Chapter 7: Hazardous Materials

A. INTRODUCTION

This chapter assesses the potential for the presence of hazardous materials at the project site. It examines the potential for exposure of hazardous materials to people or environment in the current conditions, and in the future without the proposed project (No Action condition) or with the proposed project (With Action condition), both during and following construction, and outlines specific measures that would be employed to protect public health, worker safety, and the environment.

Hazardous materials are generally defined as any substance that poses a threat to human health or the environment. The term is often used interchangeably with "contaminated material," but should not be confused with the term "hazardous waste," which is a regulatory term.[1] The assessment methodology was consistent with Chapter 12, "Hazardous Materials" of the 2014 *City Environmental Quality Review (CEQR) Technical Manual*.

Pursuant to CEQR, certain types of industrial, manufacturing, and commercial facilities and their activities (listed in "Hazardous Materials Appendix 1" of the *CEQR Technical Manual*) on or adjacent to a project site require assessment for hazardous materials. These facility categories include facilities with petroleum storage tanks (present on-site and in the adjacent Sears store) and auto service (present in the Sears store).

The presence of hazardous materials threatens human health only when exposure to those materials occurs. Human exposure is most likely to occur through inhalation during excavation and construction activities; direct contact with contaminated material during construction; and ingestion of contaminated material (fill/soil or groundwater) during construction. Construction of the proposed project would therefore include health and safety procedures during the soil disturbance portion (including dust control) and remedial strategies (such as removal and/or capping of any contaminated soil) and engineering/institutional controls (such as installing vapor controls under new buildings) to reduce or eliminate exposure pathways following construction.

PRINCIPAL CONCLUSIONS

Previous studies conducted for the project site identified limited potential for subsurface contamination associated with: historical on-site airport and agricultural uses; on- and off-site petroleum storage; an auto service center in the adjacent Sears store; and dry cleaners and the Fresh Kills landfill (all of which are located in anticipated cross-gradient or down-gradient groundwater flow directions). To minimize the potential for hazardous materials impacts during

[1] "Hazardous waste" is defined in both the U.S. Environmental Protection Agency (EPA) regulations (40 CFR Part 261) and New York State regulations (6 NYCRR Part 371) and refers to a subset of solid wastes that are either specific wastes listed in the regulations (listed wastes) or solid wastes possessing the characteristic of ignitability, reactivity, corrosivity, or toxicity (characteristic wastes).

or following construction, an (E) Designation for hazardous materials (E-361) has been assigned to the project site that will be administered by the New York City Mayor's Office of Environmental Remediation (OER). A Subsurface (Phase II) Investigation of the project site will be implemented in accordance with a November 2014 Work Plan that has been reviewed and approved by NYC Department of Environmental Protection (NYCDEP) as per the December 19, 2014 letter found in **Appendix 3**. Additional review of the Work Plan would be conducted by OER if required. Based upon the findings of the investigation, a NYCDEP- or OER-approved Remedial Action Plan (RAP) will be implemented during construction. The RAP will address requirements for items such as soil stockpiling, soil disposal and transportation; dust control; quality assurance; and contingency measures, should petroleum storage tanks or contamination be encountered during soil disturbance. Additionally, a NYCDEP- or OER-approved Construction Health and Safety Plan (CHASP) will be prepared for implementation during construction. The CHASP will 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, and emergency response procedures). With these measures in place, the proposed project would not result in any significant adverse hazardous materials impacts.

B. METHODOLOGY

The existing conditions described in this section are based on the following reports:

- Phase I Environmental Site Assessment (ESA), Staten Island Mall, Block 2400, Lot 180, 2655 Richmond Avenue, Staten Island, NY; prepared by Legette, Brachears, and Graham, Inc. (LBG); dated April 2013
- Phase I ESA, Macy's and Macy's Furniture Gallery, 112 and 98 Richmond Hill Road, Block 2400, Lot 118, Staten Island, NY; Prepared by LBG; dated August 28, 2014
- Phase I ESA, JCPenney, 140 Marsh Avenue, Block 2400, Lot 210, Staten Island, NY; prepared by LBG; dated August 28, 2014.
- Draft Phase II ESA, 2655 Richmond Avenue, Staten Island, NY; prepared by Roux Associates, Inc. (undated).

To further characterize subsurface conditions at the project site, the Applicants will conduct a Supplemental Phase II Environmental Site Assessment in accordance with a November 2014 Work Plan that was approved by NYCDEP. The scope of work for the Phase II includes:

- Advancement of six soil borings down to bedrock and laboratory analysis of two soil samples collected from each boring;
- Installation of groundwater monitoring wells at two of the soil borings and analysis of groundwater samples from the two newly-installed and three existing wells; and
- Installation of four soil vapor points and laboratory analysis of vapor samples from the four newly-installed and three existing points.

Soil and groundwater samples will be analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, pesticides, polychlorinated biphenyls (PCBs, and cyanide. Soil vapor samples will be analyzed for VOCs and methane. A Phase II ESA report will be prepared to describe the sampling methodologies, summarize field findings and laboratory results, and present conclusions and recommendations.

