A. INTRODUCTION

As detailed in the 2021 *City Environmental Quality Review Technical Manual (CTM)*, the goal of a hazardous materials assessment is to determine whether an action may increase the exposure of people or the environment to hazardous materials, and if so, whether this increased exposure would result in potential significant public health or environmental impacts. A hazardous material is any substance that under certain circumstances may pose a threat to human health or the environment. Substances that can be of concern include, but are not limited to, heavy metals, volatile and semi-volatile organic compounds, methane, polychlorinated biphenyls, pesticides, asbestos, lead, and hazardous wastes (defined as substances that are chemically reactive, ignitable, corrosive, or toxic). The foregoing terms are defined below under **Section C, "Methodology."** According to the *CTM*, the potential for significant impacts from hazardous materials can occur when: (a) elevated levels of hazardous materials exist on a site and the project would increase pathways to human or environmental exposure; (b) the project would introduce new activities or processes using hazardous materials and the risk of human or environmental exposure is increased; or (c) the project would introduce a population to potential human or environmental exposure from off-site sources.

As discussed in **Chapter 02.0, "Project Alternatives,"** there are three feasible alternatives under consideration for implementation of the Proposed Project. These include: Alternative 2 – the Rezoning Alternative; Alternative 3 – the Non-Rezoning Alternative; and Alternative 4 – the Midblock Bulk Alternative. A discussion of Alternative 5 – the Rehabilitation and Infill Alternative, which has been determined to be infeasible, is presented in **Chapter 05.22, "Rehabilitation and Infill Alternative Analysis."** Refer to **Chapter 04.0, "Analysis Framework," Table 04.0-4,** for information on the analysis approach for the three feasible alternatives for each technical area.

B. PRINCIPAL CONCLUSIONS

No significant adverse hazardous materials impacts are anticipated as a result of the Rezoning Alternative, the Non-Rezoning Alternative, and the Midblock Bulk Alternative at the Project Sites pursuant to applicable guidance and methodologies. Refer to **Section E, "Environmental Effects,"** for further information.

C. METHODOLOGY

Potential Contaminants of Concern

Soil and groundwater can become contaminated as a result of past or current activities on a project site or on adjacent areas. Many industrial activities use, store, or generate contaminated materials

that can be spilled, dumped, or buried nearby. Other activities common in mixed-use neighborhoods, such as gas stations and auto repair shops, can also result in contamination due to improper handling/management of raw product and/or waste materials, or inadvertent spills/release.

Based on the types of contaminants that are typically found in New York City, some of the potential contaminants of concern are described below. The list provides a summary of potential categories of contaminants and is not a comprehensive list of all contaminants that may be encountered, nor is this list is intended to be indicative of the actual contaminants that have been or may be encountered on the Project Sites:

1. **Volatile organic compounds (VOCs)**: These include aromatic compounds—such as benzene, toluene, ethylbenzene, total xylene (BTEX) and petroleum products (especially gasoline, which can also contain methyl tertiary butyl ether [MTBE])—and chlorinated compounds, such as tetrachloroethene (PCE) (also known as perchloroethylene or "perc") and trichloroethene (TCE), which are common ingredients in solvents, degreasers, and cleansers. VOCs represent the greatest potential for contamination since, in addition to soil and groundwater contamination, they can generate organic vapors.

2. **Semivolatile organic compounds (SVOCs)**: The most common SVOCs in urban areas are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal- or petroleum-derived products, and some manufactured gas plant (MGP) wastes. PAHs are commonly found in New York City urban fill material, which seemingly underlies the entire study area. Petroleum-related SVOCs could be present and are typically associated with buried tanks currently or formerly located in a study area.

3. **Polychlorinated biphenyls (PCBs)**: PCBs and/or PCB-containing materials were once widely used in manufacturing and industrial applications (e.g., hydraulic equipment, plastics manufacturing, as dielectric fluid in transformers, and in some underground high-voltage electric lines). PCBs tend to travel only short distances in soil, except in unusual circumstances (e.g., large spills of PCB-containing oils over many years).

4. **Pesticides, herbicides, and rodenticides**: These are commonly used to control rodents and/or insects and vegetation in vacant structures or in vegetated areas, including parks. Pesticides/herbicides are relatively immobile and tend to be persistent in surface soils.

5. **Metals (including lead, arsenic, cadmium, chromium, mercury and cyanide)**: Metals are often used in smelters, foundries, and metal works and are found as components in MGP wastes, paint, ink, petroleum products, fluorescent lights, older thermostats, and coal ash, and were used in the past (i.e., metals like copper, chrome, and arsenic) as wood preservatives (e.g., on piles). These metals tend not to migrate far in soil; therefore, they would be of greater concern at the site where they were generated than at off-site areas. Metals at levels above natural background levels are frequently present in fill material throughout the New York metropolitan area.

