Chapter 11: Natural Resources

A. INTRODUCTION

The 2001 *City Environmental Quality Review (CEQR) Technical Manual* defines natural resources as "plant and animal species and any area capable of providing habitat for plant and animal species or capable of functioning to support ecological systems and maintain the City's environmental balance." The purpose of this chapter is to describe the natural resources at the Development Site, the Additional Housing Sites, and in the surrounding areas, and to assess potential impacts on these resources as a result of the Proposed Actions.

The Proposed Actions would allow for construction of a mixed-use development ("Development Site Project") on the Development Site located between West 30th and 33rd Streets and Eleventh and Twelfth Avenues. In addition, the Proposed Actions would involve the development at Additional Housing Sites at the intersection of Ninth Avenue and West 54th Street ("Ninth Avenue Site") and near the intersection of Tenth Avenue and West 48th Street ("Tenth Avenue Site"). The 13-acre Development Site would be developed with up to eight buildings that would include approximately 6.2- to 6.4-million gross square feet (gsf) of residential, commercial, a public school, publicly accessible open space (approximately five acres), and enclosed accessory parking areas. The Additional Housing Sites would be developed with affordable residential units, retail, and office uses.

Chapter 1, "Project Description," describes components of the Proposed Actions that would allow for the proposed development of the Development Site and the Additional Housing Sites. Construction of the Development Site Project is expected to begin in 2010 and end by 2019. Construction at the Ninth Avenue and Tenth Avenues Sites is expected to be completed in 2016 and 2018, respectively.

The Proposed Actions would result in the following activities at the Development Site:

- Construction of a platform over the northern two-thirds of the Long Island Rail Road (LIRR) rail yard;
- Construction of up to eight buildings (five on the platform, three on the ground surface or "terra firma") comprising the following:
  - Residential development of approximately 3.8 million sf to 4.8 million sf;
  - Commercial development of either between 1.5 to 2.2 million sf of office space or a 1,200-unit hotel, and between 210,000 and 220,500 sf of retail space;
  - An approximately 120,000-sf public school (the "PS/IS school");
- Construction of two parallel private vehicular roadways, which would function as unmapped extensions of West 32nd and West 31st Streets;
- Construction of up to approximately 1,600 accessory parking spaces;

- Integration of approximately one (1) acre of the High Line within the Development Site as the publicly accessible open space that would connect with planned and existing portions of High Line Park located east and south of the Development Site; and
- Development of approximately four acres of additional open space located primarily in the central, western, and southwestern portion of the Development Site.

The Proposed Actions would result in the following activities at the Additional Housing Sites:

- Development of 272,600 sf of residential space consisting of approximately 312 permanently affordable housing units; and
- Construction of 30,000 sf of office space and 17,550 sf of retail space.

PRINCIPAL CONCLUSIONS

GROUNDWATER

Construction and operation of the Development Site Project would not result in a significant adverse impact to groundwater. Groundwater is not used as a source of drinking water in Manhattan.

WETLANDS

The Proposed Actions would not result in in-water construction activities within the Hudson River. Implementation of the stormwater pollution prevention plan (SWPPP) prepared in accordance with the DEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-08-001 during construction and operation of the Development Site Project would avoid a significant adverse impact on designated DEC littoral zone tidal wetlands in the Hudson River from the discharge of stormwater generated within the Development Site. Post-construction stormwater management measures for the Development Site Project would decrease the rate and quantity and improve the quality of stormwater discharged from the Development Site and conveyed to the Hudson River. As a result, the Proposed Actions would not result in any significant adverse environmental impacts on designated DEC littoral zone tidal wetlands in the Hudson River.

FLOODPLAINS

The majority of the Development Site is located within the 100-year floodplain, which is affected by coastal flooding. Unlike fluvial flooding, which is affected by activities within the floodplain of a river, coastal flooding is influenced by tidal and meteorological forces and is not affected by activities within the floodplain. Therefore, the Development Site Project would not adversely affect flooding of areas adjacent to the Development Site. Furthermore, approximately two-thirds of the Development Site Project would be located on the platform over the LIRR facilities and would be elevated above the existing 100-year floodplain as well as the projected 100-year elevation due to sea level rise. As discussed in Chapter 13, "Waterfront Revitalization Program," any development that would occur within the terra firma portion of the Development Site would have the elevation of the lowest floor set forth in the Restrictive Declaration for the Development Site. The placement of the elevation of the lowest floor for the base of structures WR-2, WR-3, and WR-4 at least one foot above the current base flood elevation (BFE) for the 100-year flood would result in an elevation of the lowest floor that would be above the New York City Panel on Climate Change (NPCC) projected increased 100-year flood elevation in the

2020s. Therefore, the design for these structures would minimize the potential for public and private losses due to flood damage under current and projected flood conditions.

TERRESTRIAL RESOURCES

The Proposed Actions would not result in a significant adverse impact to terrestrial resources. Construction of the Development Site Project would result in loss of limited habitat present within the project sites, and wildlife displacement. However, vegetation and wildlife at the project sites is primarily composed of common species tolerant of urban ecosystems, including native species (i.e., Eastern gray squirrel), non-native species (i.e., European starling). The loss of existing vegetation and wildlife would not result in a significant adverse impact on terrestrial resources of the New York City metropolitan region.

The construction of the Development Site Project would create approximately five acres of open space (including approximately one acre of the High Line open space). These proposed open spaces would be planted with a variety of native and ornamental trees, shrubs, grasses, and herbaceous perennials. This habitat enhancement would likely improve the resource value of the Development Site beyond its current value, and would provide potential habitat for urban wildlife, including migratory songbirds, small mammals and butterflies. The potential losses of birds due to daytime and nighttime collisions with buildings during the fall and spring migratory periods would not be expected to result in a significant adverse impact to migratory bird populations.

WATER QUALITY AND AQUATIC BIOTA

The Proposed Actions would not result in a significant adverse impact on water quality or aquatic biota of the Hudson River. No in-water construction activities would occur as a result of the Proposed Actions. During construction of the Development Site Project, implementation of the SWPPP prepared in accordance with the DEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-08-001 would avoid any significant adverse impacts on water quality or aquatic resources of the Hudson River from the discharge of stormwater from the Development Site.

Although additional discharge of sanitary sewage would occur as a result of the Proposed Actions, the incremental increase (1.24 million gallons per day [mgd]) is small and would not be expected to cause the North River Water Pollution Control Plant to be above its permitted daily flow limit of 170 mgd or adversely affect compliance of the North River Water Pollution Control Plant effluent with its SPDES permit limits.

Under existing conditions, stormwater generated within the northern two-thirds of the Development Site is discharged to the LIRR stormwater drainage system within the Western Rail Yard. Stormwater generated within the southern third of the Development Site along the West 30th Street frontage is conveyed to the combined sewer system within West 30th Street. Stormwater from the Additional Housing Sites is discharged to the combined sewer system. The Proposed Actions would result in the removal of stormwater generated within the southern third of the Development Site from the combined sewer system, discharging it instead to the existing LIRR stormwater drainage system. As detailed in Chapter 14, "Infrastructure," stormwater generated within the northern half of the Development Site would be discharged to the separate storm sewer that will be installed within West 33rd Street in the Future without the Proposed Actions as part of the City's Amended Drainage Plan for the Hudson Yard area. With the implementation of stormwater management best management practices (BMPs) proposed for the

Development Site Project, the Proposed Actions would result in a decrease in the quantity and rate at which stormwater runoff would be discharged from the Development Site, and an improvement in the quality of stormwater discharged to the Hudson River. Therefore, stormwater generated by the Proposed Actions would not result in a significant adverse impact on the aquatic resources of the Hudson River.

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT

The Proposed Actions would not result in in-water construction activities. The discharge of stormwater originating from the Development Site and the discharge of sanitary sewage resulting from the Proposed Actions to the combined sewer system would not result in a significant adverse impact to water quality. Therefore, the Proposed Actions would not result in a significant adverse impact to Significant Coastal Fish and Wildlife Habitat.

ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES

No in-water work would be conducted as part of the Proposed Actions, and the construction and operation of the Development Site Project would not result in a significant adverse impact to water quality. Moreover, rare, special concern, threatened, endangered and candidate species with the potential to occur within the vicinity of the Development Site and Additional Housing Sites are limited to aquatic species that are likely transient. For these reasons, the Proposed Actions would not result in a significant adverse impact on State-listed or federally-listed species.

B. METHODOLOGY

STUDY AREA

For terrestrial resources, floodplains, groundwater, and floodplains, the study area was restricted to the three project sites and the area immediately adjacent because of the highly developed nature of the surrounding land uses. An exception was made for the identification of threatened or endangered species, which were evaluated for a distance of at least 0.5 miles from the three project sites. The study area for water quality and aquatic biota included the Lower Hudson River, focusing on the area of the river with the potential to receive stormwater runoff from the Development Site, combined sewer overflow (CSO) from outfalls with the potential to be affected by the Proposed Actions, and effluent from the North River Water Pollution Control Plant.

