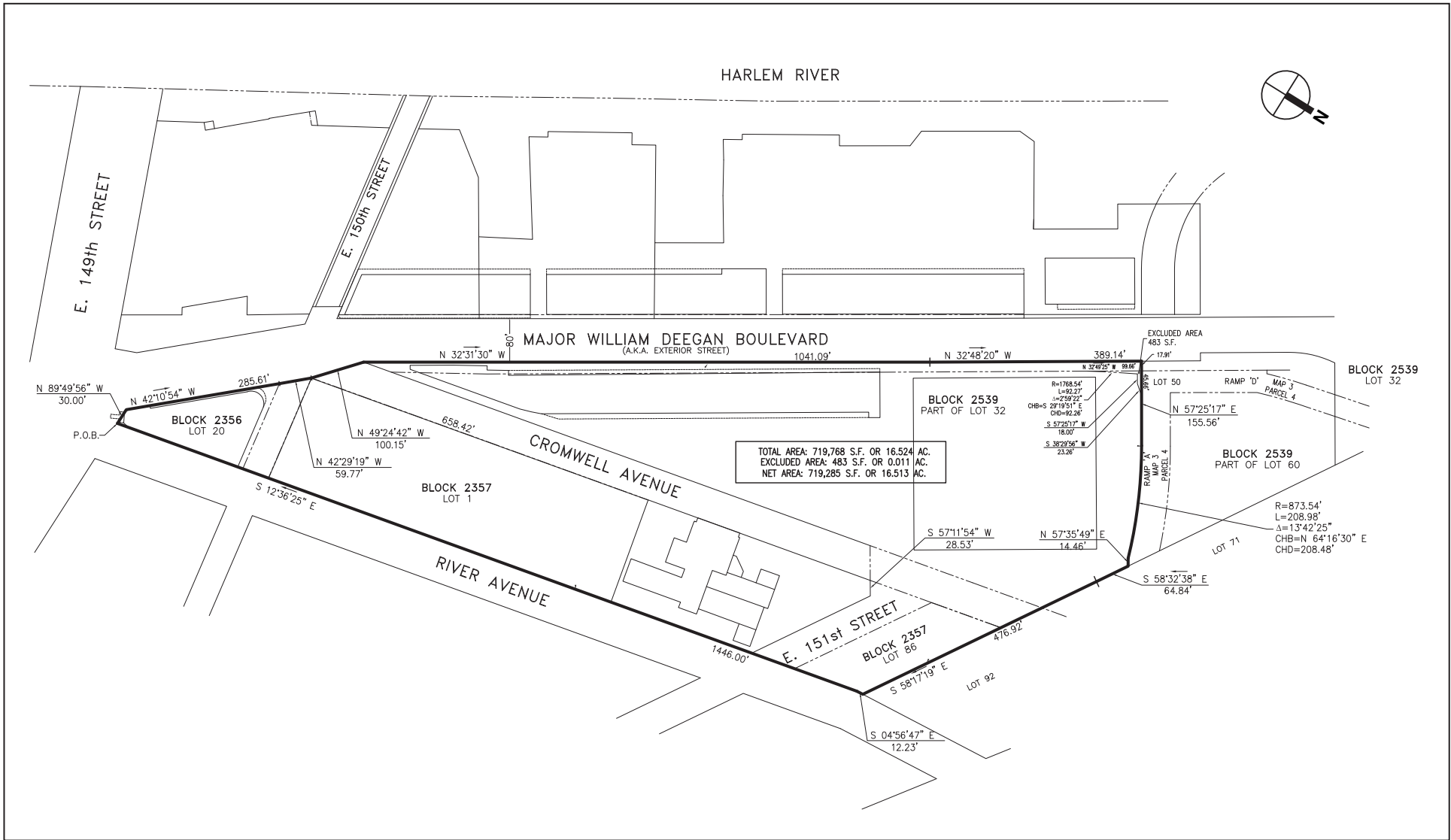
Visual petroleum staining and odors were observed, at varying depths and thicknesses of up to 12 feet in fill above the water table. The thickest (± 8 feet) layer of petroleum staining and odor was observed adjacent (immediately west) to the triangular building on the south side of the site. Petroleum impacted soil as evidenced by elevated PID readings, staining and/or odor was observed in multiple borings in eight areas (see Figure 11-2):