6. **Fuel oil and gasoline from storage tanks**: Residences and businesses upland of a project area could have had above-ground storage tanks and/or underground storage tanks for

fuels, including heating oil and gasoline. Generally, some tanks could be known to have leaked, and others have possibly leaked despite no record of a spill reported. Some spills have been cleaned up in accordance with state regulations, but others have not because they have not yet been discovered or because cleanup, which can take several years, is ongoing.

7. **Fill materials of unknown origin**: In the past, waste materials, including coal and incinerator ash, demolition debris (including from demolished cinder blocks), and industrial wastes, were commonly used as fill in urban areas. Even fill material consisting primarily of soil may exhibit elevated levels of PAHs, metals, PCBs, SVOCs, and other contaminants. Such materials are potentially present throughout the project area.

8. **Asbestos**: Asbestos is a common component of building materials, especially insulation, fireproofing, tile flooring, plaster, sheetrock, ceiling tiles, mastic, and roofing materials. In addition to materials within existing structures, subsurface utility lines may be coated with asbestos or encased in "transite," an asbestos containing material (ACM). Asbestos was widely used before 1980.

9. **Lead-based paint (LBP) and Lead-containing Paint (LCP)**: The use of LBP in New York City residential buildings was banned in 1960. Its use in other buildings and outdoors was severely restricted by the Consumer Products Safety Commission in 1977. LCP is regulated under the OSHA Lead Exposure in Construction standard (29 CFR 1926.62). Lead that is released as dust (or as a fume if heated) is potentially hazardous, especially to children. Older buildings, bridges, and other painted structures or elements are likely to include LBP or LCP. LBP is defined as containing 1 milligram per square centimeter or 0.5 percent by weight lead or more, whereas LCP is defined as containing in excess of 0.06 percent lead by weight.

Generally, ACM, LBP, and LCP are the most common aboveground (e.g., on or within building materials) hazardous materials on sites in New York City with existing buildings.

Site Assessment and Investigation

An assessment was conducted to determine if elevated levels of hazardous materials exist on the Project Sites and if the Proposed Project could lead to increased pathways to human or environmental exposure of people or if the increased exposure would result in significant adverse public health impacts or damage to the environment. The following assessment is based on review of documents related to investigation and remediation of potentially hazardous materials at the Project Sites, including the following (all provided in **Appendix G**):

- Phase I Environmental Site Assessment (Fulton), prepared by Hillmann Consulting LLC in April 2022.
- Phase I Environmental Site Assessment (Elliott-Chelsea), prepared by Hillmann Consulting LLC in May 2022.
- Phase II Work Plan (Fulton 1 and Elliott-Chelsea 1) (includes Health and Safety Plan (HASP)), prepared by HK Engineering & Geology, D.C.P. in September 2023.
- Remedial Investigation Report (Phase II), aka Site Investigation Report (Fulton 1 and Elliott-Chelsea 1), prepared by HK Engineering & Geology, D.P.C. in February 2024

- Remedial Action Work Plan (RAP) (Fulton 1 and Elliott-Chelsea 1), and Construction Health and Safety Plan (CHASP) (Fulton 1 and Elliott-Chelsea 1), prepared by HK Engineering & Geology, D.P.C. in January 2024
- All of these documents were prepared in accordance with applicable guidance, described in the text below.

D. AFFECTED ENVIRONMENT

Current Site Use

Formally called the Robert S. Fulton Houses, the Fulton Houses Project Site was completed in 1965. It is a "towers-in-the-park" development with open areas including playgrounds, a basketball court, landscaping, seating, walking paths, accessory parking, and ancillary areas.

The John Lovejoy Elliott Houses, completed in 1947, Chelsea Houses, completed in 1964, and Chelsea Addition Houses, completed in 1968, are referred to as one entity (Elliott-Chelsea Houses) and comprise the Elliott-Chelsea Houses Project Site. The Elliott-Chelsea Houses Project Site is also a "towers-in-the-park" development, but unlike the Fulton Houses Project Site, this complex does not have any accessory parking.

In total, the Project Sites include 22 existing buildings, consisting of 17 residential apartment buildings, one mixed residential and community facility building, two community facility buildings, and two storage/maintenance garage buildings, ranging from 1 to 25 stories, with the tallest building, existing on Fulton 6, at 232 feet tall. Existing uses on the Project Sites include 2,056 New York City Housing Authority (NYCHA) dwelling units (DUs), 56,859 gross square feet (gsf) of neighborhood center space, 10,300 gsf of daycare, and 95 accessory parking spaces.

The current buildings and units on the Project Sites are severely deteriorated and would need substantial repair and rehabilitation to address issues including persistent mold and leaks, the presence of lead-based paint, outdated elevator, heating, ventilation, mechanical and electrical systems, old fixtures and appliances, and many other issues that negatively impact residents' quality of life.

