A. INTRODUCTION

This chapter assesses the potential for the presence of hazardous materials in soil and/or groundwater at the project site under the Proposed Action. The project site is located in the Astoria neighborhood of Queens and encompasses approximately 377,726 square feet (sf) of lot area, including approximately 292,155 sf along the waterfront (Block 907, Lots 1 and 8, and Block 906, Lots 1 and 5) and approximately 85,571 sf of upland area (Block 908, Lot 12 and Block 909, Lot 35). The Proposed Action would facilitate the development of housing, open space/esplanade, local retail uses (including a supermarket), a site for an approximately 456-seat elementary school, and accessory parking, as well as new road construction and a landscaped pedestrian walkway (the "proposed project"). The proposed project would also involve the demolition of the existing structures currently occupying the project site.

As described in the *City Environmental Quality Review* (CEQR) *Technical Manual*, the goal of a hazardous materials assessment is to determine whether a proposed action would lead to a potential increased exposure of hazardous materials to people or the environment or whether the increased exposure would lead to significant public health impacts or environmental damage. This assessment was prepared for the proposed project and was based on a Phase I Environmental Site Assessment (ESA) prepared for the project site by G.C. Environmental, Inc. (GCE), dated July 29, 2013 (see Appendix G).

B. PRINCIPAL CONCLUSIONS

A Phase I ESA was prepared in July 2013 in order to evaluate potential contamination on the project site. Several potential sources of contamination were identified, including past and present manufacturing, woodworking, manufacturing supply storage, and automobile repair uses, evidence of historic leaks associated with machinery use, known aboveground storage tanks (ASTs), suspected underground storage tanks (USTs), asbestos containing materials (ACM), and/or lead based paint (LBP).

Based on the findings of the Phase I ESA, to reduce the potential for human or environmental exposure to contamination during and following construction of the proposed project, an (E) designation would be assigned to the project site (Block 906, Lots 1 and 5, Block 907, Lots 1 and 8, Block 908, Lot 12, and Block 909, Lot 35) to ensure that remedial activities would be undertaken prior to redevelopment (E-343). With these (E) designations in place, sampling and remedial protocols and reports will be required, and will be submitted to the New York City Mayor's Office of Environmental Remediation (OER) for review and approval.

Specifically, based on the findings of the Phase I ESA, a Subsurface (Phase II) Investigation would be conducted in accordance with the New York City Department of Environmental Protection-approved (DEP-approved) Work Plan for the project site to determine whether past or present, on-site or off-site activities have affected subsurface conditions; all Phase II work would be conducted in accordance with the DEP-approved Health and Safety Plan (HASP). Furthermore, all Phase II investigative work on the future school site would be required to comply with both the Phase II Work Plan and supplemental investigation protocol identified by the SCA, consistent with typical SCA Phase II Environmental Site Investigations (ESIs).

It is anticipated that the Applicant will begin Phase II investigative work for the future school site subsequent to issuance of this FEIS, and that all Phase II investigative work on the future school site will be completed by the time the City Council will be required to act upon the Proposed Action. Phase II investigative work on the remaining project site lots would be carried out subsequent to approval of the Proposed Action, but prior to issuance of any permits for the proposed project. Following implementation of this Phase II investigation and based on its findings, a Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP) would be prepared (and submitted to OER for review and approval) for implementation during the proposed project's construction.

With the (E) designation in place and implementation of the associated sampling and remedial protocols described above, in addition to the remediation phasing protocol to be outlined in the Restrictive Declaration to be recorded, the proposed project is not expected to result in significant adverse impacts for hazardous materials.

C. METHODOLOGY

This assessment was based primarily on review of the Phase I ESA conducted for the project site by GCE in July 2013 in accordance with the scope and limitations of *ASTM Standard E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The scope of work for the Phase I ESA included an evaluation of the following:

- Physical characteristics of the project site through a review of sources for topographic, geologic, soils, and hydrologic data;
- Site history through a review of sources such as land deeds, fire insurance maps, City directories, aerial photographs, prior reports, and interviews;
- Current site conditions, including observations and interviews regarding the following: the presence or absence of hazardous substances or petroleum products; generation, treatment, storage, or disposal of hazardous, regulated, or biomedical waste; equipment that utilized oils which potentially contain polychlorinated biphenyls (PCBs); and storage tanks (aboveground and underground);
- Usage of surrounding area properties and the likelihood for releases of hazardous substances and petroleum products (if known and/or suspected) to migrate onto the project site;
- Information in environmental agency databases and local environmental records within specified minimum search distances;
- Past ownership through a review of available prior reports and local municipal file review.

