A. INTRODUCTION

This chapter presents the findings of the hazardous materials assessment and identifies potential areas of concern with respect to workers, the community, and/or the environment during construction or after development of the Proposed Actions. The potential for hazardous materials at the site was evaluated based on: a November 2008 Phase I Environmental Site Assessment (ESA) and an October 2009 *Subsurface (Phase II) Investigation* of the western portion of the property, both conducted by AKRF Inc. and an August 2009 *Phase II Environmental Site Investigation* of Public School 51 (P.S. 51) and the vacant warehouse building (515-533 West 44th Street) conducted by Fleming-Lee Shue, Inc. The scope of the Phase I ESA included a reconnaissance of the Project Site and surrounding neighborhood, a review of data on the geology and hydrogeology of the area, an examination of historical maps, a review of New York City Department of Buildings records, and a review of pertinent federal and state databases. The Phase II investigations included the advancement of 18 borings and the analysis of 27 soil samples, 5 groundwater samples, and 6 soil vapor samples.

PRINCIPAL CONCLUSIONS

The Phase I ESA identified issues including Recognized Environmental Conditions for the Project Site including potential underground and above-ground storage tanks, asbestos containing materials, lead-based paint, and urban fill of unknown origin.

To characterize subsurface conditions prior to construction, a Subsurface (Phase II) Investigation was undertaken for the residential portions of the Project Site, including the collection and laboratory analysis of soil and groundwater samples. Low levels of contamination were found in the western portion of the Project Site near a potential tank location. As part of any future construction, any tanks encountered would be uncovered, investigated and removed (along with any associated contaminated soil) in accordance with applicable regulatory requirements.

Fleming-Lee Shue, Inc. conducted a Phase II Environmental Site Investigation to confirm subsurface conditions on the portion of the Project Site to be used for construction of the new P.S. 51 school building. Based on the findings of this investigation, the School Construction Authority (SCA) would develop management plans (e.g., soil management plan, groundwater management plan, and construction health and safety plans) to address any hazardous materials that may be encountered during construction of the new school. The management plans prepared by SCA would be separate from the remainder of the Proposed Project but would include comparable measures to protect the health and safety of construction workers, school staff and students, and the public during construction and subsequently during occupancy.

The measures identified above for both the project sponsor, 44th Street Development LLC, and the SCA would be included as part of the Proposed Project to avoid the potential for significant adverse impacts due to hazardous materials. The measures identified for the residential portions of the Project Site would be incorporated into the Land Disposition Agreement (LDA) between

HPD and 44th Street Development LLC. Under the terms of its enabling legislation, the New York City School Construction Authority (SCA) would provide the measures described above in compliance with the requirements of the State Environmental Quality Review Act (SEQRA).

B. EXISTING CONDITIONS

TOPOGRAPHY AND SUBSURFACE CONDITIONS

Based on the U.S. Geological Survey Central Park Quadrangle map, the majority of the Project Site lies at an elevation of approximately 25 to 30 feet above sea level and slopes gradually down to the west. The railroad right-of-way running north-south along the eastern boundary of the Project Site is approximately 20 feet below grade. During the Phase II Investigations, bedrock was encountered between 2 and 16 feet below ground surface (bgs), and groundwater was encountered between 10 and 19 feet bgs. Groundwater most likely flows in a westerly direction toward the Hudson River, located approximately 1,000 feet west of the Project Site. Actual groundwater flow and depth at the site can be affected by many factors, including past filling activities, underground utilities and other subsurface openings, or obstructions such as basements, underground parking garages, tunnels, bedrock geology, and other factors beyond the scope of this study. Groundwater in Manhattan is not used as a source of potable water.