Site Environmental Conditions

Phase I ESAs

The 2022 Phase I ESAs, identified above in **Section C** assessed the Project Sites in their entirety. According to the reports, they constitute all appropriate inquiries into the previous ownership and uses the property consistent with good commercial and customary practice as defined at 42 USC §9601(35) (B). The Phase I ESAs were prepared in conformance with the ASTM (formerly known as the American Society for Testing Materials) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-21. The goal of the processes established by ASTM E1527-21 is to identify recognized environmental conditions (RECs) in connection with the Subject Property. Per the Phase I ESAs, REC is defined by ASTM

E1527-21 as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."

RECs identified in the Phase I ESAs include the historic uses of potential environmental concern listed above and are listed below.

RECs: Fulton Houses Project Site

As identified in the Fulton Houses Phase I ESA, prior to the 1963-1965 construction of the present Fulton Houses Project Site, multiple historic uses of potential environmental concern occurred on the property and are identified as RECs. As per Sanborn Fire Insurance Maps, they are as follows:

- Vinegar Factory at 424-426 W. 17th Street (off the east side of the present Property Building 4) in 1895.
- "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904.
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 W. 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921.
- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along 9th Avenue between W. 16th and W. 17th Street and along W. 16th and W. 17th Street and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and W. 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 W. 17th Street) and repair (443-445 W. 17th Street), a motor freight terminal (410-412 W. 19th Street) in 1950.

RECs: Elliott-Chelsea Houses Project Site

As identified in the Elliott-Chelsea Houses Phase I ESA, prior to the 1940s-1960s construction of the present Elliott-Chelsea Houses Project Site, multiple historic uses of potential environmental concern occurred on the property and are identified as RECs. As per Sanborn Fire insurance Maps, they are as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 W. 27th Street; 1911-1930).
- Machine Shop (429 W. 26th Street; 1911).
- Manufacturing (not specified) use (418-420 W. 27th Street, 447-455 W. 26th Street, 425-427 W. 25th Street; 1911-1930).
- Garage with a 10,000-gallon buried tank (417-423 W. 25th Street; 1930-1950).

- Printer-Lithographer operation with multiple tanks noted to the immediate east of the Property at the southwest corner of 9th Avenue and W. 26th Street – 263 9th Avenue; 1930-2005.

One Controlled REC, a term defined as a "recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)," was also identified. It consists of:

- A listing on the LTANKS database for Spill Number: 9602200 due to a tank test failure on May 15, 1996. The spill listed as consolidated with Spill Number: 8908401 is listed as having obtained regulatory closure on February 2, 2006.[1]

Phase I ESAs Recommendations

The Phase I ESAs recommended a subsurface investigation to determine the presence/absence of impact to underlying environmental media and abandoned underground storage tanks (USTs) in areas not excavated for the construction of the current buildings on the Project Sites. Additionally, the reports recommended that the onsite groundwater monitoring well observed during the Fulton Houses site reconnaissance be decommissioned in accordance with applicable regulations, and the onsite groundwater monitoring wells, petroleum recovery system, and associated 275-gallon waste oil UST observed during the Elliott-Chelsea Houses site reconnaissance be decommissioned in accordance with applicable regulations.

Phase II Work Plan

Pursuant to the Phase I ESAs recommendations, a Phase II Work Plan with a HASP was prepared for the first two development sites, i.e. the areas that would be developed under the first-stage of the Proposed Project including demolition of existing buildings, construction of new buildings, and site improvements to adjoining areas.

The purpose of the Phase II Work Plan is to identify an investigation of soil, groundwater and soil vapor to be performed that would properly characterize the site for potential environmental impacts from historic on-site/off-site uses, operations, etc. The geophysical survey and proposed vapor intrusion sampling event is intended to address both RECs as well as to provide general characterization of the site for development purposes. The sampling procedures of this investigation would be performed in accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation DER-10 as well as NYSDEC Sampling Analysis.

[1] The database listing detail regarding the backdrop to the regulatory closure is as follows: "The PRS [Petroleum Recovery System] was operated between 1998 and 2014. Free product has not been observed in the accessible monitoring wells since 2007. Since halting the PRS in 2014, free product has not been observed in the accessible monitoring wells and little free product (less than 0.25in) has been observed in the recovery wells. No petroleum related VOCs or SVOCs (listed in Table 3 of CP-51) were detected in groundwater samples collected in April 2015 from the accessible monitoring wells."

Following review and approval of the Phase II Work Plan by DEP in October 2023, a Remedial Investigation Report (Phase II), a RAP, and a CHASP were prepared in January-February 2024. These documents are included in **Appendix G** and discussed in detail in **Section E** below.