The Phase I ESA also included consideration of the following potential environmental conditions that area outside the scope of ASTM Practice E 1527-05: ACM, LBP, wetlands, and radon.

D. EXISTING CONDITIONS

Subsurface Conditions

The project site lies at an elevation of approximately 23 feet above mean sea level (MSL), with a general slope in the north-northwest direction towards the waterfront. The project site is mostly underlain by urban fill including medium to fine sand with trace amounts of coarse to fine gravel and fragments of

brick, stone, concrete, metal, wood, and assorted debris; the thickness of this miscellaneous fill ranges from four feet to 18 feet, thickening towards the waterfront. Bedrock at the project site is encountered at depths ranging from 34 feet to 55 feet below surface grade level and is categorized as Fordam Gneiss.[1]

Depth to groundwater at the project site ranges from a depth of 14 to 23 feet below existing grade level, and groundwater flow in the area is expected to follow surface topography to the north-northwest towards Pot Cove. However, groundwater levels and/or flow direction may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations. Groundwater in this part of Queens is not used as a source of potable water.

Hazardous Materials Assessment

The Phase I identified recognized environmental conditions (RECs), in addition to several conditions outside of the scope of ASTM Practice E 1527-05. An overview of the Phase I ESA findings is provided below.

Block 907, Lot 1 (Portions of the Proposed Building 1 and 2 Sites)

According to Sanborn maps from 1981 to 2006, there is one gasoline tank present inside the central portion of the existing one-story office building currently occupying the lot. Furthermore, earlier Sanborn maps (from 1948 to 1981) indicate the presence of one gasoline tank of unknown size located in close proximity to the east of the building. The historical presence of the gasoline tanks and their usage may have environmentally affected Block 907, Lot 1 in general and is considered an REC.

Block 907, Lot 8 (Portions of the Proposed Building 1 and 2 Sites)

According to 1915, 1936, 1948, and 1950 Sanborn maps, the two existing manufacturing building on Block 907, Lot 8 were identified historically as "Planing Mill/Wood Working" and "Lumber/Carpenter Sheds." The historical usage of these buildings may have resulted in environmental impacts on the parcel in general and therefore is considered an REC.

GCE's visual inspection of the existing one-story manufacturing building on the lot revealed the presence of: (1) one suspect fill port on the western interior portion of the structure; (2) one approximately 250-gallon AST inside the tenant space of "Rainbow Transit"; and (3) a machine/service shop for the service of buses inside the building. The historical presence of USTs and their usage on the lot, as well as the historical usage of service areas associated with the Rainbow Transit tenant along with the AST are considered RECs.

In addition, GCE's visual inspection revealed the presence of two catch basins/drywells on the northern exterior portion of the property, as well as the presence of suspect floor drains in the two existing buildings on the lot. The identified catch basins/dry wells and/or floor drains, in conjunction with the site's historic "Lumber/Wood Working," "Rainbow Transit," and "Machine Shops" uses, indicate the presence or likely presence of past release of hazardous substances or petroleum products into the structures on the property and/or into the ground or groundwater of the property and are therefore considered RECs.

In addition, according to historic Sanborn maps from 1898 to 2006, the buildings on adjacent Block 907, Lot 1 and Block 906, Lots 1 and 5 were identified as "L Morton-Steam Stone" and "Cutting and Planing," "Tisdale Lumber & Coal Yard," "Geo. Brown & Co. Stream Stone Works," "Weisberg Baer Co-Sash

[1] *Subsurface Soil Test Boring Report* prepared by Tri-State Drilling Technologies, Inc. (October 2007).

Door Factory," "Marceth Marble Co, Inc – Machine Shop," and "Superior Steel Studs," among others. These historical property uses may have environmentally affected Block 907, Lot 8 and are thus considered to be an REC.

Block 908, Lot 12 (Proposed Building 5 Site)

According to the UST and Historical Underground Storage Tank (HIST UST) database and the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) database, one 4,000-gallon UST was administratively closed at Block 908, Lot 12 in 1996. The site's listing in the UST and HIST UST database is considered an REC.

In addition, according to historical Sanborn maps, Block 908, Lot 12 is used for storage for "Superior Studs Inc" and "Energex Wall Systems" manufacturing supplies. GCE's visual inspection of the lot confirmed the presence of storage and manufacturing supplies. In addition, the adjacent Block 909, Lot 35 is currently used for storage. The historic property usage for storage of manufacturing supplies on Block 908, Lot 12 and adjacent properties is considered an REC.