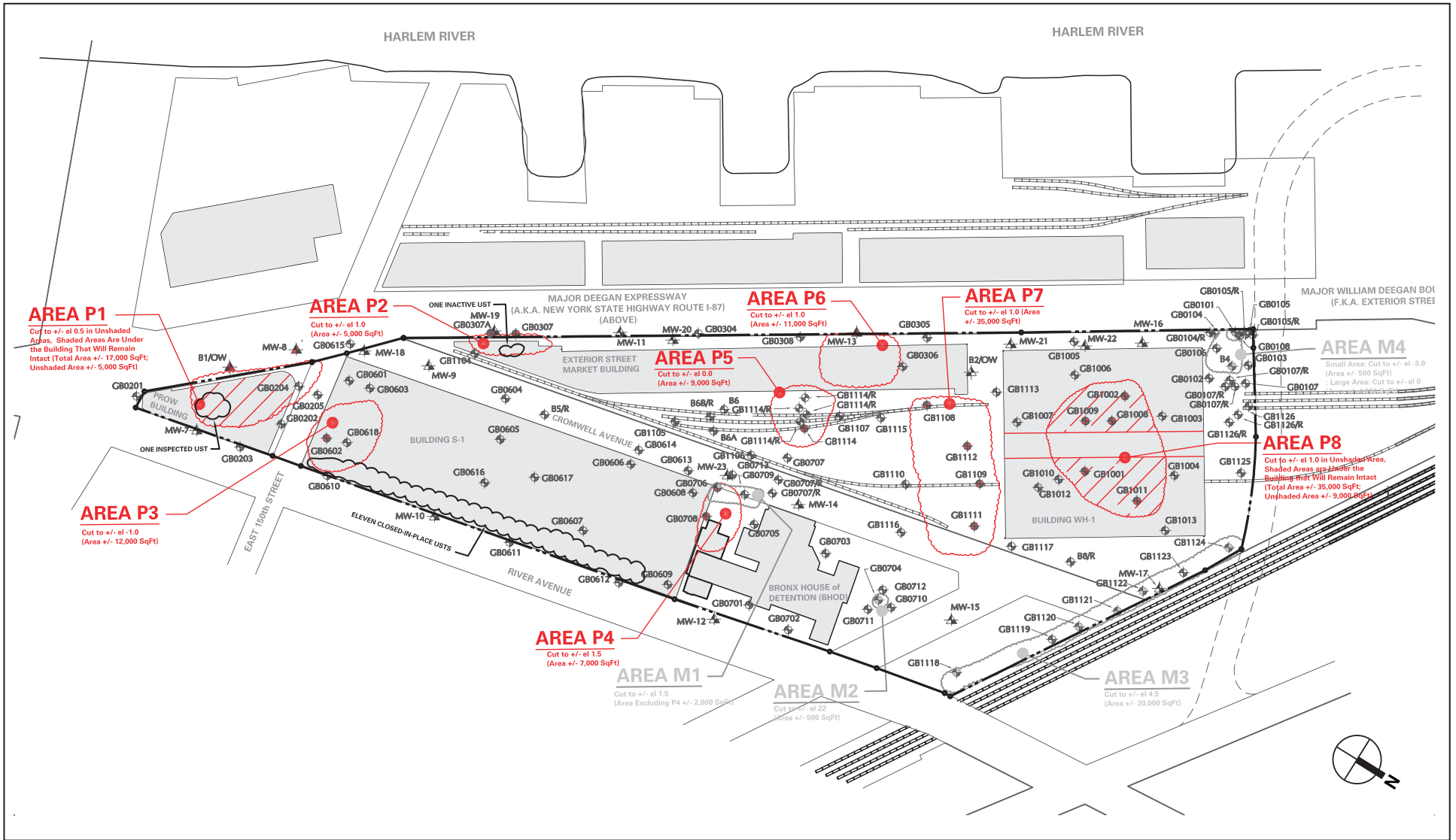
- Two areas under the floor slab within Building A,
- South of Building A,
- The Bronx House of Detention UST area,
- Two areas in market buildings along Exterior Street,
- One area under the floor slab within Building C, and
- Under Building D.

The volume of petroleum contaminated soils on the project site, based on investigation activity as of February 2005, is estimated to be approximately 20,000 cubic yards.

It is anticipated that additional sampling to be conducted in certain areas of the project site will identify additional petroleum contaminated soil. Given the circumstances of development, it is also anticipated that additional petroleum contaminated soil will be discovered during construction. Accordingly, to be conservative, it could reasonably be assumed that the volumes calculated above might increase by up to 30 percent and that an additional 6,000 cubic yards of contaminated soil may be discovered in conjunction with upgrading the utilities under Exterior Street.