Later stages of the Proposed Project would not begin until after the completion of the first-stage buildings, with the second-stage building construction (inclusive of demolition) projected to begin in 2028. Demolition and construction on later stage sites will not begin until Phase II Work Plans, Remedial Investigation Reports, RAPs, and CHASPs are reviewed and approved by DEP in the same process as used for the first development sites.

E. ENVIRONMENTAL EFFECTS

Alternative 1 – No-Action Alternative

Under the No-Action Alternative, the existing buildings on the Project Sites would not be replaced, and no new development would occur. Additionally, no major capital improvements, rehabilitation, or renovations subject to discretionary approvals such as the PACT/RAD rehabilitation program would occur. Routine maintenance and repairs would be carried out.

Based on the age of the existing buildings and visual screening made in the field during preparation of the Phase I ESAs, asbestos containing materials and lead-based paint are suspected on the Project Sites. There was also evidence of significant damage to building materials and finishes as a result of moisture intrusion or mold/microbial growth. If any toxic materials requiring abatement (asbestos, lead-based paint, water intrusion, mold, and vapor encroachment conditions, and/or radon) are encountered during routine maintenance and repairs under the No-Action Alternative, further investigation and remedial actions would be taken as required by applicable regulations.

Alternative 2 – Rezoning Alternative, Alternative 3 – Non-Rezoning Alternative, and Alternative 4 – Midblock Bulk Alternative

As discussed in **Chapter 02.0** and summarized above in **Section A, "Introduction,"** the hazardous materials effects of the Proposed Project under the Rezoning Alternative, Non-Rezoning Alternative, and the Midblock Bulk Alternative would be qualitatively comparable and therefore are assessed jointly. Although the exact location of building footprints would differ under these alternatives after its first-stage, substantively the same types of activities would occur under any of these alternatives, i.e., demolition of all existing Project Sites buildings and their replacement with new buildings with landscaping, paths, and related accessory areas.

Under the Rezoning, Non-Rezoning, and Midblock Bulk Alternatives, development on the Project Sites would take place in stages over 16 years. Furthermore, the first-stage would involve the same sites for all three alternatives. This would consist of the demolition of the existing Fulton 11 building at 401-419 W. 19th Street and its replacement with the proposed 12-story Fulton 1 building and the demolition of the existing Chelsea Addition building at 436 W. 27th Drive and the adjoining Elliott Center (operated by Hudson Guild) at 441 W. 26th Street and their replacement with the proposed 39-story Elliott-Chelsea 1 building. Both of the new buildings would contain a mix of residential and non-residential uses and would have approximately 10-foot-deep basements.

Given the staging of the Proposed Project, the Phase II Work Plan, Remedial Investigation Report (Phase II), RAP, and CHASP cited above were conducted for these two first-stage building sites.[2]

Phase II Work Plan

The scope of work detailed in the Phase II Work Plan for the two first-stage building sites included a geophysical survey performed in drilling locations to clear boring locations and in the area of identified fill-port located on the sidewalk, using ground penetrating radar (GPR) and line tracing equipment. Additionally, the scope included an investigation of soil, groundwater, and soil vapor to properly characterize the site for potential environmental impacts from historic on-site/off-site uses, operations, etc. performed in accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation DER-10 as well as the NYSDEC Sampling Analysis. Moreover, the scope included the screening of soil samples during borehole advancement for organic vapors with a photo-ionization detector (PID) and evaluating for visual and olfactory impacts prior to collecting environmental samples. The scope also included up to four groundwater monitoring wells installed in areas of the proposed new buildings and a representative groundwater sample collected from each well to eliminate cross-contamination. Additionally, the scope included soil vapor sampling collected in areas of the proposed new construction footprints using a drill rig. The soil, groundwater, and soil vapor samples were submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for full analysis.