PHASE I FINDINGS

- The Phase I ESA for the Project Site identified the following:
- According to historical Sanborn maps and local records, five underground gasoline storage tanks were located at the parking lot along 11th Avenue. Documentation regarding the closure or removal of these historical tanks was not available. The regulatory database search conducted did not identify registration of these tanks.
- A fuel oil fill cap was observed in the sidewalk adjacent to the vacant warehouse building at 527 West 44th Street. However, access to the basement of this building was prevented by debris. A petroleum storage tank may be present in or beneath the basement of this building.
- An out-of-service boiler was observed in the basement of 522 West 45th Street (Shamrock Stables). Copper piping from the boiler indicated the potential presence of an associated underground storage tank. However, no evidence of a tank was noted during AKRF's site visit, and the regulatory database search conducted did not identify tanks at this site.
- Two 2,500-gallon fuel oil aboveground storage tanks (ASTs) were observed in the basement of 520 West 45th Street (P.S. 51). No leaks or staining were observed in the vicinity of the boilers or tanks. These tanks were identified as being registered with the New York State Department of Environmental Conservation (DEC) in the regulatory databases.
- A portion of the Project Site, located at 520 West 45th Street (P.S. 51), was listed as a conditionally exempt generator of hazardous waste. The site was reported to generate mercury and lead wastes in 2000 and 2004, respectively.
- Sanborn maps indicated that the Project Site was historically developed with manufacturing/industrial facilities, including a metal works facility, a foundry, a taxi terminal with gasoline tanks, and the National Gum and Mica Company. A railroad right-of-way was present at the site since prior to 1930.
- The site is likely underlain by urban fill of unknown origin.
- Suspect asbestos-containing materials (ACM) were observed at the Project Site buildings, including vinyl floor tiles, fireproofing material, mastic, wallboard, suspended acoustical

ceiling tiles, pipe wrap insulation along steam pipes, and built-up roofing and flashing materials. Additional suspect ACMs not viewed may be present within pipe chases, above ceiling tiles, behind walls, beneath carpeting and floor tiles, or in other hidden locations.

- Painted surfaces at the Project Site buildings were observed to be in poor to good condition. Based on the age of these buildings, lead-based paint may be present.
- Based on the age of the buildings, electrical equipment, fluorescent lights and lighting fixtures may include polychlorinated biphenyls (PCB)-containing components and/or mercury-containing components. No leakage was noted during the site inspection.
- Industrial and commercial facilities have historically occupied the area surrounding the Project Site. Reported and unreported spills from these sites may have affected local groundwater quality, which may have migrated to the Project Site.

PHASE II FINDINGS

AKRF's Subsurface (Phase II) Investigation for the residential portion of the Project Site consisted of a geophysical survey and the advancement of nine borings with the collection of eighteen soil samples and one groundwater sample. Soil observed during this investigation consisted of sand with gravel, brick and glass fragments (urban fill). Potential indications of contamination (e.g., somewhat elevated PID readings or slight odors) were detected in the western borings (SB-1 through SB-3). Analytical findings were as follows:

- Low levels of volatile organic compounds (VOCs) below NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs), typically associated with gasoline were found in the western borings (SB-1 through SB-3), nearby the potential tank location identified on the 1951 Sanborn map. 17 of 18 soil samples contained PAHs, generally associated with combustion byproducts and of a type and at a level consistent with urban fill, rather than a release or a spill. Similarly, types and levels of metals in soil samples were consistent with urban fill. Several pesticides were detected in 3 of the 18 samples, but all at levels below their respective guidelines, and no PCBs were detected in any soil samples.
- Groundwater sampling results were compared to the NYSDEC Class GA Ambient Water Quality Standards (i.e., drinking water standards). No VOCs, PCBs or pesticides were detected above the standards. One semi-volatile organic compound (SVOC), bis(2-ethylhexyl)phthalate, was detected in the groundwater sample slightly above the Class GA Standard, but as noted above this compound is commonly found in plastics and may be a laboratory artifact. Results of the total metals showed elevated levels of several metals, while the results of the dissolved metals analyses revealed exceedances for only manganese, selenium, and sodium. The metals detected in the unfiltered samples are likely associated with particulates suspended in the groundwater as a result of pumping the wells during sampling. The exceedances detected in the filtered samples were likely naturally-occurring. In summary, groundwater results were not indicative of a petroleum (or other) spill or release.
- The geophysical survey did not identify any potential underground anomalies, (i.e., the survey did not identify the potential tanks identified on the 1951 Sanborn map); however, a fill port was identified in this area.

Fleming-Lee Shue, Inc.'s investigation for the proposed new school portion of the Project Site included the advancement of nine borings, the installation of four groundwater wells, and the collection of six soil vapor samples, nine soil samples, and four groundwater samples. A

geophysical survey did not identify the presence of any USTs. Fleming-Lee Shue, Inc. concluded the following:

- The fill material historically placed at the site contains concentrations of select SVOCs and metals which exceed the NYSDEC Unrestricted Use SCOs.
- The soil vapor analysis indicated that trichloroethene (TCE) and tetrachloroethene (PCE) were detected at concentrations that exceeded the New York State Department of Health (NYSDOH) Air Guidance Values (AGVs). Based on the Matrices of the NYSDOH Vapor Intrusion Guidance Document, monitoring would be required at a minimum and, if corresponding indoor air concentrations exceeded 0.25 parts per billion (ppb) of TCE or 3 ppb of PCE, mitigation would be required.
- TCE was detected in three of four groundwater samples analyzed, two of which exceeded the NYSDEC Ambient Water Quality Standard. TCE was detected at higher concentrations in upgradient wells indicating it may be attributable to off-site sources.