C. EXISTING CONDITIONS

SUBSURFACE CONDITIONS

The project site elevation ranges from of approximately 35 to 56 feet above mean sea level, sloping downward from east to west. The November 2013 Phase II ESA indicated that the project site is underlain by predominantly silt and silty sand with some layers of sand, clay and gravel. Bedrock, consisting of serpentinite, was encountered at depths ranging from approximately 17 to 22 feet below grade. Groundwater was first encountered at approximately 13 to 20 feet below grade and most likely flows in an westerly direction toward the Springville Creek, and ultimately the Fresh Kills, approximately 2,000 feet away. However, actual groundwater flow at the project site can be affected by many factors including past filling, underground utilities, other subsurface openings or obstructions such as basements and underground parking garages, bedrock geology, and other factors. Groundwater in Staten Island is not used as a source of potable water.

HAZARDOUS MATERIALS ASSESSMENT

PHASE I ENVIRONMENTAL SITE ASSESSMENT

The Phase I ESAs reviewed a variety of sources including: current and historical Sanborn Fire Insurance, USGS topographic maps and aerial photographs; historical reverse telephone directories; and state and federal environmental regulatory databases. They also included reconnaissance of the project site and its surroundings. Based on documents reviewed as part of the Phase I ESAs, groundwater in the project site area is anticipated to be 6 to 12 feet below grade and to flow in a westerly or southwesterly direction towards the Fresh Kills Landfill. Since the project site contained historical buildings that have been demolished (including a produce packing facility and residences) it may be underlain by fill materials.

The Phase I ESAs identified the following:

- Former uses at the project site included: the Staten Island Airport and Aviation school, located in the eastern portion of the project site between 1937 and 1950; and agricultural fields (which may have had pesticide applications) and a produce packing plant from 1937 to the early 1970s.
- The on-site Macy's store (on Lot 118) formerly operated a 10,000-gallon No. 2 fuel oil underground storage tank (UST) that was removed in 1996, and currently operates two No. 2 fuel oil aboveground storage tank (ASTs), 225 and 3,000 gallons in capacity, that were installed in 1996. There is a closed-status spill, indicating it was cleaned up to the satisfaction of the State, at the Macy's (#9513252) reported in 1996 when an excavator hit an underground fuel oil line (presumably associated with the former 10,000-gallon UST).
- The Macy's store and two tenant spaces (CVS and Sephora) in the on-site portion of the Mall are listed as conditionally exempt small quantity generators (CESQGs) of hazardous waste, including ignitable (cosmetic-related) and photographic wastes.
- The Sears store, which is connected to the southern end of the Mall but is not part of the project site, formerly operated two No. 2 fuel oil USTs that were closed in-place in 2008 and 2014. There is an open-status NY Spill case (#1207135) at the Sears store due to a tank test failure reported in 2012, as well as two closed-status spills. According to the Phase I ESAs, the active spill was reported due to recurrent water in the tank, but no fuel oil discharge

occurred. The Sears store is also listed as a CESQG of hazardous wastes associated with an automotive service center which is part of the store, and a photographic studio.

- Various environmental concerns were noted associated with building materials and electrical components at the project site, including: asbestos-containing materials (ACM); suspect lead-based paint (LBP); and potential polychlorinated biphenyls (PCBs) associated with fluorescent lighting fixtures, electrical equipment, hydraulic fluids and Con Edison-owned transformers.
- Two nearby former dry cleaner sites are listed in numerous regulatory databases and are reportedly undergoing remediation for chlorinated solvent contamination. The Crossings mall at 280 Marsh Avenue, approximately 140 feet south of the project site at the nearest point, includes the former Carol Cleaners and Damowa Laundry Center. The ESAs indicated that LBG's groundwater investigation identified subsurface contamination with chlorinated solvents at Carol Cleaners, but indicated that the project site is cross-gradient to The Crossings and has therefore not likely been affected by the contaminant plume. Damowa Laundry Center reportedly no longer conducts dry cleaning on premises. A dry cleaner at the Pergament Mall, located at 2795 Richmond Avenue, approximately 500 feet south of the project site at the nearest point, is also reportedly undergoing remediation but is also located cross-gradient of the project site. Based on facility details, distance and/or anticipated groundwater flow direction, these and other identified dry cleaners are not anticipated to have affected the project site.
- The Fresh Kills landfill is located approximately 550 feet west of the project site at the nearest point (i.e., downgradient of the project site), and is therefore not likely to have significantly affected the project site based on the anticipated groundwater flow direction and engineering controls installed as part of the landfill's closure.