As described in Chapter 2, "Framework for Analysis," the analysis of the Proposed Actions was performed for the expected year of completion of the project—2019. In addition, an assessment of the Proposed Actions' potential environmental impacts was undertaken for a 2017 interim year of development. The following analysis considers the potential for a significant adverse impact of the Proposed Actions in the full (2019) Future with the Proposed Actions condition and then for the interim (2017) Future with the Proposed Actions condition.

ASSESSMENT OF EXISTING AND FUTURE WITHOUT THE PROPOSED ACTIONS CONDITIONS

The methodology outlined in the *CEQR Technical Manual* was used to characterize existing conditions and assess potential impacts on natural resources located throughout the natural

resources study area. The existing condition of floodplains, surface water, groundwater, wetlands, terrestrial resources, and significant, sensitive, or designated resources within the three project sites was assessed on the basis of the following sources (see Appendix D, "Natural Resources Bibliography and Correspondence," for the full citations of literature consulted):

- Field observations during a September 22, 2008 site visit to the Development Site, and October 16, 2008 site visits to the Ninth Avenue and Tenth Avenue Sites, to describe existing terrestrial resources, and record observations of flora and fauna. Habitat classifications were made based on direct observation and examination of current and past uses of the project sites following the standard terminology in Edinger et al., "Ecological Communities of New York State" (2002).
- Ecological Communities of New York State (Reschke [1990], Edinger et al. [2002]).
- United States Geological Survey (USGS)—topographic quadrangle map for the Central Park and Weehawken quadrangles.
- DEC: Breeding Bird Atlas, Tidal Wetlands Maps, Herp Atlas Project.
- United States Fish & Wildlife Service (USFWS) NWI map for the USGS Central Park and Weehawken topographic quadrangles.
- Existing information identified in literature and obtained from governmental and nongovernmental agencies, including the New York City Department of Environmental Protection (DEP) Harbor Water Quality Survey annual reports; DEP effluent data for the North River Water Pollution Control Plant; U.S. Environmental Protection Agency (EPA) National Sediment Quality Survey Database, 1980-1999 (EPA, 2001); New York/New Jersey Harbor Estuary Program; EPA Regional Environmental Monitoring and Assessment Program (R-EMAP); and U.S. Army Corps of Engineers (USACE) studies conducted as part of the New York and New Jersey Harbor Navigation Project.
- Responses (Colligan 2008 and Seoane 2008) to requests for information on rare, threatened, or endangered species within the vicinity of the project sites submitted to USFWS (New York office), NMFS, and the New York National Heritage Program (NYNHP) (see Appendix D, "Natural Resources Bibliography and Correspondence"). NYNHP, a joint venture of DEC and The Nature Conservancy (TNC) since 1985, maintains an ongoing, systematic, scientific inventory on rare plants and animals native to New York State. DEC maintains the NYNHP files. The NYNHP database is updated continuously to incorporate new records and changes in the status of rare plants or animals. In addition to the State program, USFWS maintains information for federally-listed threatened or endangered freshwater and terrestrial plants and animals, and NMFS for federally-listed threatened or endangered marine organisms.

The 2019 Future without the Proposed Actions condition within the project sites was assessed by:

- Considering existing natural resources within the three project sites and the Lower Hudson River and assessing potential effects on these resources in 2019, and projected sanitary and stormwater flow rates and volumes from the project sites to the Hudson River, and North River Water Pollution Control Plant with the implementation of DEP's Amended Drainage Plan[1] that would be implemented by 2019.

[1] DEP has prepared an Amended Drainage Plan for the Hudson Yards area (generally bounded by: Route 9A to the west; West 46th to the north; West 27th Street to the south; and between Seventh and Tenth

- Considering potential effects of proposed or ongoing improvements in the vicinity of the project sites on water quality and natural resources, including open space development along the Hudson River in the vicinity of the project sites and habitat restoration within the Development Site.

ASSESSMENT OF IMPACTS ON NATURAL RESOURCES

Potential impacts on natural resources from the Proposed Actions were assessed by evaluating:

- The existing natural resources and water quality within and in the vicinity of the project sites.
- Potential effects from the discharge of stormwater to the existing Caemmerer Rail Yard storm drains, and to combined sewer system during project construction.
- The construction activities resulting from the Proposed Actions (see Chapter 21, "Construction Impacts").
- Projections of sanitary and stormwater flow rates from the project sites to the Hudson River, and North River Water Pollution Control Plant with the Proposed Actions.
- Potential effects to the aquatic resources of the Lower Hudson River from the discharge of stormwater generated within the Development Site to the separate storm sewer that would be developed as part of the Amended Drainage Plan in the Future without the Proposed Actions, or to the existing LIRR separate storm drain system.
- Potential change in terrestrial habitat that would occur as a result of the Proposed Actions.

REGULATORY CONTEXT

Stormwater discharges and activities within the New York State coastal zone and the floodplain, such as construction of stormwater outfalls, require compliance with federal and State legislation and regulatory programs, and federal executive orders that pertain to activities in coastal areas, surface waters, floodplains, and the protection of species of special concern. The regulations that may apply to the Proposed Actions are described below.

FEDERAL

Clean Water Act (33 USC §§ 1251 to 1387)

The objective of the Clean Water Act, also known as the Federal Water Pollution Control Act ("the Act"), is to restore and maintain the chemical, physical, and biological integrity of U.S. waters. It regulates point sources of water pollution, such as discharges of municipal sewage and industrial wastewater, and the discharge of dredged or fill material, into navigable waters and other waters of the United States. It also regulates non-point source pollution, such as runoff from streets, agricultural fields, construction sites, and mining operations that enters waterbodies from other than the end of a pipe.

Avenues to the east) to accommodate additional sanitary sewage that would result from the rezoning of this area, and to modify the storm sewer system. The Amended Drainage Plan, and future changes to the combined and separate storm systems associated with the Amended Drainage Plan, is included in the Future without the Proposed Actions.

Coastal Zone Management Act of 1972 (16 USC §§ 1451 to 1465)

The Coastal Zone Management Act of 1972 established a voluntary participation program to encourage coastal states to develop programs to manage development within the state's designated coastal areas to reduce conflicts between coastal development and protection of resources within the coastal area. Federal permits issued in New York must be accompanied by a Coastal Zone Consistency Determination that evaluates consistency with New York's federally approved coastal zone management program.

Executive Order 11988 (Floodplain Management)

Executive Order 11988 states that "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities."

Endangered Species Act of 1973 (16 USC §§ 1531 to 1544)

The Endangered Species Act of 1973 recognized that endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. The Act prohibits the importation, exportation, taking, possession, and other activities involving illegally taken species covered under the Act, and interstate or foreign commercial activities. The Act also provides for the protection of critical habitats on which endangered or threatened species depend for survival.

NEW YORK STATE

State Pollutant Discharge Elimination System (New York Environmental Conservation Law Article 3, Title 3; Article 15; Article 17, Titles 3, 5, 7, and 8; Article 21; Article 70, Title 1; Article 71, Title 19; Implementing Regulations 6 NYCRR Articles 2 and 3)

Title 8 of Article 17, Environmental Conservation Law (ECL), Water Pollution Control, authorized the creation of the SPDES to regulate discharges to the state's waters. Activities requiring a SPDES permit include wastewater discharges from pipe (point source) into the state's surface water or groundwater, including the intake and discharge of water for cooling purposes; constructing or operating a disposal system (sewage treatment plant); discharge of stormwater; and construction activities that disturb one or more acres.

Waterfront Revitalization of Coastal Areas and Inland Waterways Act (Sections 910-921, Executive Law, Implementing Regulations 6 NYCRR Part 600 et seq.)

Under the Waterfront Revitalization of Coastal Areas and Inland Waterways Act, the New York State Department of State (NYSDOS) is responsible for administering the Coastal Management Program (CMP). The Act also authorizes the state to encourage local governments to adopt Waterfront Revitalization Programs (WRPs) that incorporate the state's policies. New York City has a WRP administered by the DCP.

The New York CMP has specific policies with respect to fish and wildlife. Policy 7 specifies that Significant Coastal Fish and Wildlife Habitats be protected, preserved, and, where practical, restored so as to maintain their viability as habitats. DEC is responsible for evaluating the significance of coastal habitats and evaluating their relative habitat values. NYSDOS designates and maps the Significant Coastal Fish and Wildlife Habitat areas. Neither land/water uses nor development activities that destroy the designated habitat through direct or indirect means may

be undertaken. These uses or activities may not significantly impair the viability of the habitat by reducing vital resources beyond the tolerance range of important species of fish or wildlife that rely on the habitat, such as physical parameters (circulation, flushing rates, turbidity, or depth); biological parameters (community structure or predator/prey relationships); and chemical parameters (dissolved oxygen, carbon dioxide, nutrients, salinity, and pollutants).