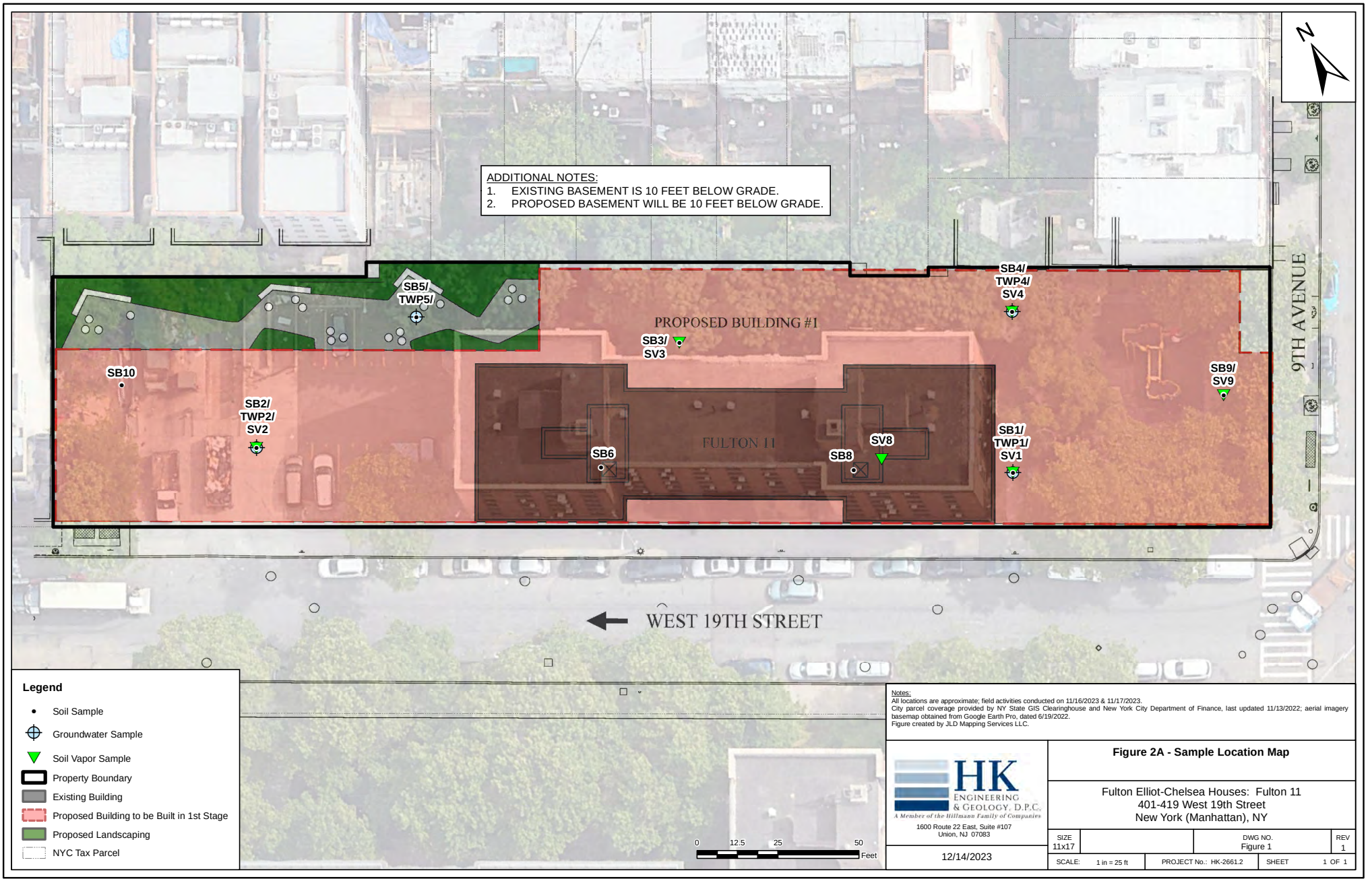
An OSHA-compliant HASP that meets all OSHA HAZWOPER requirements implemented during the Phase II investigation site work to protect worker safety was also provided. It also included a Site Safety Coordinator to ensure full compliance of the HASP in accordance with applicable health and safety laws and regulations.

In October 2023, DEP found the Phase II Work Plan and proposed HASP for the proposed investigation acceptable. Site investigation work was conducted in November 2023 and following completion a detailed Phase II report was submitted for DEP review in February 2024 (refer to **Appendix G**) and approved in March 2024.

Remedial Investigation Report (Phase II)

The Remedial Investigation Report (Phase II) reported the results of the investigation work conducted pursuant to the DEP-approved Phase II Work Plan. It involved the following work for the Fulton Houses first-stage site: a site inspection and geophysical survey; installation of nine (9) soil borings across the site and collection of fifteen (15) soil samples for chemical analysis from the soil borings to evaluate soil quality; installation of four (4) groundwater monitoring wells throughout the site to establish groundwater flow and collection of four (4) groundwater samples for chemical analysis to evaluate groundwater quality; and installation of six (6) soil vapor probes around the site perimeter and collection of six samples for chemical analysis. **Figure 05.09-1** presents the sample location map for the Fulton Houses first-stage site from the report. Refer to the report (in **Appendix G.3**) for more details. The following work for the Elliott-Chelsea Houses

[2] In these reports, the first-stage sites are referred to as "Fulton 11" and "Chelsea Elliott" but in this chapter they are referred to as Fulton Houses first-stage site and Elliott-Chelsea Houses first-stage site, respectively.