PHASE II ENVIRONMENTAL SITE ASSESSMENT

The Phase II investigation included: the advancement of nine soil borings with the collection of two soil samples from each boring; collection of groundwater samples from monitoring wells installed at three of the boring locations; and collection of three soil vapor samples. The soil and groundwater samples were analyzed for VOCs, SVOCs, polychlorinated biphenyls (PCBs), pesticides, and Target Analyte List (TAL) metals (total and dissolved metals for the groundwater samples). The soil vapor samples were analyzed for VOCs and methane. The Phase II identified the following:

- VOCs, SVOCs, cyanide and PCBs were not detected in any of the soil samples at concentrations above the New York State Department of Conservation (NYSDEC) Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs).
- Pesticides (4,4'-DDD, 4,4'-DDE, and 4,4'-DDT) and metals (chromium, copper, and nickel) were detected in some of the soil samples at concentrations exceeding the Part 375 Unrestricted Use SCOs, but were below the Commercial Use SCOs. The detected metals and pesticides concentrations were attributed to historic fil material and previous agricultural uses at the project site.
- No VOCs, SVOCs, pesticides or PCBs were detected above the NYSDEC Class GA Ambient Waste Quality Standards and Guidance Values (AWQGVs) in any of the groundwater samples. The presence of two metals (magnesium and sodium) detected at concentrations above their respective AWQGVs in all three groundwater samples was attributed to saltwater influence from the nearby brackish Fresh Kills.
- VOCs were not detected in soil vapor at warranting mitigation based on New York State Department of Health (NYSDOH) soil vapor intrusion guidance.

- Methane was detected in soil vapor at concentrations ranging from 1.9 part per million by volume (ppm-v) to 9.5%. These detections were attributed to sub-surface peat material associated with former marshland at the Site.

D. FUTURE WITHOUT THE PROPOSED PROJECT

In the No Action Scenario, the project site would continue in its current uses, and no enlargement of the Mall would occur. Without excavation and construction on the project area, there would be no potential for exposure to subsurface contaminants. As such, in the No Action Scenario, there would be no potential for human or environmental exposure and, therefore, there is no potential for significant adverse impacts. Legal requirements, including requirements for petroleum storage tank maintenance and managing ACM, LBP and PCBs, would continue to be applicable.

E. FUTURE WITH THE PROPOSED PROJECT

The proposed project would include construction of an on-grade parking garage, several on-grade building additions, and landscaping improvements, which would entail shallow excavation in portions of the project site and limited disturbance of existing buildings for connections to the new additions. The greatest potential for exposure to any contaminated materials would occur during building material disturbance and subsurface disturbance associated with the excavation, although the potential for vapor intrusion post-construction would also need to be addressed. The potential for adverse impacts associated with these activities would be minimized by adhering to the following protocols:

- The Applicants will perform a supplemental subsurface investigation at the project site in accordance with a Work Plan and Health and Safety Plan (HASP) that has been reviewed and approved by NYCDEP. OER would conduct additional review of the Work Plan if required.
- A written report with investigation findings and a summary of the data will be submitted to NYCDEP or OER after completion of the testing and laboratory analysis for review and approval.
- After receiving such results, a determination will be made by NYCDEP or OER as to whether the results indicate that remediation is necessary. If NYCDEP or OER determines that no remediation is necessary, written notice will be given by NYCDEP or OER. If remediation is indicated from the test results, a proposed RAP will be submitted to NYCDEP or OER for review and approval prior to construction. The Applicants will complete such remediation as determined necessary by NYCDEP or OER, typically during construction. The Applicants will then provide proper documentation that the work has been satisfactorily completed before the new structures are put into use.
- A NYCDEP or OER-approved CHASP would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil and/or groundwater. This plan would be submitted to NYCDEP or OER for review and approval prior to implementation.
- Any disturbance of building materials would be in compliance with applicable regulatory requirements relating to testing and work practices associated with ACM, LBP and PCBs.
- Stormwater at the project site is conveyed through storm sewers to outfalls into nearby creeks. If dewatering is necessary for the proposed construction, water would be discharged to sewers in accordance with New York State Department of Environmental Conservation

(NYSDEC) State Pollutant Discharge Elimination System (SPDES) and NYCDEP sewer use requirements.

- If the renovated building or the addition are to include petroleum storage tanks (e.g., for heating or emergency generators), any such tanks would be properly maintained in accordance with the applicable regulations, including Fire Department and NYSDEC requirements.
- An (E) Designation for hazardous materials (E-361), administered by OER, has been assigned to the project site to ensure that the investigation and remediation protocols are followed. The text of the (E) Designation for Block 2400, Lots 7, 118, 180, 210, 220, 300, 375 and 500 would be as follows:

> *Task 1: Sampling Protocol*
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> *Prior to construction, the Applicant submits to OER, for review and approval, a Phase II Investigation protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented.*
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> *No sampling should begin until written approval of a protocol is received from OER. The number and location of sample sites should be selected to adequately characterize the site, the specific source of suspected contamination (i.e., petroleum-based contamination and non-petroleum-based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of the sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.*
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> *Task 2: Remediation Determination and Protocol*
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> *A written report with findings and a summary of the data must be submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER.*
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> *If remediation is indicated from the test results, a proposed remedial action plan must be submitted to OER for review and approval. The Applicant must complete such remediation as determined necessary by OER. The Applicant should then provide proper documentation that the work has been satisfactorily completed.*
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> *A OER-approved construction health and safety plan would be implemented during evacuation and construction and activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil and/or groundwater. This plan would be submitted to OER for review and approval prior to implementation.*

With the above measures in place, the proposed project would not result in any significant adverse hazardous materials impacts. ✷