Analytical data indicates that the general fill across the site contains minor SVOC and metals concentrations above TAGM RSCOs. This is attributed to the historic nature of the fill and is





typical of fill found in urban environments. Three areas exhibiting lead and/or mercury concentrations above TAGM RSCOs and atypical lead and mercury concentrations throughout the rest of the project site were discovered, which may be associated with uncharacteristic constituents of historic fill and/or prior uses; two on the BHOD property and one northwest of the former storage warehouse (Building A). As of September 2005, these areas were being more precisely delineated with additional soil sampling and analysis.

Based on the proposed construction requirements, all petroleum contaminated soils and atypical soils containing lead and mercury will be properly removed, transported by a licensed carrier, and disposed at a permitted off-site facility in accordance with NYSDEC regulations. The procedures and protocols are discussed in more detail in Section D below. The only exceptions to this removal will be the areas underlying the foundation of the former Building A and existing Building D, where limited amounts of petroleum-contaminated soil are intertwined with building foundation components. Limited removal will occur in the Building A foundation area because the existing foundation will remain and become an integral part of the foundation for the planned retail building. Building D will remain in its entirety in order to preserve it as a historic resource, and will be renovated for reuse as an integral part of the overall development. Contaminated soil beneath these foundations must remain in place because possible dewatering and excavation under pile caps would require dangerous, confined space hand work and would risk damage to the remaining building structures. These limited areas of petroleum contaminated soil can be safely left in place, because vapor barriers or sub-slab depressurization system (SSDS) will protect future occupants from potential exposure to vapors associated with the petroleum-contaminated soil that have the potential to enter the structures. Furthermore, the monitoring wells installed downgradient of Buildings A and D indicate that contaminants are not migrating from these areas; thus, leaving these soils in place should not affect groundwater quality. The use of a vapor barrier and/or a SSDS in the proposed Retail Buildings C and E.2 will be determined depending on the results of ongoing site-wide soil gas sampling that is being undertaken as part of the BCP remedial investigation (discussed below). In the case of the open parking garage, natural ventilation will prevent health impacts from soil vapor intrusion. The enclosed parking garage under Retail Building B/F will have a ventilation system independent from the retail structures above it, the ventilation system of which will effectively collect and exhaust intrusive vapors.

Other than the observed petroleum impacts (visual staining, petroleum odor, and/or elevated PID readings) and elevated SVOC and metal concentrations, the analytical results for the soil samples indicated no PCBs, pesticide or herbicide concentrations above the TAGM 4046 RSCOs.

No soil samples contained VOCs above the TAGM with the exception of an acetone exceedance in one sample. Acetone is used for decontamination of sampling equipment in the field. Its presence in the analytical results is likely due to incomplete cleaning and not to actual soil conditions. Similar to the Phase II investigation, all the samples from the post-Phase II investigation exceeded one or more of the RSCOs for individual PAHs and metals, the levels of total SVOCs were less than 500 ppm, and the levels of metals, though above normal background levels, were generally typical of urban fill.

Although some exceedances of AWQS Class GA standards were found in the groundwater samples, these standards were calculated assuming use as drinking water, and as noted above groundwater is not used for potable supply in the Bronx. In addition, as with respect to the Phase

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II results, all samples had high sodium levels consistent with the natural brackish condition resulting from the proximity to the tidal Harlem River.

The post-Phase II investigation (remedial investigation) was completed in October 2004. Following a review of the results, a Supplemental Remedial Investigation under the BCP, pursuant to a work plan (SRIWP) began on 21 September 2005 to more precisely delineate and characterize the project site. The SRIWP scope includes: (1) 26 direct push soil borings to further delineate findings of previous investigations; (2) soil gas sampling from fifteen locations to determine the need for vapor barriers or SSDS associated with proposed site structures; (3) nine surface samples to characterize soil on the north and northeast sides of the site; (4) installation of six groundwater monitoring wells to further evaluate project site groundwater; (5) post-slab removal screening and sampling under structures to be demolished to provide a more complete characterization of the site; and (6) groundwater sampling from the 13 existing and six new monitoring wells to provide a more complete characterization of the groundwater.