Floodplain Management Criteria for State Projects (6 NYCRR 502)

Under 6 NYCRR 502, all New York State agencies are to ensure that the use of State lands and the siting, construction, administration, and disposition of State-owned and State-financed projects involving any change to improved or unimproved real estate are conducted in ways that minimize flood hazards and losses. Projects are to consider alternative sites on which the project could be located outside the 100-year floodplain. Projects to be located within the floodplain are to be designed and constructed consistent with the need to minimize flood damage within the 100-year floodplain and include adequate drainage to reduce exposure to flood hazards. All public utilities and facilities associated with the project are to be located and constructed to minimize or eliminate flood damage. The regulations specify that for nonresidential structures, the lowest floor should be elevated or flood-proofed to not less than one foot above the base flood level so that below this elevation the structure, together with associated utility and sanitary facilities, is watertight, with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. No project may be undertaken unless the cumulative effect of a proposed action and existing developments would not cause material flood damage to the existing developments. In cities with a designated floodway, no portion of the project may be placed within the adopted regulatory floodway to result in any increases in flood levels—no regulatory floodway is located in the vicinity of the project sites.

Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern (ECL, Sections 11-0535[1]-[2], 11-0536[2], [4], Implementing Regulations 6 NYCRR Part 182)

The Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern Regulations prohibit the taking, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife, or any hide, or other part of these species that are listed in 6 NYCRR §182.6.

C. EXISTING CONDITIONS

SITE DESCRIPTION

DEVELOPMENT SITE

The Development Site has been used for rail and transportation facilities since the late 1800s. The current configuration of the Eleventh Avenue Viaduct—which separates the eastern and western portions of the Caemmerer Rail Yard, and the High Line—was created in the 1930s as part of the West Side Improvement Project. The elevated Miller Highway was also built above Twelfth Avenue as part of that project. By the 1970s, freight operations fell into disuse. In 1980, the Triborough Bridge and Tunnel Authority (TBTA), an affiliate of the Metropolitan Transportation Authority (MTA), acquired the site from Consolidated Rail Corporation, an affiliate of Penn Central Transportation Company. The TBTA redeveloped the western portion of the Caemmerer Rail Yard, the Western Rail Yard, in 1986 as a storage and maintenance

complex for the LIRR's electric commuter car fleet, designing the yard to accommodate columns that would allow for future development above its facilities without interrupting use of the yard as a rail facility.

As discussed in Chapter 3, "Land Use, Zoning, and Public Policy," a portion of an unused freight railroad viaduct, known as the High Line, crosses the southwestern portion of the Development Site. The High Line presently spans 1.45 miles across 22 city blocks from West 34th Street south to Gansevoort Street. The structure, built to support two fully loaded trains, connected directly to factories and warehouses, allowing trains to convey raw and manufactured goods directly to and from buildings. Trains stopped running on the High Line in 1980, when the northern end of the structure and its easement were rerouted to accommodate construction of the Jacob K. Javits Convention Center ("Convention Center"). At the southern end, a five-block section of the High Line was torn down in 1991, bringing the Line's southern terminus to Gansevoort Street (FHL undated).

The High Line, ranging between 18 and 30 feet in height and 30 to 60 feet in width has an area of approximately six acres, of which approximately one acre exists within the Development Site. The portion of the High Line owned by the City of New York south of West 30th Street is being transformed into a public park (FHL undated).

ADDITIONAL HOUSING SITES

The Ninth Avenue Site is located on the southeast corner of West 54th Street and Ninth Avenue approximately 1 mile north of the Development Site. The Ninth Avenue Site is currently occupied by a surface parking lot that serves the adjoining New York City Transit (NYCT) building.

The Tenth Avenue Site is located between West 48th and West 49th Streets, approximately ¾-mile north of the Development Site. It occupies the western portion of Block 1077, Lot 29, and is occupied by a below-grade Amtrak railroad right-of-way for the Empire Line.

GROUNDWATER

Groundwater is found in the pore spaces between soil particles and in fissures and cracks in bedrock. Groundwater is not a source of drinking water in Manhattan. Instead, reservoirs in the Croton, Catskill, and Delaware watersheds provide potable water to Manhattan. Groundwater in Manhattan is contained in igneous and metamorphic rock and is isolated geologically from the aquifer underlying Queens. Brooklyn, and Long Island, designated as part of the Brooklyn-Queens Sole Source Aquifer. Within the three project sites, groundwater is typically found between 4 and 15 feet below the ground surface.

DEVELOPMENT SITE

At the Development Site, groundwater typically flows west toward the Hudson River with possible variations in flow direction due to intervening subsurface structures (AKRF 2004). As discussed in Chapter 12, "Hazardous Materials," results of groundwater sampling at the Development Site detected no pesticides, herbicides or Polychlorinated Biphenyls (PCBs), but did detect concentrations of volatile organic compounds (VOCs) (benzene, ethylbenzene, total xylenes, and toluene) and semivolatile organic compounds (SVOCs) (naphthalene, 2-methylphenol, 4-methylphenol, and several polyaromatic hydrocarbons) above DEC's Class GA

groundwater Standards and Guidelines[1] in two of the samples. The presence of these contaminants may reflect the presence of isolated petroleum contamination (VOCs) and creosote (SVOCs).

Results of groundwater sampling at the Development Site also detected metals (i.e., arsenic, barium beryllium, chromium, copper, magnesium, manganese, lead, and mercury) at concentrations exceeding the Class GA groundwater criteria. However, the concentrations detected at the Development Site are consistent with those typically found in urban groundwater—in particular, areas with historic fill, and not due to specific releases or spills.

ADDITIONAL HOUSING SITES

At the Ninth Avenue Site, groundwater at the site is typically encountered at approximately 7.5 to 12.5 feet below ground surface and under natural conditions, would be expected to flow to the west-northwest towards the Hudson River. Elevated levels of VOCs, including methyl t-butyl ether, benzene, ethylbenzene and xylenes, as well as SVOCs, were detected on site. As a result, the site is undergoing remediation under a DEC consent order. As mentioned above, groundwater is not a source of potable water in Manhattan (LBA 2008a).

At the Tenth Avenue Site, groundwater is expected to be at approximately 15 feet below ground surface and under natural conditions, is expected to flow to the west-northwest towards the Hudson River. Although five former Manufactured Gas Plants (MGPs)[2] have been identified as occurring within a 1-mile radius of this project site it is unlikely that contamination from any of these facilities would migrate to the project site (LBA 2008b). Groundwater is not a potable source of water in Manhattan.

