

A. INTRODUCTION

This chapter presents the findings of the hazardous materials assessment and identifies potential issues of concern with respect to workers, the community, and/or the environment during construction and after implementation of the Cornell NYC Tech project.

The project site includes the existing Goldwater Hospital, surrounding parking areas, and open space. The potential for hazardous materials was evaluated based on a May 2011 *Phase I Environmental Site Assessment* (ESA) and a July 2011 *Subsurface (Phase II) Investigation* of the project site. Both reports have been reviewed by the New York City Department of Environmental Protection (NYCDEP).

The proposed project would entail the demolition of the existing Goldwater Hospital buildings, followed by the construction of new academic, residential, corporate co-location, and Executive Education Center buildings and publicly accessible open space. The new construction would occur in stages and would entail subsurface disturbance (e.g., for building basements, foundations, underground parking garages and subsurface utilities).

As discussed in this chapter, to reduce the potential for human or environmental exposure to known or unexpectedly encountered contamination during and following construction of the proposed project, a Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP), approved by NYCDEP, would be implemented during project construction. The RAP would address requirements for items such as soil stockpiling, soil disposal and transportation; dust control; dewatering procedures; quality assurance; procedures for the closure and removal of the known petroleum storage tanks; and contingency measures, should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, air monitoring including community air monitoring, and emergency response procedures). In addition, during and following construction of the proposed project, regulatory requirements pertaining to asbestos-containing materials (ACM), lead-based paint, polychlorinated biphenyls (PCBs) and chemical use and storage would be followed. As described in more detail in this chapter, with these measures, the proposed project would not result in any significant adverse impacts related to hazardous materials.

B. EXISTING CONDITIONS**SUBSURFACE CONDITIONS**

The project site lies at an elevation of approximately 13 to 23 feet above mean sea level, sloping down toward the east and west shorelines. Geotechnical borings advanced at the present location

of Building J¹ of the existing Goldwater Hospital encountered sand with silt, gravel, urban fill materials, and/or organic matter with a thickness of approximately 3 to 20 feet, underlain by a layer of decomposed bedrock (generally less than 5 feet thick), with competent bedrock beneath. Geotechnical borings advanced approximately 300 feet north of the project site (near the Queensboro Bridge) and approximately 50 feet west of the project site (near the western shore of the Island) encountered generally similar subsurface conditions and noted that fill materials included sand, gravel, and ash.

Borings advanced during the Subsurface (Phase II) Investigation encountered groundwater at depths ranging from approximately 12 to 15 feet below grade. Groundwater beneath the project site would be expected to flow outward from the center of the project site toward the surrounding East River (a tidal strait). However, actual groundwater depth and flow direction can be affected by many factors including subsurface openings or obstructions such as basements, underground utilities, tunnels (including a utility tunnel extending partially under and north from the project site, the 60th Street subway tunnels approximately 400 feet to the north, the 63rd Street subway tunnels and East Side Access tunnels approximately 1,200 feet to the north, and the 53rd Street subway tunnels approximately 400 feet to the south), bedrock geology, and other factors. Groundwater on Roosevelt Island is not used as a source of potable water (the municipal water supply uses upstate reservoirs).

HAZARDOUS MATERIALS ASSESSMENT

PHASE I ENVIRONMENTAL SITE ASSESSMENT

The scope of the Phase I ESA included a reconnaissance of the project site and surrounding area and review of a variety of information sources, including recent and historical Sanborn fire insurance maps, environmental regulatory agency databases identifying state and federally listed sites, engineering site plans, and geotechnical data. The Phase I ESA identified the following:

- Three diesel aboveground storage tanks (ASTs) ranging from 110 to 330 gallons and a 5,000-gallon diesel underground storage tank (UST) were located on the project site. No reported spills were associated with these tanks. Although an address consistent with the project site was listed in regulatory databases as a Major Oil Storage Facility (MOSF), i.e., more than 400,000 gallons of petroleum storage capacity, Goldwater Hospital representatives indicated that with the exception of the tanks described above, the tanks noted in the MOSF listing were actually located off-site, approximately 450 feet to the north at the steam plant. Similarly, although nine closed-status petroleum spills were reported for an address consistent with the project site, according to hospital representatives, these also pertain to the steam plant. Regulatory databases also listed a minor closed-status mercury spill in a utility room either on-site or (more likely) at the steam plant.
- The project site, sparsely developed by 1892, included a prison prior to the construction of the Goldwater Hospital. The existing buildings were constructed between approximately 1939 and the early 1970s. Geotechnical borings advanced on and near the project site in the 1940s to 1960s encountered urban fill including sand, gravel, and ash. The hospital historically included laboratories in Buildings D and F, a photography room in Building F, and an incinerator room in Building E (see Figure 1-2 in Chapter 1, “Project Description,” for the location of these buildings). At the time of the Phase I ESA, a small laboratory for