Source: Site Investigation Report, Fulton 11 and Chelsea Elliott, Manhattan, New York, prepared by HK Engineering & Geology, D.P.C., February 2024

Not to Scale

Fulton and Elliott-Chelsea Houses Redevelopment Project

Figure 05.09-1
Fulton Houses First-Stage Sample Location Map

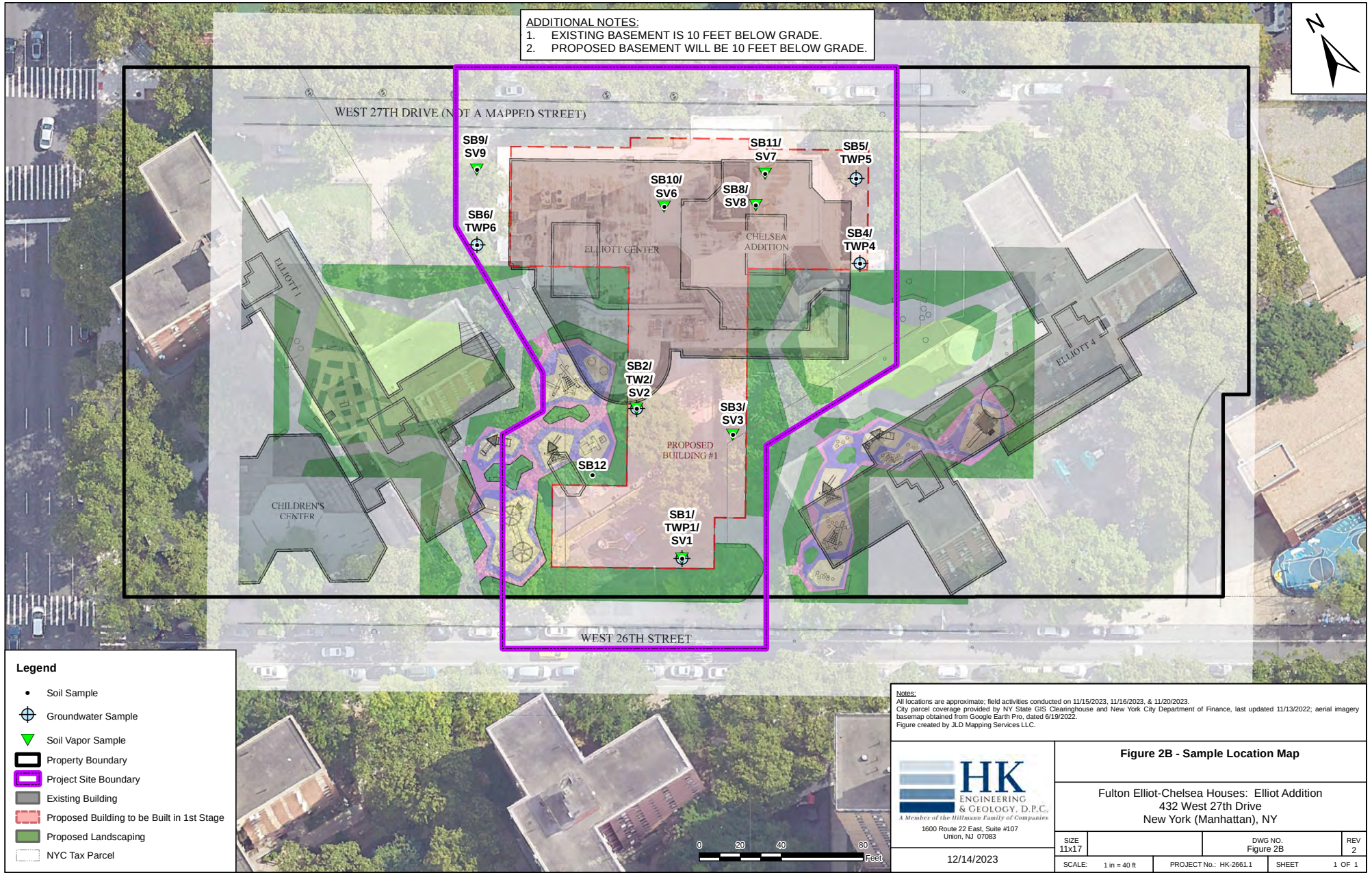
first-stage site included: a site inspection and geophysical survey; installation of eleven (11) soil borings and collected eighteen (18) soil samples for chemical analysis from the soil borings to evaluate soil quality; installation of five (5) groundwater monitoring wells throughout the site to establish groundwater flow and collection of five (5) groundwater samples for chemical analysis to evaluate groundwater quality; and installation of seven (7) soil vapor probes around site perimeter and collection of seven samples for chemical analysis. **Figure 05.09-2**, presents the sample location map for the Elliott-Chelsea Houses first-stage site from the report. Refer to the report (in **Appendix G.3**) for more details.

The findings of the Remedial Investigation Report are summarized below. (See **Appendix G.4** for full report.)