WETLANDS

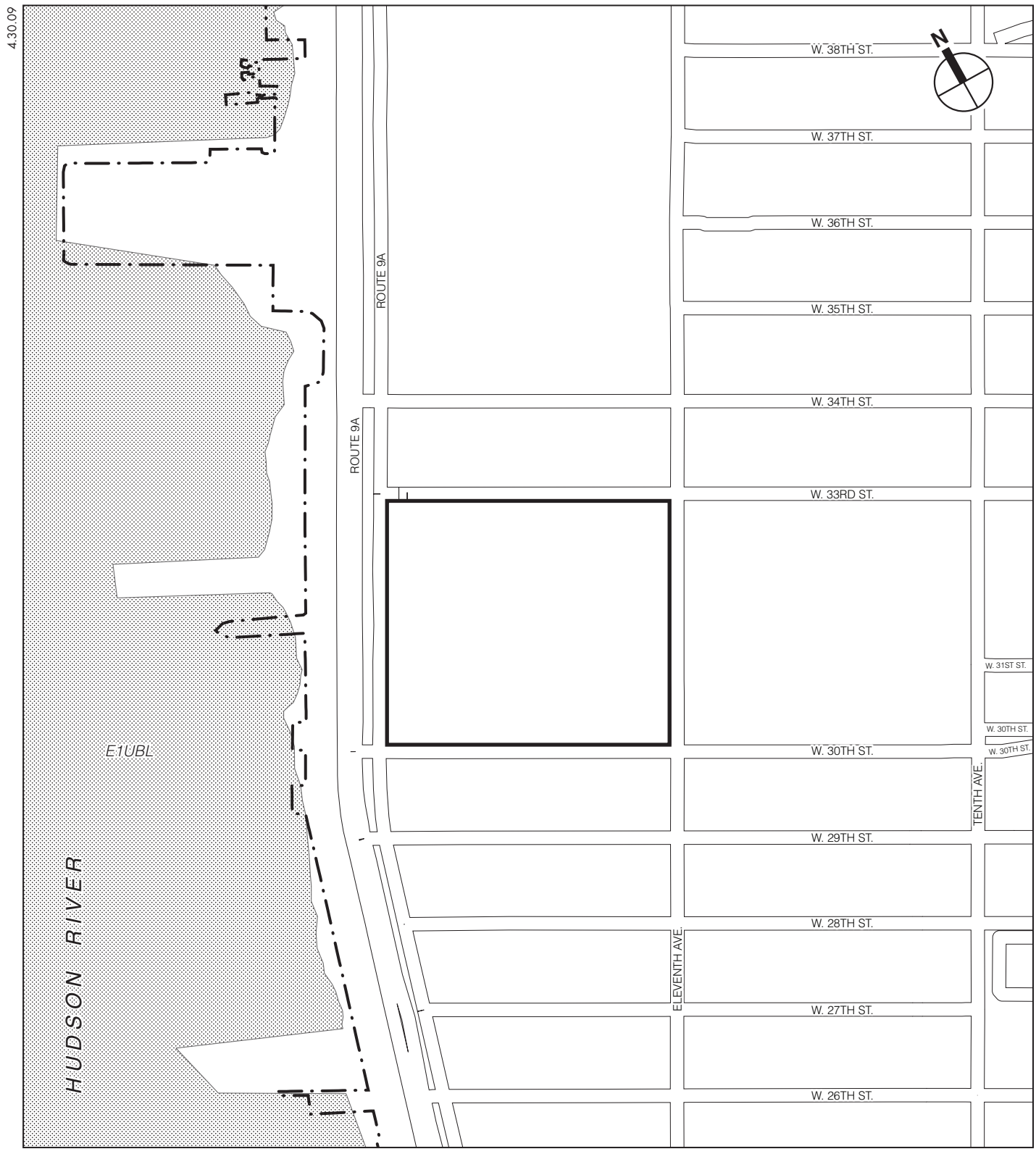
DEVELOPMENT SITE

The entire shoreline of the Hudson River to the west of the Development Site is engineered, primarily with bulkhead of various types, including concrete or granite vertical walls rising from the mudline to the bulkhead, and a platform with piles extending from the mudline or the low-tide water line. Rip-rap (large stones) protects portions of the shoreline, including the area south of Pier 76 in the vicinity of West 34th Street. There are both active and inactive piers and platforms along the Hudson River within the study area.

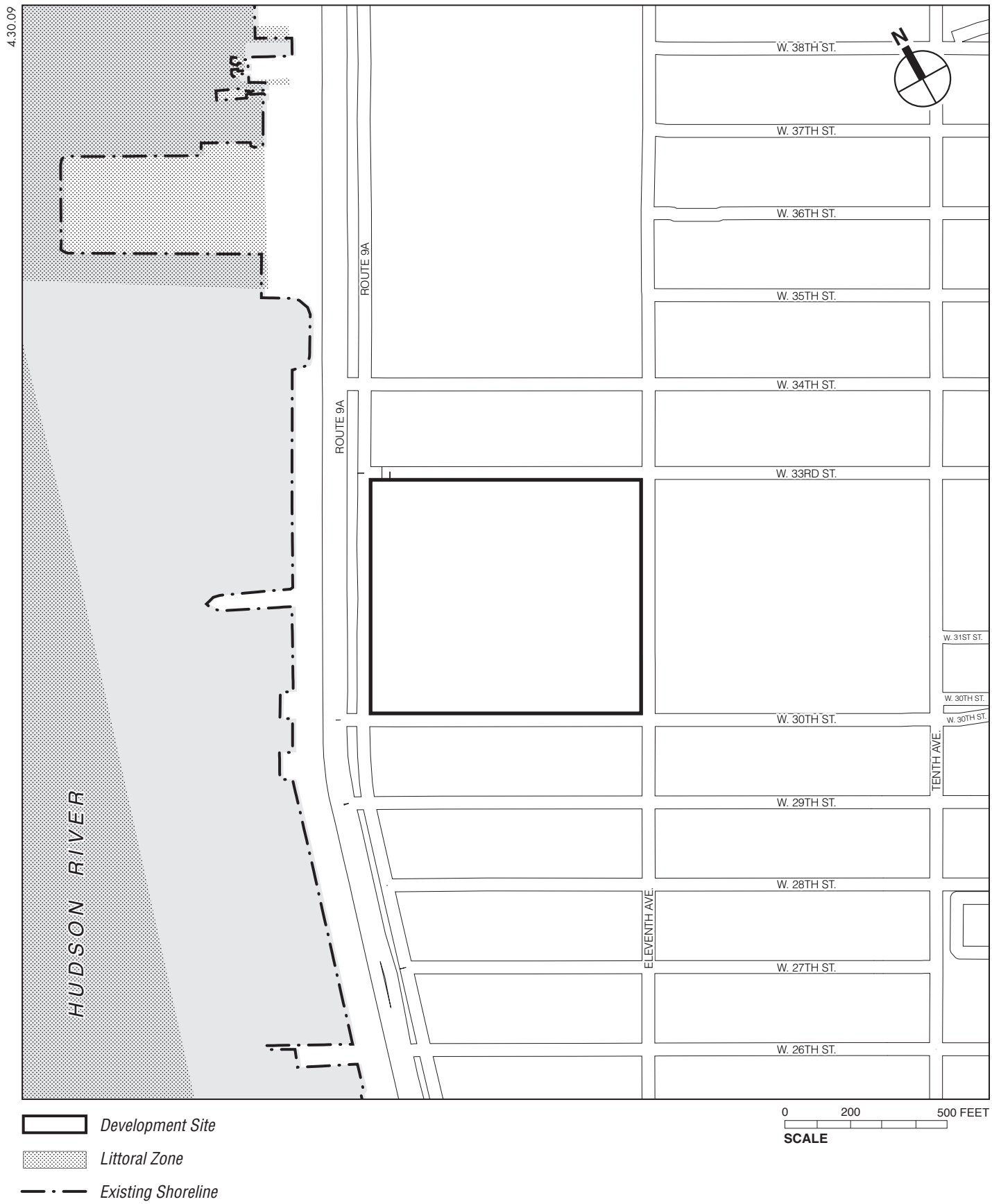
As shown in Figures 11-1 and 11-2, there are no freshwater wetlands mapped by the NWI or DEC on the Development Site. The Hudson River is mapped by USFWS as E1UBL, indicating a

[1] DEC has promulgated drinking water standards and uses them as reference values for groundwater. These potable groundwater standards (also known as Class GA Standards) are among the most stringent in the nation. Although these standards are intended for public drinking water supplies, they are generally applied by DEC to all groundwater and are used to evaluate overall water quality.

[2] MGPs were used in the United States from the 1800s to 1950s to produce a gas that could be distributed and used as fuel. These plants used whale oil, resin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. The byproduct from this process was frequently disposed directly at the plant site, where it could remain or spread slowly, serving as a continuous source of soil and groundwater contamination.



Development Site
NWI Wetlands
Figure 11-1



Development Site
NYSDEC Mapped Wetlands
Figure 11-2

subtidal estuarine habitat with an unconsolidated bottom, and by DEC as littoral zone (LZ). DEC regulations state that actual water depths determine whether or not an area is a littoral zone.

> "The tidal wetlands zone designated LZ on an inventory map, that includes all lands under tidal waters which are not included in any other category except as otherwise determined in a specific case as provided in section 661.16. Provided there shall be no littoral zone under waters deeper than six feet at mean low water…"

Within the vicinity of the Development Site, water depths at mean-low-water (MLW) generally range from less than 2 feet near the bulkheaded shoreline to over 25 feet near the U.S. Pierhead line (USACE 2008). Water depths as presented on the 2008 National Oceanic and Atmospheric Administration (NOAA) nautical chart for Hudson-East-Rivers-Governors-Island range from 4 to 15 feet at mean-lower-low-water (MLLW) within the Hudson River near the Development Site. These reported water depths suggest that water depths less than 6 feet at MLW may occur along the Hudson River shoreline near the Development Site.

ADDITIONAL HOUSING SITES

As shown in Figures 11-3 and 11-4, there are no NWI or DEC freshwater or tidal wetlands on or in the vicinity of the Additional Housing sites.

FLOODPLAINS

DEVELOPMENT SITE

As shown in Figure 11-5, the majority of the Development Site is located within the 100-year floodplain (area with a 1 percent chance of flooding each year) with a small portion of the site occurring in the 500-year floodplain (area with a 0.2 percent chance of flooding each year). New York City is affected by local street flooding (e.g., flooding of upland streets due to short-term, high-intensity rain events in areas with poor drainage), fluvial flooding (e.g., rivers and streams overflowing their banks), and coastal flooding (e.g., long and short tidal rises and wave surges that affect the shores of the Atlantic Ocean, bays such as Upper New York Bay, and tidally influenced rivers, streams and inlets (FEMA 2007). The Hudson River waterfront is affected by local street flooding and coastal flooding due to rising tides (without wave action).