¹ See Figure 1-2 in Chapter 1, Project Description.”

analyzing blood samples was located in Building D, and a dental office was located in Building E. An amalgam separator in the dental office was used to capture dental amalgam for pickup by a private contractor. The basement contained a mortuary, workshops, a paint room, medical waste storage rooms, a fluorescent light bulb storage room, and a radiological waste closet. Small quantities of paints, cleaning, maintenance, and laboratory chemicals in containers up to five gallons in size were stored in the active medical spaces and basement workshops and storage rooms. No odors or staining were noted in any of these areas. Regulatory databases identified the project site as a generator of various hazardous wastes. According to Goldwater Hospital representatives, hazardous waste generated on the project site was picked up by a private contractor, chemicals were only disposed of in sinks as permitted by NYCDEP regulations, and effluent testing was conducted to ensure compliance with NYCDEP regulations.

- A sanitary pump station east of Building J was surrounded by a steel fence and was locked and inaccessible for inspection. A small building in the pump station could contain a petroleum storage tank; however, no indications, such as fill ports or vent pipes, were noted on the exterior of the building. A review of the pump station plans subsequent to the Phase I ESA indicated that there is no tank at the pump station.
- Based on the age of the hospital buildings, fluorescent lighting components and electrical equipment may contain PCBs. Fluorescent lights may contain mercury. Underground electrical transformer vaults owned and maintained by Consolidated Edison, located adjacent to Buildings A–D, may utilize PCB-containing dielectric fluid. A minor closed-status spill of PCB-containing dielectric fluid was reported for the vault adjacent to Building B in 1999; the spill was reportedly contained within the vault. The 1939 building plans showed dry wells connected to the transformer vaults near Buildings B and C. The dry wells were not observed during the reconnaissance.
- A 1992 asbestos survey indicated the presence of asbestos-containing materials (ACM) in the buildings. According to hospital representatives, limited ACM abatement has occurred since the survey as part of routine repairs and renovations. Chipped vinyl floor tiles were noted in portions of the basement and in a hallway on the third floor of Building E. Other suspect ACM were observed to be in good condition.
- Based on the buildings' age, lead-based paint may be present. Interior painted surfaces were observed to be in good condition. Peeling paint was noted on the buildings' balconies.
- The surrounding area was sparsely developed in 1892, but by the mid-20th century included various uses such as the steam plant for the hospital, a vacant building, a gym, parkland, and residential and institutional uses. In 1909, the Queensboro Bridge was completed north of the project site. A building approximately 300 feet south of the project site was historically used as a laboratory, and subsequently included a transformer for a subway tunnel south of the project site. Roosevelt Island to the south of the project site was expanded by landfilling during the 20th century, and according to Roosevelt Island Operating Corporation representatives, elevated lead concentrations in soil were identified during the construction of the Four Freedoms Park south of the project site.

SUBSURFACE (PHASE II) INVESTIGATION

The Phase II investigation included the collection and laboratory analysis of 17 soil and 3 groundwater samples from 10 borings. This investigation identified the following:

- In two borings, sand with silt, gravel, and/or mica fragments was encountered from the surface down. In the remaining eight borings, a similar layer was found beneath 2 to 10 feet of typical urban fill material (generally sand with silt, gravel, brick, glass, coal, metal, plant roots, and/or mica fragments). Refusal on either boulders or bedrock was encountered at depths of approximately 2 to 13 feet in five borings. In the remainder, the borings encountered the water table at depths of 12 to 15 feet, but rock was not reached.
- Analytical results of soil samples indicated only trace levels of volatile organic compounds (VOCs), pesticides and PCBs in a small number of samples. These levels were below the New York State Department of Environmental Conservation (NYSDEC) Part 375 Unrestricted Use Soil Cleanup Objectives (USCOs). Levels of semi-volatile organic compounds (SVOCs) and metals were in some cases above USCOs. However, they were generally below NYSDEC Part 375 Restricted Residential Use Soil Cleanup Objectives (RRSCOs), which were developed for multifamily residences and active recreational uses (public uses with a reasonable potential for soil contact). Only selected SVOCs commonly associated with urban fill material and two metals (chromium and mercury) exceeded their respective RRSCOs in one soil sample each. The soil analytical results were typical of urban fill materials.
- Analytical results of groundwater samples indicated compliance with NYSDEC Class GA Ambient Water Quality Standards (drinking water standards) with the exception of levels of certain metals (some of these were likely related to the urban fill materials whereas others are likely natural).