Soil/fill samples collected were compared to the NYSDEC 6NYCRR Part 375 Section 6.8 Unrestricted Use (UU) and Restricted Residential Use (RRU) Soil Cleanup Objectives (SCOs). For the Fulton Houses first-stage site, the soil analytical results revealed that no VOCs were detected above the UU SCOs and RRU SCOs. Three metals were detected above the RRU SCOs including barium, lead, and mercury. One additional metal (zinc) was the only metal above the UU SCO but below the RRU SCOs. Remaining metals were either not detected or detected below the applicable SCO. Four pesticides including 4'4-DDD, 4,4'-DDE, 4,4'-DDT, and Dieldrin were detected mainly in shallow samples above UU SCOs. No pesticides were detected above RRU SCOs. SVOCs known as Polycyclic aromatic hydrocarbons (PAHs) were detected above both the UU SCOs and RRU SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene were detected in exceedance in both shallow and deep intervals. Remaining SVOCs analyzed were either not detected or detected below the applicable SCO. One PCB (Aroclor 1254) was detected in exceedance of the RRU SCOs found in the crawl space sample (SB6-419 CS) located at 419 W. 19th Street. Remaining PCB compounds were not detected in any other soil sample.

The groundwater samples collected were compared to the New York State 6NYCRR Part 703.5 Class GA Groundwater Ambient Quality Standards (AWQS). The groundwater analytical results revealed that no pesticides or PCBs were identified above their AWQS. One VOC (tetrachloroethene) was detected above the AWQS in two groundwater samples. Remaining analyzed compounds were either not detected or detected below the AWQS. Four undissolved metals were identified in exceedance above its AWQS that include beryllium, chromium, copper, lead, and sodium. Following field filtering, two dissolved metals (sodium and lead) were still detected in exceedance above AWQS. Remaining metals were either not detected or detected below applicable AWQS. Four PAHs were detected above applicable AWQS which include Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, and Indeno[1,2,3-cd]pyrene. Remaining SVOCs analyzed were either not detected or detected below applicable AWQS.

Soil vapor samples collected were compared to the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion matrices dated October 2006 (with subsequent updates).The soil vapor analytical results revealed that Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at the exterior portion of the Site, as identified in **Figure 05.09-1**. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon



Source: Site Investigation Report, Fulton 11 and Chelsea Elliott, Manhattan, New York, prepared by HK Engineering & Geology, D.P.C., February 2024

Not to Scale

Fulton and Elliott-Chelsea Houses Redevelopment Project

Figure 05.09-2
Elliott-Chelsea Houses First-Stage Sample Location Map

tetrachloride, 1,1,1-trichloroethane, and vinyl chloride, were either detected at low concentrations or not detected in the soil vapor sample.

For the Elliott-Chelsea Houses first-stage site, the soil analytical results revealed that No VOC or PCB compounds were detected above the UU SCOs and RRU SCOs. Six metals were detected above RRU SCOs including barium, cadmium, copper, lead, manganese, and mercury. One additional metal (zinc) was the only metal above the UU SCO but below the RRU SCOs. Remaining metals were either not detected or detected below the applicable SCO. Three pesticides including 4'4-DDD, 4,4'-DDE, 4,4'-DDT were detected above the UU SCOs. No pesticides were detected above RRU SCOs. Identical PAHs were detected above both UU SCOs and RRU SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, and Indeno[1,2,3-cd]pyrene were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.

The groundwater analytical results revealed that no pesticides or PCB compounds were identified above their AWQS. One VOC (chloroform) was detected above the AWQS. Remaining analyzed compounds were either not detected or detected below the AWQS. Three undissolved metals were identified in exceedance above AWQS that include lead, selenium, and sodium. Following field filtering, two dissolved metals (sodium and selenium) were still detected in exceedance above AWQS. Remaining metals, including lead, were either not detected or detected below applicable AWQS. Four PAHs were detected above applicable AWQS which include Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, and Indeno[1,2,3-cd]pyrene. Remaining SVOC compounds analyzed were either not detected or detected below applicable AWQS.

The soil vapor analytical results revealed that CVOCs detections included tetrachloroethene found inside the basement of the Hudson Guild Center. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride, were either detected at low concentrations or not detected in the soil vapor sample.

RAP and CHASP

Prepared pursuant to the findings of the Remedial Investigation Report, the purpose of the RAP is to remediate the Fulton and Elliott-Chelsea first-stage sites in a manner that will render the sites protective of public health and the environment consistent with the contemplated end use. The RAP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action provides for the protection of public health and the environment, and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations. The RAP also includes a CHASP that is designed to protect community residents and on-site workers during project construction. The elements of the RAP and CHASP are in compliance with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). They include many protective elements outlined in the documents.