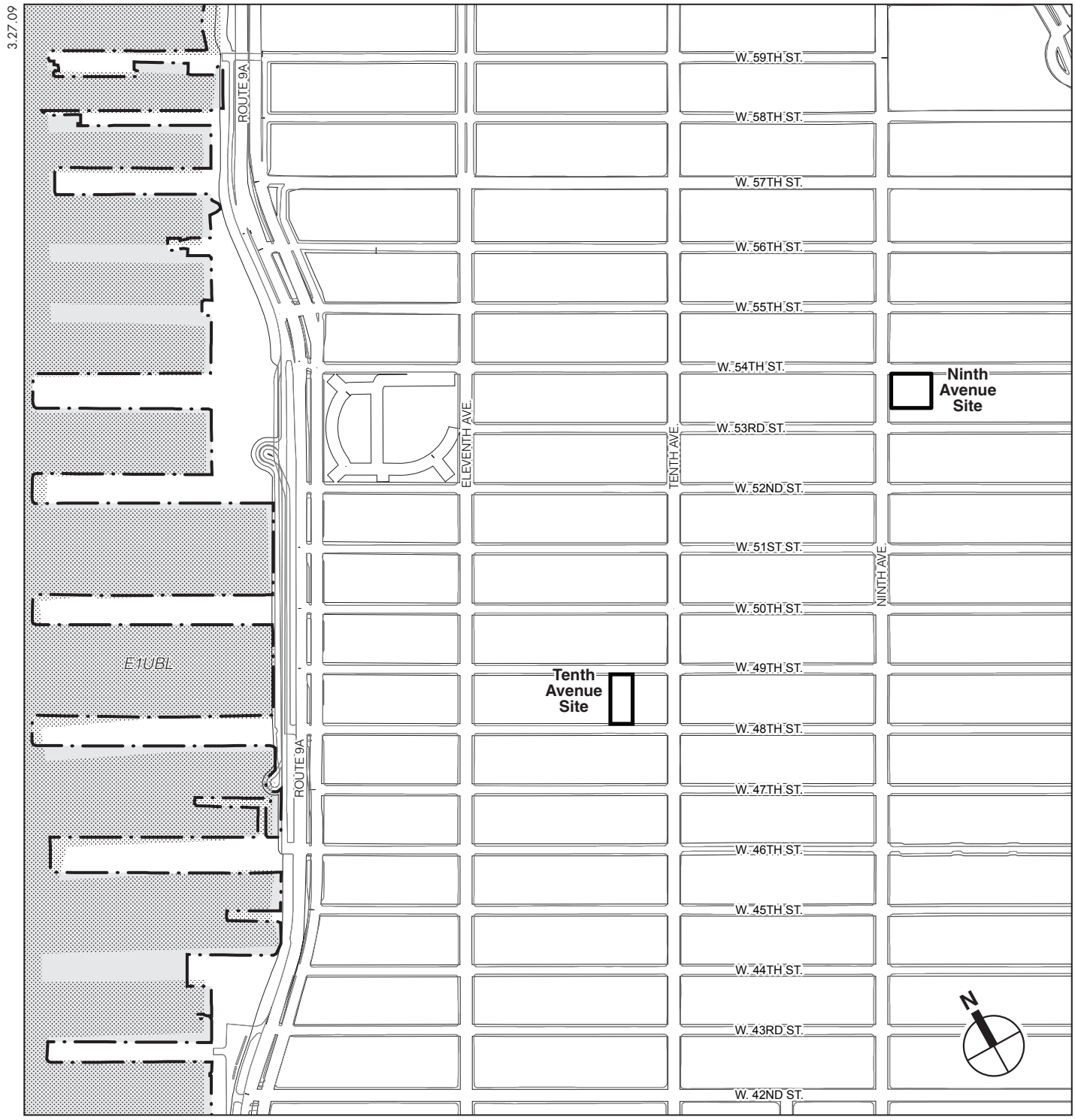
ADDITIONAL HOUSING SITES

As shown in Figure 11-6 shows, the Additional Housing Sites are not located within the 100-year or 500-year floodplain.