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the proposed project, or No-Action condition, in both the 2018 and 2038 analysis years, the existing hospital buildings will be vacated and will remain on the project site. During the closure of the existing hospital and following vacating the buildings, applicable legal requirements would need to be followed, including but not limited to, disposal of chemicals or other wastes, NYSDEC regulations relating to closure or removal of unused petroleum tanks along with any associated contaminated soil, and maintenance of ACM.

D. THE FUTURE WITH THE PROPOSED PROJECT

The future with the proposed project, or With Action condition, would involve demolition of the existing buildings followed by soil disturbance for the construction of new buildings as well as creation of new open space (in the 2018 and 2038 analysis years). As noted above, the existing buildings may contain hazardous materials such as ACM and lead-based paint. Soil that would be disturbed by the proposed project includes urban fill materials with elevated concentrations of certain metals and SVOCs. Demolition and excavation activities could disturb these hazardous materials and potentially increase pathways for human or environmental exposure. Impacts would be avoided by implementing the following measures:

- A RAP and associated CHASP would be prepared and submitted to NYCDEP for review and approval prior to implementation during project construction. The RAP would address requirements for items such as: installation of two feet of clean fill as a “site cap” in unpaved areas; soil reuse criteria; soil stockpiling, soil disposal and transportation; dust control; dewatering procedures; quality assurance; procedures for the closure and removal of the known petroleum storage tanks; and contingency measures should additional petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would identify

potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, air monitoring requirements including community air monitoring, and emergency response procedures). The RAP and CHASP would be prepared in accordance with a letter from NYCDEP to the New York City Economic Development Corporation dated February 22, 2012, which outlined measures to be included in the RAP and CHASP based on the findings of the Phase I ESA and Phase II (see **Appendix 10**).

- Unless information exists to indicate that suspect ACM do not contain asbestos, prior to demolition activities, an asbestos survey would be completed and all ACM that would be disturbed by these activities would be removed and disposed of in accordance with applicable regulatory requirements.
- Any renovation/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).
- Unless labeling or laboratory testing data indicates that suspect PCB-containing electrical equipment (including underground transformers) and fluorescent lighting fixtures do not contain PCBs, and that fluorescent lights do not contain mercury, disposal would be performed in accordance with applicable regulatory requirements.
- No wet labs (i.e., laboratories utilizing chemicals or medications) are anticipated to be constructed as part of the proposed project. Any petroleum storage tanks installed for the new buildings (e.g., for emergency generators) would be maintained in accordance with the applicable regulations, including NYSDEC tank maintenance requirements and spill reporting requirements.

With these measures, the proposed project would not result in any significant adverse impacts related to hazardous materials.

E. CONCLUSIONS

The Phase I ESA identified potential on-site sources of contamination, including historical fill materials of unknown origin; historical laboratories, a photography room and an incinerator room associated with the hospital; underground electrical transformer vaults potentially utilizing PCB-containing transformer oil; and four diesel petroleum storage tanks (one 5,000-gallon UST and three ASTs ranging from 110 to 330 gallons) used for emergency generators.

Based on these potential concerns, a Subsurface (Phase II) Investigation was performed which included the collection and laboratory analysis of soil and groundwater samples. The analysis indicated that levels of certain SVOCs and metals in the soil samples were somewhat elevated, but most likely attributable to the historical fill materials rather than a spill or release. Soil concentrations of VOCs, pesticides and PCBs met the most stringent state guidelines. Results for the groundwater samples met state drinking water standards² with the exception of levels of certain metals, some of which were likely related to the urban fill materials, whereas others were likely natural.

² Groundwater on Roosevelt Island is not used as a source of potable water and would not be used as such in the future.

To reduce the potential for human or environmental exposure to known or unexpectedly encountered contamination during and following construction of the proposed project, a RAP and associated CHASP would be prepared and submitted to NYCDEP for review and approval. The RAP and CHASP would be implemented during project construction. The RAP would address requirements for items such as soil stockpiling, soil disposal and transportation; dust control; dewatering procedures; quality assurance; procedures for the closure and removal of the known petroleum storage tanks; and contingency measures, should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, air monitoring including community air monitoring, and emergency response procedures).

Lead-based paint, ACM and PCB-containing electrical equipment and fluorescent lighting fixtures may be present within the existing structures or elsewhere on the project site. During and following construction of the proposed project, regulatory requirements pertaining to ACM, lead-based paint, PCBs and chemical use and storage would be followed.

With these above-described measures, the proposed project is not expected to result in any significant adverse impacts related to hazardous materials. *