Key elements of the proposed RAP include the following: performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds; completion of a Waste Characterization Study prior to excavation activities; excavation and removal of soil/fill exceeding Restricted-Residential (Track 2) SCOs and proper disposal at an appropriately licensed or permitted facility; transportation and off-site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal; removal of all USTs that are encountered during soil/fill removal actions – registration of tanks and reporting of any petroleum spills associated with USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations; if dewatering is planned or considered it shall be in compliance with city, state, and federal laws and regulations; extracted groundwater will either be containerized for off-site licensed or permitted disposal or will be treated under a permit from DEP to meet pretreatment requirements prior to discharge to the sewer system; implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations; submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and lists any changes from this RAP.

The RAP indicated that if Track 2 Unrestricted Use SCOs are not achieved, the following construction elements implemented as part of new development will constitute Engineering and Institutional Controls:

- As part of development, construction of an engineered composite cover for both sites (Fulton Houses first-stage site and Elliott-Chelsea Houses first-stage site) will consist of a sixteen-inch thick concrete building slab below the partial cellar, an 8-inch thick concrete building slab below the on grade portions of the building underlain by a vapor barrier and 4-inch mud slab sub-base beneath all building areas, 4-inch poured concrete on a 6-inch clean gravel subbase in sidewalk and walkway areas, and two feet of clean soil in all open space and landscaped areas.
- As part of development, installation of an air barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a 46-mil Grace Preprufe® 300R Plus below the slab throughout the full building area and a 32-mil Grace Preprufe® 160 Plus outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to using Bituthene® Liquid Membrane to prevent preferential pathways for vapor migration.
- If necessary, Submission of an approved Site Management Plan (SMP) in the Remedial Action Plan (RAR) for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
- Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming;[3] (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of

[3] The prohibition on gardening and farming would apply to in-ground activities but would not apply to installations such as a raised planting bed or rooftop garden using soil from off-site sources.

residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without DEP-approval. (Besides a "Declaration of Covenants and Restrictions," these requirements also could be recorded in some other type of instrument legally binding upon NYCHA and the PACT Partner.)

The RAP also included implementation of a Construction-Health and Safety Plan (CHASP) which pertains to remedial and invasive work performed at the site until the issuance of the Notice of Completion. As indicated in the CHASP, remedial work performed under the RAP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations.

A Remedial Action Report (RAR) will be submitted to DEP following implementation of the remedial action defined in the RAP. The RAR will document that the remedial work required under the RAP has been completed and has been performed in compliance with this plan. The RAR will include: information required by the RAP; text description with thorough detail of all engineering and institutional controls; as-built drawings for all constructed remedial elements; manifests for al soil or fill disposal; photographic documentation of remedial work performed under this remedy; Site Management Plan; description of any changes in the remedial action from the elements provided in the RAP and associated design documents; tabular summary of all end point sampling results and all soil/fill waste characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action; test results or other evidence demonstrating that remedial systems are functioning properly; account of the source area locations and characteristics of all soil or fill material removed from the site; full accounting of the disposal destination of all contaminated material removed from the site; account of the origin and required chemical quality testing for material imported onto the site; the RAP and Remedial Investigation Report will be included as appendices to the RAR.

Radon

An assessment of radon was incorporated into this environmental review. In accordance with HUD Notice CPD-23-103, the potential for radon contamination was assessed using a scientific data review, specifically, data from the CDC Environmental Public Health Tracking Network, which collates lab testing results from within New York State on a county-by-county basis. Within New York County, where 498 radon tests have been conducted from 2008-2017, the most recent 10 years in which data are available, the annual mean pre-mitigation radon measurement in tested buildings is 1.5 picocuries per liter (pCi/L).[4] As this measurement is below the EPA's recommended action level of 4 pCi/L, mitigation for radon is not required, and further assessment of radon is not necessary.

[4] Centers for Disease Control and Prevention. "CDC National Environmental Public Health Tracking Network data for New York City (Appendix C)." CDC. https://ephtracking.cdc.gov/DataExplorer/

Project Requirements for All Project Stages

The first-stage sites will comply with the RAP and CHASP submitted to DEP in February 2024, as modified to address DEP's comments and recommendations. Requirements for site assessment, investigation, remediation, monitoring, and reporting, as warranted, for subsequent stages of the Proposed Project under all three alternatives will be memorialized in a legally binding document between NYCHA and the PACT Partner. Each of these steps in the process will be subject to DEP review and approval. Any DEP-required remedial action must be identified before permits for the demolition of a given building can be issued and, thereafter, a DEP-approved site closure report is required to be issued before a temporary certificate of occupancy is sought or issued by the NYC Department of Buildings (DOB).

With these requirements in place, under any alternative selected for the Proposed Project all of the building sites on the Project Sites will be subject to site investigation, testing, remediation (as warranted), and site closure report requirements, subject to DEP review and approvals. Accordingly, the Rezoning Alternative, Non-Rezoning, and Midblock Bulk Alternative would not have the potential to result in significant adverse hazardous materials impacts and further analysis in this EIS is not warranted.