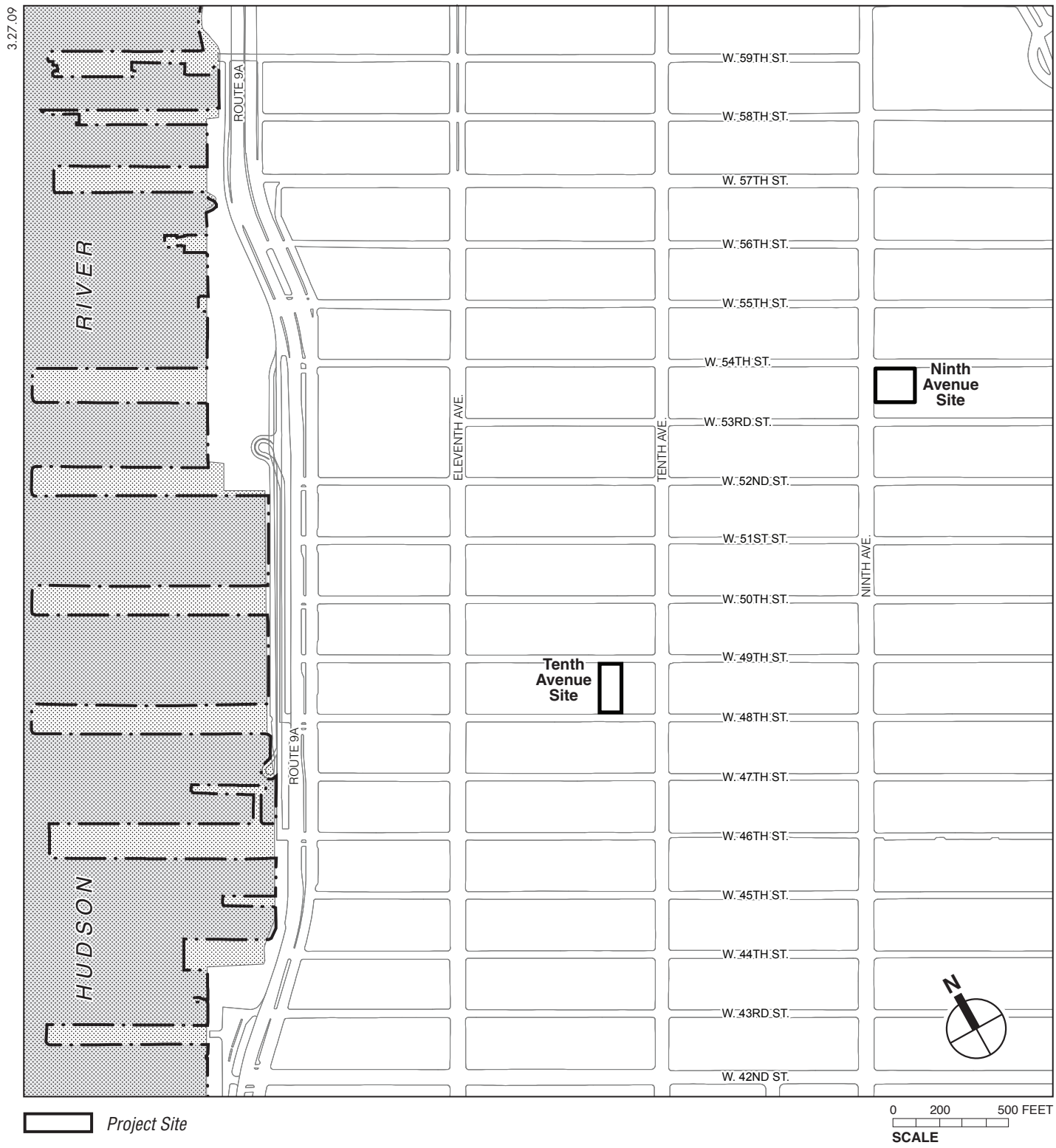
TERRESTRIAL RESOURCES

VEGETATION

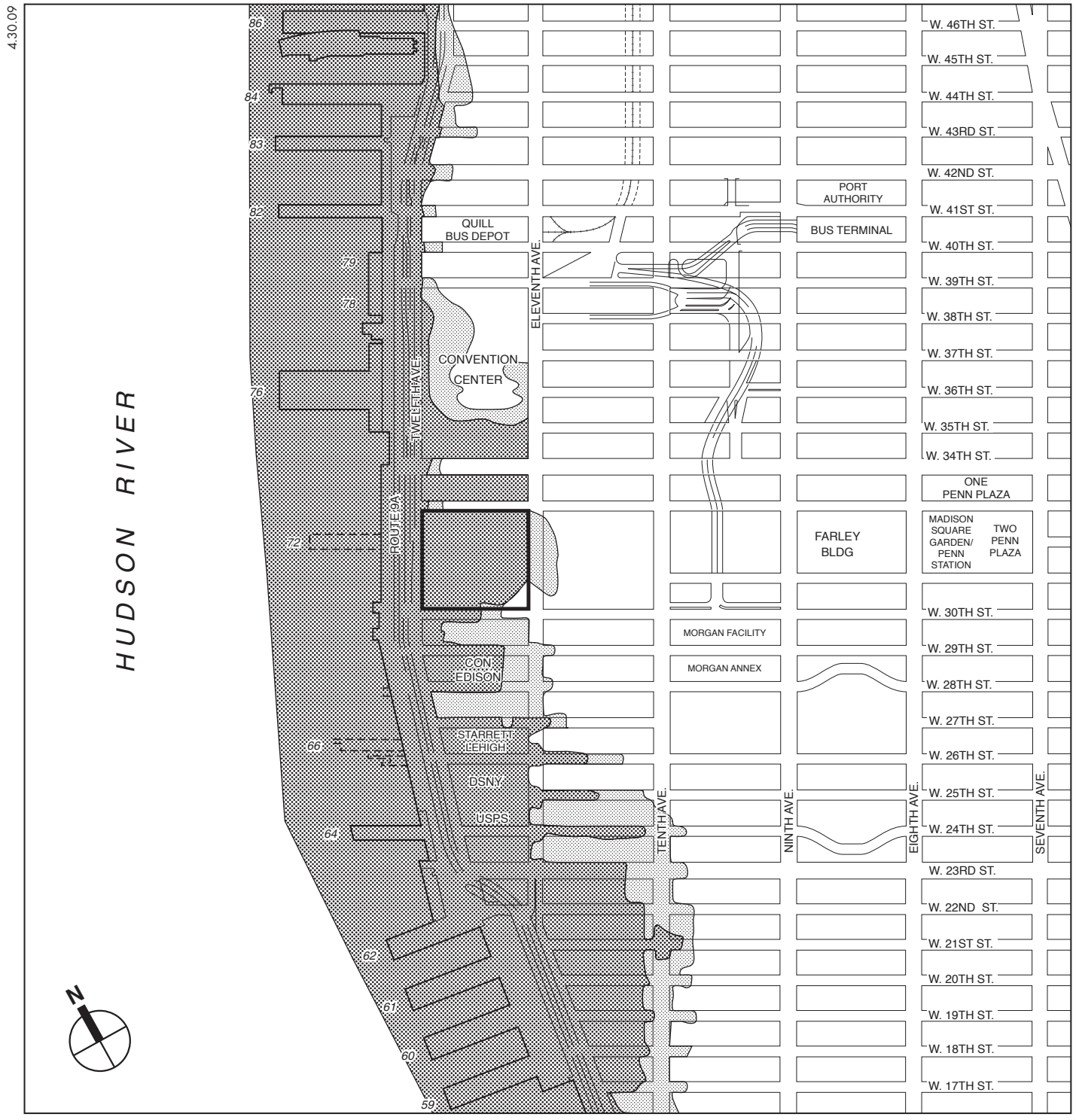
The three study areas support little vegetation, as most of the three project sites have been developed, or are primarily impervious surfaces. For this reason, all three project sites can be



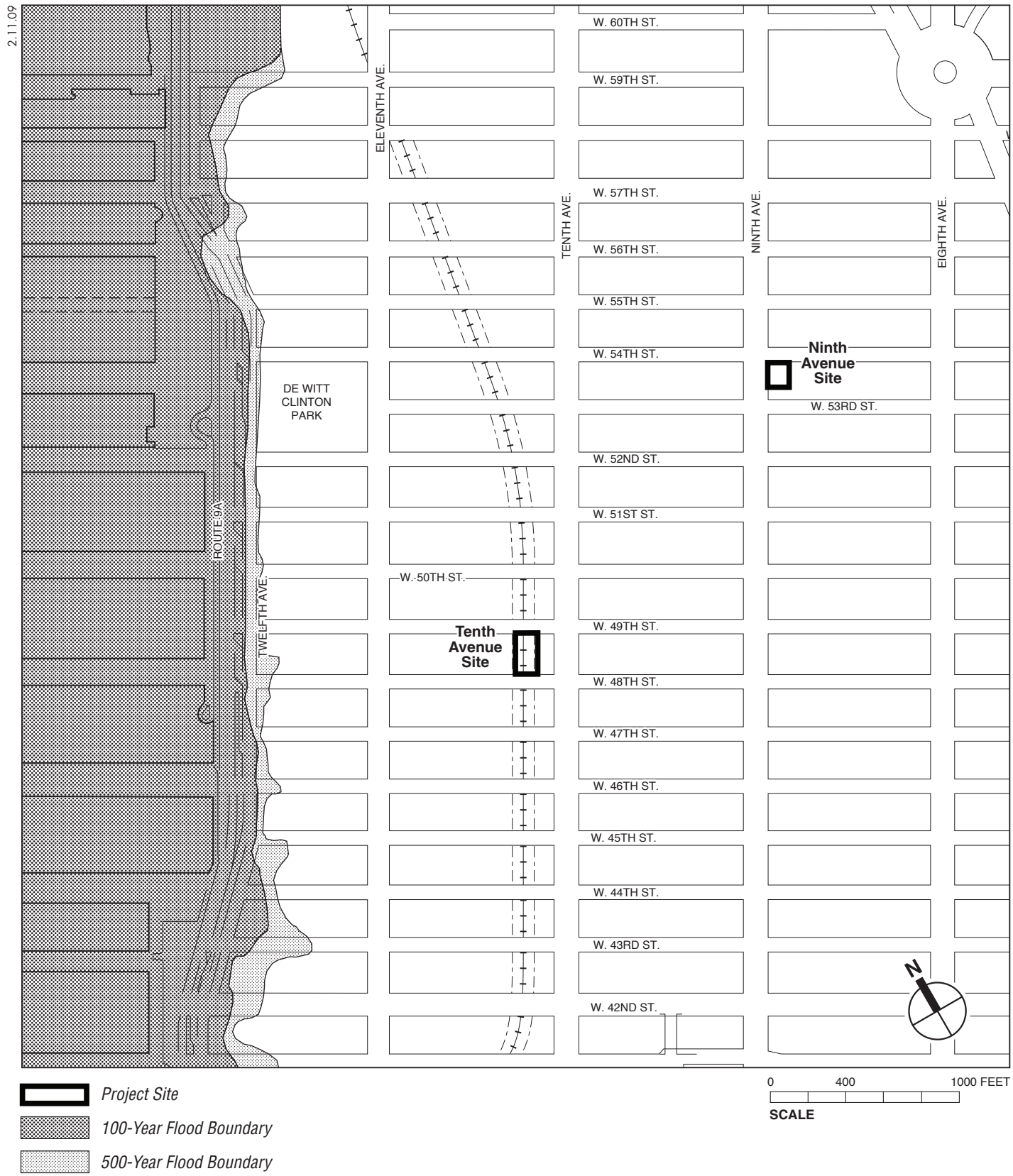
Additional Housing Sites
NWI Wetlands
Figure 11-3



Additional Housing Sites
NYSDEC Mapped Tidal Wetlands
Figure 11-4



Development Site
Floodplain
Figure 11-5



Additional Housing Sites
Floodplain
Figure 11-6

described in the context of Edinger et al., "Ecological Communities of New York State" (2002), as terrestrial cultural communities.[1]

In general, vegetation within the three project sites is limited to street trees, with light landscaping in some tree pits. Street trees observed within the project sites included honey locust (*Gleditsia triacanthos*), ginko (*Ginko biloba*), Bradford pear (*Pyrus calleryana)*, pin oak (*Quercus palustris*), London planetree (*Platanus hybrida*), katsuratree (*Cericdiphyllum japonicum*), and Japanese pagoda (*Sophora japonica*). Hell's Kitchen Park, located in the vicinity of the Tenth Avenue Site, is landscaped with a number of native and non-native trees and shrubs including Japanese pagoda, pin oak, and State-endangered willow oak (*Quercus phellos*). Specific descriptions of vegetation observed within the three project sites is provided below.

Development Site

The 13-acre Development Site can be divided into two types of terrestrial cultural communities: ground surface resources and High Line resources. Ground surface resources refer to the railroad, paved, and earth surfaces of the Development Site. As shown in Figure 11-7, "Development Site Natural Resources Photo Key," ground surface of the Development Site is covered with approximately 30 storage railroad tracks and impervious surfaces (i.e., pavement and buildings). The terrestrial cultural communities present within the ground surface portion of the Development Site comprise "railroad" and "urban structure exterior,"[2] following the classifications described by Edinger et al. (2002). In both ecological communities, vegetation cover is minimal (see Figures 11-7a through 11-7f). In general, vegetation observed on the ground surface is restricted to the cracks and crevices in between impervious surfaces and where small patches of bare soil are present. Woody vegetation is limited to small clusters of tree-of-heaven located at the edges of the Development Site, and occasional street trees, as described earlier. Forbs include Queen Anne's Lace (*Daucus carota*) and mugwort (*Artemesia vulgaris*), and grasses include common reed (*Phragmites australis*).