Block 909, Lot 35 (Proposed Building 4 Site)

Block 909, Lot 35 is currently used for storage. In addition, adjacent Block 908, Lot 12 has historically been used for storage and manufacturing supplies, and the 1948 Sanborn map indicates that the adjacent property along the eastern side of the lot was occupied by "Metal Container Mfg." The historic property usage of the lot and adjacent properties may have environmentally affected the property and is therefore considered an REC.

Block 906, Lots 1 & 5, Block 907, Lots 1 & 8, Block 908, Lot 12, And Block 909, Lot 35 (Project Site)

PCBs may have environmentally affected the project site through historical usage of cutting oils/manufacturing equipment/coolants/lubricants and is therefore considered to be an REC.

In addition, according to an earlier Phase I ESA prepared by GCE in 2006, there is one 5,000-gallon heating oil UST on the project site, which was installed in 1942 and abandoned around 2000. The potential historic presence of this UST and its usage is considered an REC.

Furthermore, GCE visual inspection revealed the presence of oil stains associated with the historic uses of machinery equipment on the floors of the Block 906, Lot 5 building, as well as poor housekeeping throughout the buildings on Block 907, Lot 1 and Block 906, Lot 5: leaked silica bags, paint buckets, empty 55-gallon drums, and manufacturing supplies were found throughout, and surrounding, these buildings. The poor housekeeping practices with evidence of historic leaks associated with machinery and the observed current conditions of the project site in general are considered to be an REC.

Lastly, GCE conducted limited visual screening surveys for the presence of ACM and LBP on the project site. GCE identified vinyl floor tiles in the Block 907, Lot 8 buildings' office space and piping insulation in most of the buildings, both of which are suspect of containing ACM. As all of the existing project site buildings were constructed prior to 1980, the presence of ACM and/or LBP is a possibility and is considered an REC.

E. FUTURE WITHOUT THE PROPOSED ACTION (NO-ACTION CONDITION)

In the future without the Proposed Action, the project site would not be rezoned and (E) designations would not be assigned to the six affected lots. The existing light industrial and warehousing uses on the waterfront parcel, comprising approximately 194,700 sf of warehouse and storage uses and an estimated 100 accessory parking spaces would remain on the project site. In addition, it is assumed that the upland portion of the project site (Block 908, Lot 12 and Block 909, Lot 35) would be redeveloped on an as-of-right basis with approximately 166 residential units and 83 accessory parking spaces. In conjunction with the as-of-right residential development, it is further assumed that portions of the unbuilt segment of 8th Street to the south of 26th Avenue and/or portions of the unimproved segment of 26th Avenue would be built out in order to satisfy New York City Department of Buildings (DOB) requirements.

Compared with development anticipated on the project site as a result of the Proposed Action, the No-Action condition would result in less construction and fewer residential uses on the project site. Any construction involving soil disturbance on the project site could potentially increase pathways for human exposure to any subsurface hazardous materials present. Since no (E) designations—which require the owner of a property to assess potential hazardous material impacts prior to construction—currently exist on the project site, such soil disturbance would not necessarily be conducted in accordance with the procedures described in the following section (e.g., conducting testing before commencing excavation and implementing health and safety plans during construction). However, legal requirements pertaining to petroleum tank maintenance, spill reporting (if spills are identified), off-site disposal of soil/fill, and disturbance and handling of suspect LBP, ACM, and PCB-containing equipment and/or lighting fixtures, would need to be followed. Thus, in the No-Action condition, the amount of soil disturbance would be reduced, but the controls on its performance would not be as thorough as under the Proposed Action, as described below.

In addition, the continued use of the waterfront buildings for warehouse and storage uses in the No-Action condition could lead to possible opportunities for potential exposure to petroleum and non-petroleum compounds. Worker exposures to these chemical are regulated by the Occupational Safety and Health Administration (OSHA), which publishes acceptable exposure levels for chemicals in the workplace.

F. FUTURE WITH THE PROPOSED ACTION (WITH-ACTION CONDITION)

In the future with the Proposed Action, the waterfront parcel would be rezoned R7-3/C2-4, thereby allowing residential structures to be built as-of-right; the proposed rezoning of the upland parcel from R6 to R6B and R7A/C2-4 would increase the upland site's permitted residential density. In-ground excavation would be required for the below-grade garages on both the waterfront and upland parcels. Construction of the proposed project would also entail excavation for the construction of elevator pits and certain utilities, as well as some soil disturbance for other construction, including the waterfront esplanade, new landscaped areas, and the proposed new streets and pedestrian walkways.

The proposed project would result in greater soil disturbance and a greater increase in residential uses as compared to the No-Action condition. Thus, the potential for adverse impacts associated with demolition and excavation for construction and with changes in land use would increase with the Proposed Action. Although the proposed project could increase pathways for human exposure to the potential hazardous

material concerns identified in the Phase I ESA, the potential for significant adverse impacts would be avoided by the measures identified below.