C. THE FUTURE WITHOUT THE PROPOSED ACTIONS

This analysis assumes that in the Future without the Proposed Actions, the Project Site will continue in its current uses. Although there is potentially subsurface contamination from past on- and off-site activities, subsurface disturbance would not be anticipated in the Future without the Proposed Actions.

D. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

There is a potential for adverse impacts during construction activities resulting from the presence of subsurface contamination from past on- and off-site activities. Demolition and excavation activities for the proposed residential portion of the Project Site could disturb hazardous materials and increase pathways for human exposure. However, impacts would be avoided by performing these activities in accordance with the following:

- Unless there is documentation of previous asbestos surveys or abatement, a comprehensive asbestos survey of the affected areas would be conducted prior to demolition. If materials prove to contain asbestos, they would be properly removed and disposed of in accordance with all applicable regulations by a licensed asbestos abatement contractor.
- 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).
- Prior to demolition or renovation, fluorescent light fixtures and other electrical equipment requiring disposal would be managed in accordance with applicable requirements.
- Prior to any demolition activities, all known on-site petroleum storage tanks would be properly closed and removed in accordance with all applicable regulations. Any tanks encountered during excavation would be uncovered, investigated and removed (along with any associated contaminated soil) in accordance with applicable regulatory requirements. Any unregistered tanks would be registered with the New York State Department of Environmental Conservation (DEC). If applicable, spill reporting would be conducted, and contaminated soil/groundwater handled and disposed of in accordance with applicable requirements.
- Any excavated soil requiring off-site disposal would be managed in accordance with applicable requirements, and, as necessary, tested in accordance with the requirements of the

intended receiving facility. Transportation of all material leaving the site would be in accordance with applicable requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.

- If dewatering is required, the water must be handled and disposed in accordance with local, state and federal requirements, possibly including onsite treatment prior to permitted discharge to sewer or the river in accordance with the appropriate city or state approval.
- Based on the results of the Phase II testing of the proposed school site, there is a potential that residual VOCs will also be encountered elsewhere on the Project Site (though similar conditions were not found in the sampling of the proposed residential portion of the site). Should such conditions be encountered, vapor control for new residential buildings could be required, likely consisting of a vapor barrier sytem surrounding the foundations.
- The Phase I ESA and the results of all Phase II testing for the residential portions of the Project Site would be submitted to the New York City Department of Environmental Protection (DEP). Subsequent testing (if required) and any required measures for the residential portions of the Project Site (including the existing P.S. 51 site) would be implemented through a DEP-approved Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP). The RAP would include detailed soil management plans outlining the excavation and removal of contaminated soil along with the importing of clean fill, and details of the installation of a vapor barrier system (if required). The CHASP would include general site safety rules, including the appropriate levels of protection that should be followed by on-site workers, industrial hygiene monitoring, material safety data sheets, dust suppression measures, air monitoring procedures and response, and identification of the nearest medical facility to the site. Following the conclusion of activities involving subsurface disturbance on the residential portions of the Project Site, a Professional Engineer (P.E.) certified Closure Report documenting that all requirements have been properly implemented would be submitted to HPD and DEP for review and approval.

The measures identified above for the residential portions of the Project Site would be incorporated into the LDA between HPD and 44th Street Development LLC.

The SCA is an Involved Agency and would be responsible for the design and construction of the new school facility on the Project Site. Under the terms of its enabling legislation, the SCA must comply with the requirements of SEQRA. Therefore, the SCA conducted a Phase II Environmental Site Investigation to assess subsurface conditions on its portion of the Project Site. Based on the findings of the Phase II, the SCA would develop necessary management plans (e.g., soil management plan, groundwater management plan, CHASP) to address any hazardous materials that may be encountered during construction of the new school. Vapor control systems are incorporated into the design of all new SCA schools. The management plans prepared by SCA would be separate from the RAP and CHASP prepared by 44th Street Development LLC for the remainder of the Proposed Project site but would include comparable measures to protect the health and safety of construction workers, school staff and students, and the public during construction and subsequently during occupancy.

With the implementation of these measures as part of the Proposed Project, no significant adverse impacts related to hazardous materials would result from construction activities at the Project Site. Following construction, there would be no potential for the Proposed Actions to result in significant adverse impacts. ✷