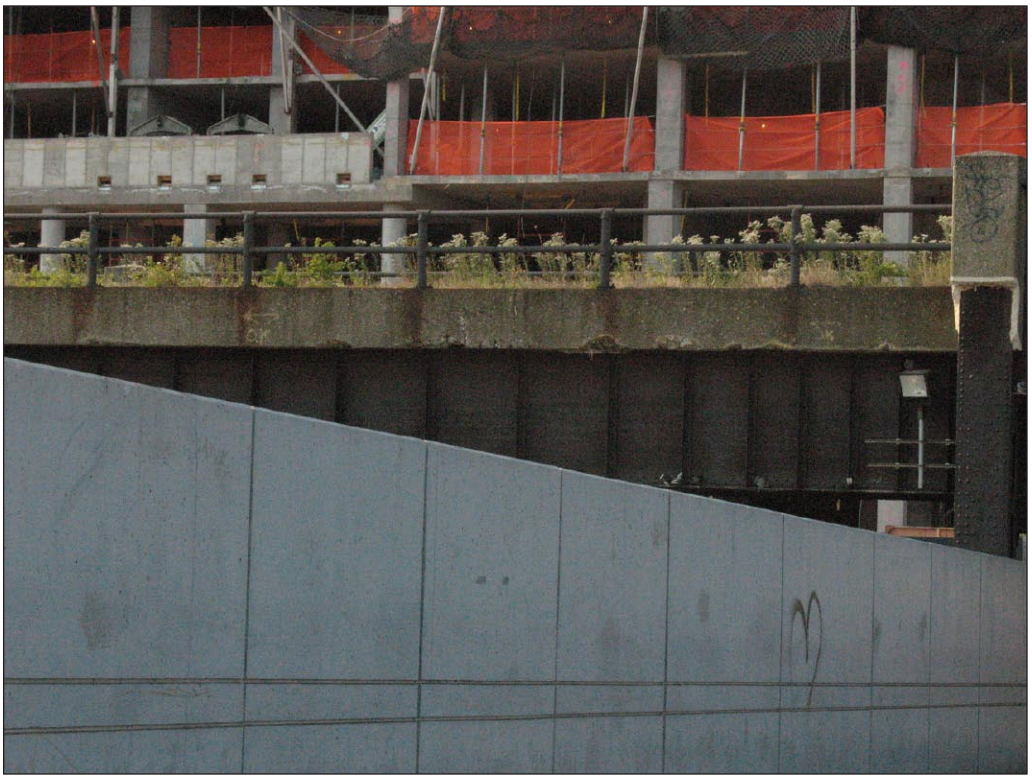
The High Line, a former elevated commercial railroad, runs through the Development Site from the southeast corner at West 30th Street and Eleventh Avenue to the west along West 30th Street above the Development Site and then to the north as it reaches Twelfth Avenue. Over the past decades, soils and organic matter have accumulated on the surface of the High Line structure, which has been colonized by a variety of native and non-native herbaceous and woody plant species. Several surveys have occurred along the entire route of the High Line since 2002, and vegetation has been documented by New York City Department of Parks and Recreation (DPR)-Natural Resources Group (NRG), Brooklyn Botanic Garden and others (Chambers 2009). One

[1] As defined in Edinger et al. (2002), terrestrial cultural communities are "communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence."

[2] Edinger et al. (2002), describes a railroad as a "a permanent road having a line of steel rails fixed to wood ties and laid on a gravel roadbed that provides a track for cars or equipment drawn by locomotives or propelled by self-contained motors." An urban structure exterior is defined by Edinger et al. (2002) as "the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area."



Development Site
Natural Resources Photo Key
Figure 11-7



View of High Line from Eleventh Avenue facing south to West 30th Street **1**



View of High Line and the Hudson River facing northwest on West 30th Street **2**

Development Site
Existing Conditions Photographs
Figure 11-7a



View of Route 9A facing north from West 30th Street **3**



View of West 33rd Street facing east **4**

Development Site
Existing Conditions Photographs
Figure 11-7b



View of High Line and northeastern wall of project site along West 33rd Street **5**



View of DEP outfall on Hudson River **6**

Development Site
Existing Conditions Photographs
Figure 11-7c



View of riprap and bulkhead on the Hudson River at West 34th Street **7**



View of the northernmost portion of the High Line at West 34th Street **8**

Development Site
Existing Conditions Photographs
Figure 11-7d



View facing northeast toward railroad tracks within project site **9**



View facing south from underneath the High Line **10**

Development Site
Existing Conditions Photographs
Figure 11-7e



View facing northeast from underneath the High Line **11**

Development Site
Existing Conditions Photographs
Figure 11-7f

published account documented 161 vascular plant species (none of which were State or federally threatened or endangered) and several lichen and bryophyte species occurring within two arbitrarily defined communities ("forb/grassland" and "successional thicket") along the High Line (Stalter 2004). Commonly occurring vegetation observed along the High Line over the past six years has included native and non-native herbaceous species (various goldenrods, asters and bonesets; dogbane, Queen Anne's Lace, mugwort) and several tree and vine species (Asiatic bittersweet, multiflora rose, tree-of-heaven, Eastern red cedar).

In recent years, vegetation along the High Line south of West 23rd Street has been removed; necessitated by construction activity to add structural supports that would allow for public use of this portion of the High Line. The section north of West 23rd Street, including the entire High Line area within the Development Site, appears to be vegetated. In its current state, the vegetated community on the High Line has value as stopover foraging habitat and cover for migratory songbirds, and may also be used by pollinators (i.e., butterflies, bees) due to the presence of flowering herbaceous vegetation.

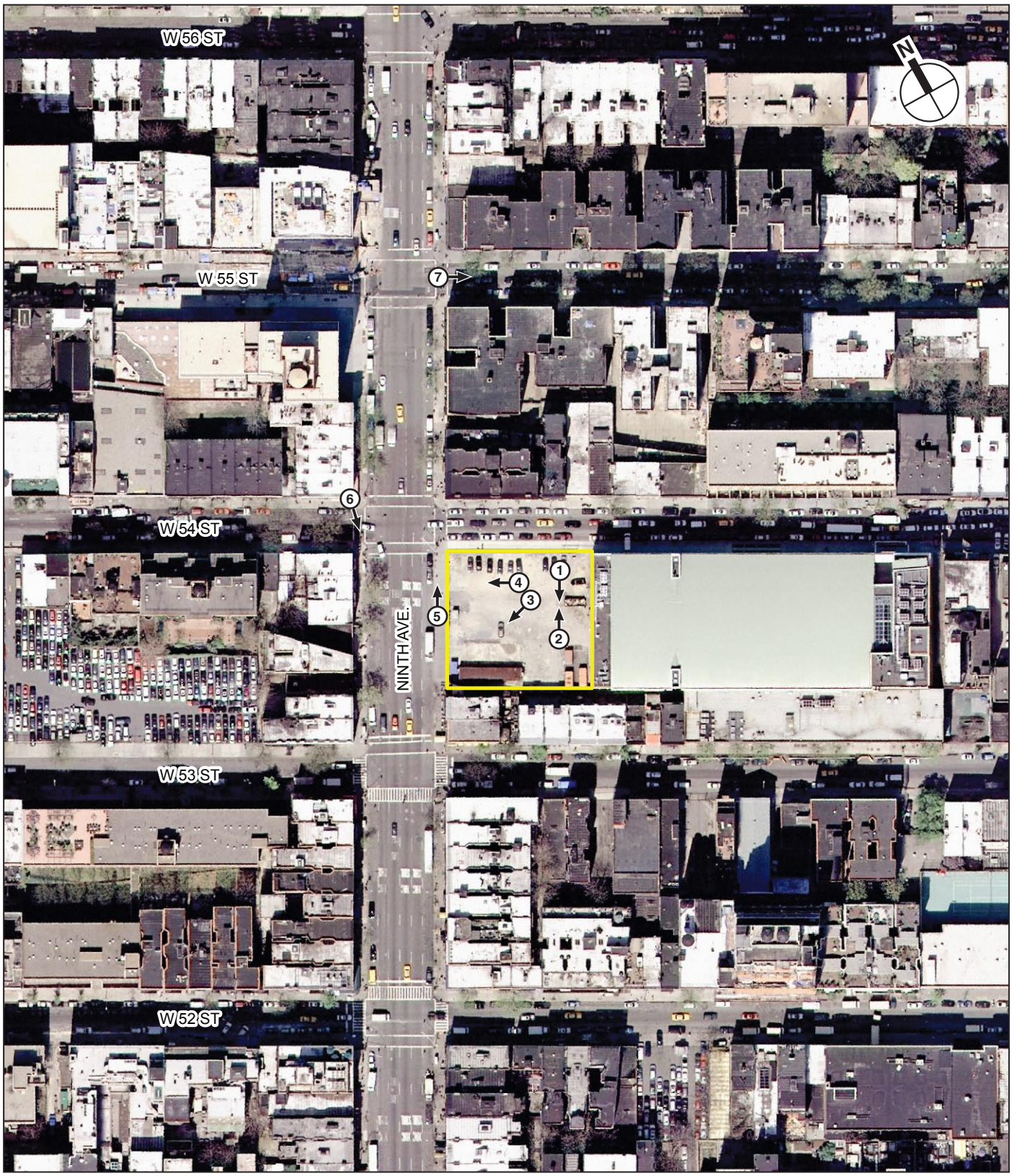
Wildlife expected to use the terrestrial habitats within the Development Site include urban mammalian species with a high tolerance to human disturbance (i.e., Norway rat [*Rattus norvegicus*] and gray squirrel [*Sciurus carolinensis*]), and none would be dependent upon habitats specific to the project site. Although amphibians and reptiles adapted to urban conditions such as the northern brown snake (*Storeria dekayi*) and common snapping turtle (*Chelydra serpentine*) have been reported for New York County (DEC Amphibian and Reptile Atlas Project 1999), the habitats present within the Development Site do not support reptile or amphibian species. Wildlife observed on the Development Site included Eastern gray squirrel, house sparrow, and rock pigeon. No reptiles, amphibians or insects (i.e., butterflies, moths or dragonflies) were observed.