As with the No-Action condition, all demolition would be conducted in accordance with applicable requirements for disturbance, handling, and disposal of suspect LBP, ACM, and PCB-containing equipment and/or lighting fixtures and legal requirements regarding maintenance and/or closure of petroleum storage tanks, spill reporting if spills are identified, and off-site disposal of soil/fill.

In addition, as the Phase I ESA identified potential hazardous material concerns on the project site, including historical uses of the site are the presence of USTs, ASTs, and fill materials of unknown origin that have the potential to contain ACM, LBP, and PCBs, the proposed zoning map actions include assigning a hazardous materials (E) designation (E-343) on the lots affected by the Proposed Actions (Block 906, Lots 1 and 5, Block 907, Lots 1 and 8, Block 908, Lot 12, and Block 909, Lot 35). The (E) designation that would be placed on the project site would generally require that further investigation be performed to determine the presence and nature of contaminants of concern and the proper remedial and/or health and safety measures that would be employed during construction.

As the subject lots are currently leased to occupants using the properties in connection with their business operations, the necessary additional sampling would not be feasible prior to project approval. DEP (or OER) will be notified at least one week prior to the start of investigative activities on the project site. Such obligations will be made binding through the Restrictive Declaration tied to the project site (which will outline the timing for all obligations), and will be conducted in accordance with the Phase II Work Plan and HASP reviewed and approved by DEP (see Appendix G).

In addition, by assigning an (E) designation on the project site (where there is a known or suspect environmental concern), the potential for an adverse impact to human health and the environment resulting from the Proposed Action would be reduced of avoided. The (E) designation provides the impetus to identify and address environmental conditions so that significant adverse impacts during site development would be reduced, with OER providing the regulatory oversight of the environmental investigation and remediation during the process. Building permits are not issued by DOB without prior OER approval of the investigation and/or remediation pursuant to the provisions of Section 11-15 of the New York City Zoning Resolution (Environmental Requirements).

The text of the hazardous materials (E) designations (E-343) for the project site (Block 906, Lots 1 and 5, Block 907, Lots 1 and 8, Block 908, Lot 12, and Block 909, Lot 35) would be as follows:

Task 1: Sampling Protocol

> **Prior to construction, the Applicant must submit to the New York City Mayor's Office of Environmental Remediation (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.**
>
> **No sampling should begin until written approval of a protocol is received by 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.**

Task 2: Remediation Determination and Protocol

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.

If remediation is indicated for the test results, a proposed remedial action plan (RAP) must be submitted by 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.

An OER-approved construction-related health and safety plan (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 OER for review and approval prior to implementation.

Furthermore, per SCA review of the Phase II Work Plan, additional sampling locations and analysis parameters would be carried out on the school site to be consistent with typical SCA Phase II ESIs. The school site additions to the Phase II Work Plan sampling methods are included in their entirety in Appendix G and are summarized as follows:

- Two additional soil borings will be installed on the parcel (for a total of five soil borings, including at least four borings within the proposed school building footprint);
- Four additional soil vapor samples will be collected (for a total of five soil vapor samples, including at least four within the proposed school building footprint). TO-15 analysis of the soil vapor samples will be conducted;
- One additional temporary monitoring well will be installed (for a total of two). At least one groundwater sample will be analyzed for NYCDEP sewer discharge parameters;
- All soil samples will be analyzed for cyanide and hexavalent chromium;
- Soil samples to be analyzed for VOCs will be field preserved using Encore samplers or other appropriate method;
- Subsurface soil samples (i.e., from 0 to 6 inches below grade) will be collected from at least two of the soil borings and analyzed for the full suite of parameters to evaluate potential contamination associated with former stack emissions; and
- If analytical results for any soil sample(s) indicate concentrations that are indicative of potential characteristic hazardous waste, the corresponding samples will be additionally analyzed for appropriate parameters using the toxicity characteristic leaching procedure.

It is anticipated that the Applicant will begin Phase II investigative work for the future school site subsequent to issuance of this FEIS, and that all Phase II investigative work on the future school site will be completed by the time the City Council will be required to act upon the Proposed Action. All Phase II investigative work of the future school site will be in conformance with the DEP-approved Phase II Work Plan and the above-described additional SCA supplemental Phase II testing requirements prior to project approval. Phase II investigative work on the remaining project site lots would be carried out subsequent to approval of the Proposed Action, but prior to issuance of any permits for the proposed project.

With these measures in place, the Proposed Action would not result in any significant adverse impacts related to hazardous materials.