ASBESTOS AND LEAD-BASED PAINT

Asbestos was formerly used as a component of many building materials and was also used in fireproofing materials. Lead was formerly used in paint to coat exterior and interior surfaces, equipment, structural members of buildings and various other surfaces. A comprehensive asbestos and lead survey of all structures on the site was conducted on behalf of the applicant in 2003 by Hillman Environmental Group in accordance with U.S. Environmental Protection Agency and Asbestos Hazardous Emergency Response Act (AHERA) recommended procedures. This survey included the sampling of all suspect materials to confirm the presence or absence of asbestos and lead. Typical for buildings constructed prior to the 1960s, several buildings on the site contain asbestos-containing material. Sampled materials from site buildings were found to contain asbestos.

C. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the Proposed Project, it is assumed that there would be minimal changes in the use of the project site. In the absence of the Proposed Project, there would be no cleanup at the project site.

D. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

As noted above, the project sponsor has entered into agreements with NYSDEC under the auspices of the BCP to investigate and, where necessary, remediate contamination on large portions of the site as part of its redevelopment. There were initially two Brownfield Cleanup Agreements (BCAs) for two portions of the original project site. One BCA was initially for the Eastern Parcel and Park Area, but was amended to exclude the Park Area in October 2005. This is the BCA that applies to the project site, as shown in Figure 11-1. The second BCA is for the Western Parcel (i.e., the area north of the proposed open space to be developed by the City, and west of Exterior Street), which is no longer part of the proposed action.

It is assumed that the off-site area to be developed by the City as a public open space would be remediated as part of that development.

Under the BCA for the project site, a draft Remedial Work Plan (RWP) would be submitted to NYSDEC and the New York State Department of Health (NYSDOH) after the completion of an Investigation Report describing and characterizing the environmental conditions of the project

site. The RWP would include remedial actions, as necessary, to be performed before, during, and/or after construction of the Proposed Project. NYSDEC, NYSDOH, and NYCDEP would review this plan, and the public would be provided the opportunity to submit comments. The RWP would include a Health and Safety Plan (HASP), Community Air Monitoring Plan (CAMP), Soil Management Plan (SMP) and a description of site engineering controls to include surface cover requirements and building vapor barriers. Following approval, NYSDEC would monitor implementation of the RWP in accordance with the terms of the BCA. Upon completion of the remedial action consistent with the RWP, a final engineering report would be submitted for NYSDEC's approval.

The BCP is designed to encourage the private sector to acquire and reuse contaminated real estate through a comprehensive program of rigorous investigation to document the environmental conditions on a site, detailed remedial design and remedial action oversight, along with a public participation element. To meet the BCP requirements for public participation, the sponsor has developed and submitted a Community Participation Plan (CPP) to NYSDEC for each parcel included in the BCP.

Without appropriate controls, there would be a potential for adverse impacts resulting from the presence of subsurface contamination, as well as asbestos-containing materials (ACMs) and lead-based paint in the site's buildings, since demolition, excavation and construction activities could disturb hazardous materials and increase pathways for human exposure. However, impacts would be avoided by performing construction activities in accordance with the following protocols that will be detailed in a RWP:

- Prior to construction or as part of initial construction activities for the project, additional investigation (if necessary) and/or remediation of all identified areas of contaminated soil and removal of all remaining petroleum storage tanks (and any associated dispensers, piping, fill ports, and contaminated soil) found to require remediation or removal by the project sponsor in conjunction with NYSDEC, NYSDOH, and NYCDEP, would be performed in accordance with applicable federal, state, and local requirements. This will include the proposed work described in Section B. The specific remedial objectives will be developed in close coordination with NYSDEC and NYSDOH (with input from NYCDEP), and will primarily be based on health risk-based analysis of the data accumulated during all investigation activities at the site and future development and use of the site. At this time, the available data suggest that remediation will consist of excavation and proper off-site disposal of petroleum contaminated soil, metal hot spot soil that is not consistent with the site fill, and other non-reusable petroleum contaminated fill materials, and removal of all above and below ground storage tanks in accordance with NYSDEC regulations. After excavation of the impacted soil and the underground storage tanks, end point soil samples will be collected in accordance with NYSDEC requirements to confirm that remedial objectives have been met.

The only exception to this removal will be the areas underlying the foundation of the former Building A and the existing Building D, where limited amounts of petroleum-contaminated material is intertwined with building foundation components. Limited removal will occur in the Building A foundation area because the existing foundation will remain and become an integral part of the foundation for the planned retail building. Building D will remain in its entirety in order to preserve it as a historic resource. Petroleum-contaminated soil beneath these foundations must remain in place because possible dewatering and excavation under pile caps would require dangerous, confined space hand work and would risk damage to the

piles. These limited areas of petroleum contaminated soil can be safely left in place, because sub-slab depressurization systems (SSDS) will protect future occupants from potential exposure to vapors associated with a petroleum-contaminated soil that have the potential to enter such structures. The monitoring wells installed downgradient of Buildings A and D indicate that contaminants are not migrating from these areas.

In addition, there is a potential need for a vapor barrier and/or a SSDS under proposed Retail Buildings C and E.2 (in addition to the former Building A and the existing Building D, to become Retail Buildings A and E.1, respectively). The need for such measures will be determined (in consultation with the appropriate agencies) upon evaluation of soil gas, groundwater, and soil remedial investigation results. A determination will be made as to the necessity of an appropriate vapor barrier, which would be chemically compatible with the constituents present in the soil gas and thereby would provide long-term protection from exposure. Any necessary vapor barriers and/or a SSDS would be incorporated into the design plan for Retail Buildings C and E.2. The conceptual design of the vapor barrier system and/or SSDS will be provided in the RWP and submitted to the NYSDEC, NYSDOH, and NYCDEP for review and approval. In the case of the open parking garage, natural ventilation will prevent health impacts from soil vapor intrusion. The enclosed parking garage under Retail Building B/F will have a ventilation system independent from the retail structure above it, the ventilation system of which will effectively remove vapors that enter that building.

- If dewatering were required for construction, there would be a potential for contact with contaminated groundwater. Although testing to date indicates that the majority of the Site's groundwater would meet NYCDEP sewer discharge requirements, additional testing would be performed, as conditions may vary around the site, and if necessary pretreatment would be conducted prior to the water discharge to the City's sewer system, as required by NYCDEP permit/approval requirements.
- Since much of the soil sampled does not meet the most stringent guidelines for unrestricted use, landscaped areas of the proposed development would be capped with at least two feet of imported acceptable soil.
- All activities involving disturbance of existing soils would be conducted in accordance with a HASP that would detail measures, including health and safety guidelines and work practices, to reduce the potential for exposure (e.g., dust control). The procedures would be developed through evaluation of the suspect contaminants and the work to be performed. Contingencies to address potential hazards would be included. Workers that have the potential to come in contact with contaminated materials would be required to read, understand, and implement the procedures specified in the HASP. The HASP would include both a worker and community air monitoring plan to detect and respond to any emissions of vapors or dust from the site.
- A SMP would describe the procedures to identify and manage known contamination and unexpectedly encountered contamination. In the event that soil containing petroleum or other potentially contaminated materials is discovered during excavation activities (e.g., through staining, discoloration, or odor), such soil would be segregated, stockpiled, sampled for characterization purposes sufficient to meet the requirements of the applicable disposal facility, transported off-site by a licensed transporter, and disposed of in an approved treatment or disposal facility in accordance with all applicable federal, state, and local

regulations and guidelines. Soil with no indication of petroleum or other contamination would be sampled to determine whether it could be reused on-site under impervious surfaces or the acceptable imported soil cap.

- To protect workers and the general public during site preparation and construction activities, dust control measures would be undertaken. These would typically include such measures as fine sprays of water, mist curtains, or chemical foams within the excavation area. Tarpaulins will be used to cover stockpiled or staged soils. Dust generated by other construction activities would be suppressed by spraying water during dry weather, cleaning vehicles and other equipment prior to leaving the site, placing gravel on areas of exposed soil used for vehicle activities, covering the trucks with a tarp prior to leaving the site, and sequencing construction activities to minimize areas of exposed soil.
- The ACM identified in the comprehensive asbestos survey would be removed and disposed of in accordance with all federal, state, and local regulations.
- Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62 - Lead Exposure in Construction).
- Upon completion of the remedial activities described above, it is anticipated that institutional controls would be put into place to assure the long-term protection of public health and the environment. Those institutional controls would include, among other things, an environmental easement, as required by participation in the BCP, which would allow only commercial use of the site. Institutional controls would be supplemented with engineering controls to inspect and maintain the acceptable soil cover over open space/landscaped areas, and asphalt and concrete cover over other areas, and to prevent any vapor intrusion into site buildings through the use of vapor barriers and/or SSDS to prevent human exposure.

With the implementation of these measures, no significant adverse impacts related to hazardous materials would result from demolition and/or construction activities on the project site. Following construction, there would be no further potential for the Proposed Project to have significant adverse hazardous materials impacts. *