Due to its coastal location and other geographic features, New York City is situated within the Atlantic Flyway. The City is an important migration corridor and stopover site for neotropical migrant songbirds (i.e., migratory bird species that breed in North America and winter in the Caribbean, Mexico and Central/South America) in the New York Bight watershed. Surveys of migrating birds in open spaces in the New York City metropolitan area have revealed a high abundance and diversity of such birds (Elbin 2008). Based on New York State Breeding Bird Atlas project data (i.e., Block 5751D and 5851D), bird species that have the potential to breed within the Development Site include American robin (*Turdus migratorius*), American kestrel (*Falco sparverius),* barn swallow *(Hirundo rustica*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (M*imus polyglottos*), European starling (*Sturnus vulgaris*), and rock pigeon *(Columba livia*). Additionally, common nighthawk (*Chordeiles minor*) may nest within the Development Site, as they are known to construct nests in urban areas on gravel roofs.

Additional Housing Sites

As discussed in Chapter 3, "Land Use, Zoning, and Public Policy," the Ninth Avenue Site is currently occupied by a surface parking lot (see Figure 11-8, "Ninth Avenue Additional Housing Site Natural Resources Photo Key") covered by a mixture of gravel, soil and pavement, and would meet the characteristics of as a paved road/path community[1] as described in Edinger et al. (2002).

[1] Edinger et al. (2002), describes a paved/road path as a "road or pathway that is paved with asphalt, concrete, brick, stone, etc. There may be sparse vegetation rooted in cracks in the paved surface."



Ninth Avenue Additional Housing Site
Natural Resources Photo Key
Figure 11-8

As shown in Figure 11-8, and Figures 11-8a through 11-8d, the vegetative community is restricted to the periphery of the project site. Plant species consisted of mostly pioneer, introduced, and/or invasive woody and herbaceous plants including seedlings of honey locust and tree-of-heaven, mugwort, horseweed (*Erigeron canadensis*), pigweed (*Chenopodium album*), common reed, field pennycress (*Thlaspi arvense*), and common plantain (*Plantago major*). Wildlife expected to occur within the Ninth Avenue Site would be similar to the Development Site. House sparrow and rock pigeon were observed on the Ninth Avenue Site during the site visit.

The Tenth Avenue Site is occupied by a below-grade Amtrak railroad track (see Figure 11-9). This site can be classified as a railroad community, as it maintains the character of an active railroad (Edinger et al. 2002). As shown in Figures 11-9a through 11-9c, steep, exposed rock faces are present on each side of the tracks, extending up to street grade. The top surface of the rock, level with street grade, is vegetated with both native and invasive species where organic matter has collected. Tree-of-heaven, located on the west side of the tracks, is the dominate tree on the project site. Herbaceous species present on the site include mugwort, black nightshade (*Solanum nigrum*), pokeweed (*Phytolacca americana*), white snakeroot (*Eupatorium rugosum*), and Virginia creeper (*Parthenocissus quinquefolia*). Litter and debris are present along the railroad tracks and in the vegetated portions of the project site located at street level. Wildlife expected to occur within the Tenth Avenue Site would be similar to the Development Site. House sparrow and rock pigeon were observed during the site visit, although wildlife that use covered structures for shelter and nesting (e.g., barn swallow, bats) also have the potential to occur. No reptiles or amphibians were observed on the project site.

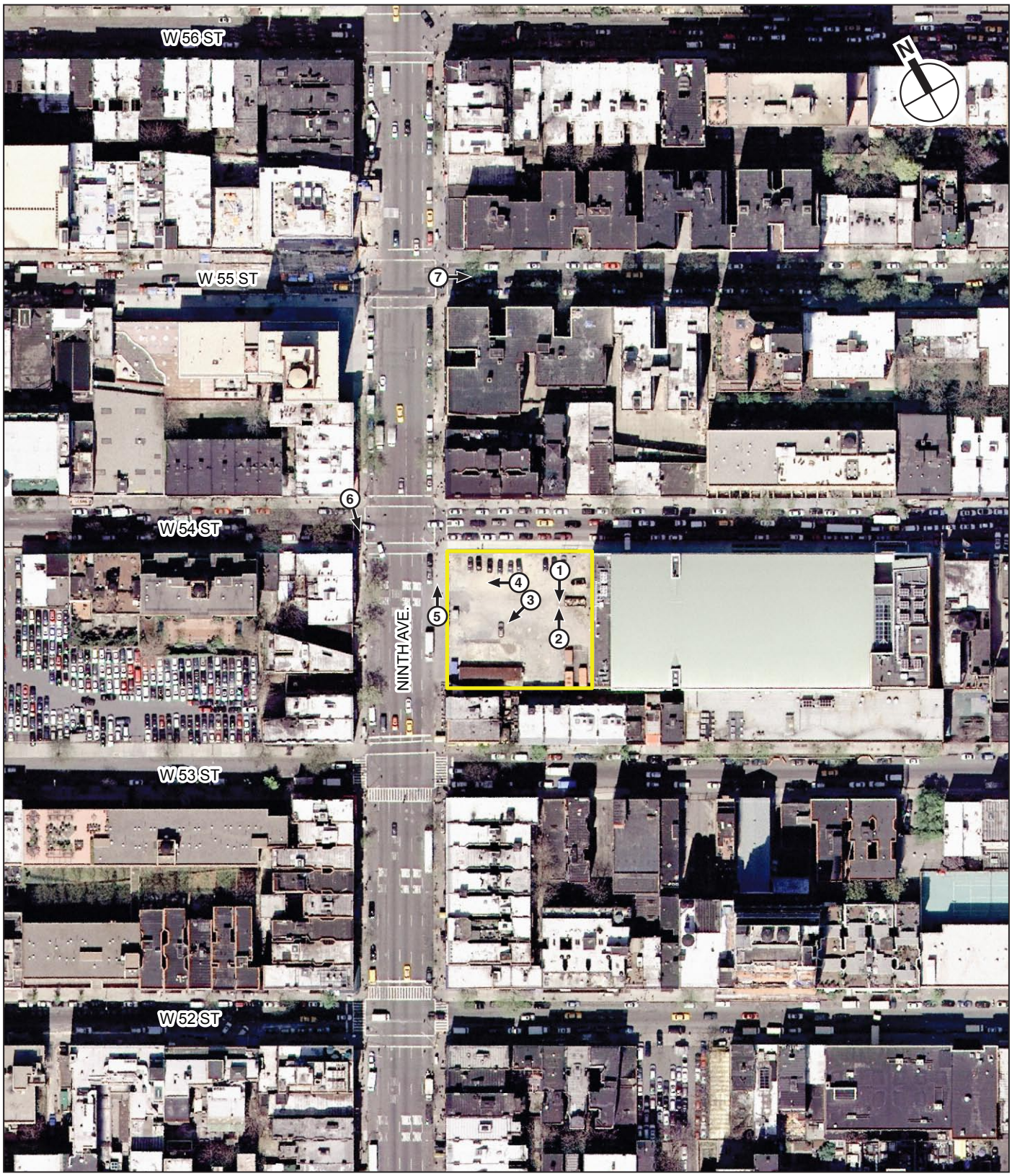
AQUATIC RESOURCES

The project sites are located near the Manhattan shoreline of the Hudson River, within the Lower Hudson River Estuary, which is tidally influenced. Saltwater from Upper New York Bay enters the lower Hudson River Estuary during the flood phase of the tidal cycle and lower salinity water is discharged from the Estuary to the Bay during the ebb phase. Tidal flows are considerably larger than the range of fresh water flows. Currents are shore parallel and tidally influenced, with primary flows to the north during flood tide and to the south during ebb tide. The estuary is partially stratified—higher salinity bottom waters and fresher surface waters form a layered structure with characteristics that vary depending on freshwater flows, tidal cycles and the weather (Geyer and Chant 2006). The Lower Hudson River Estuary is part of the New York/New Jersey Harbor Estuary, which also includes upper and lower New York Harbor, Arthur Kill, Kill Van Kull, East River, Raritan Bay, and Jamaica Bay.

WATER QUALITY

The water quality of the Lower Hudson River Estuary is strongly affected by human activity upstream and the densely populated and industrialized land uses that surround it. Historically, water quality problems included low dissolved oxygen (DO) content, high nutrient concentrations, algal blooms, excessive numbers of coliform bacteria, and the presence of floatables. However, the construction and upgrading of Water Pollution Control Plants, and implementation of water pollution control programs throughout New York, have greatly reduced nutrient inputs and improved water quality (Brosnan and O'Shea 1995). The trend toward improving water quality continued through the 1990s and has generally leveled off (DEP 2003).

Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 703 includes surface water standards for each use class of New York surface waters. The lower Hudson River is Use



Ninth Avenue Additional Housing Site
Natural Resources Photo Key
Figure 11-8



View facing east corner of project site **1**



View facing toward the west corner of the project site **2**

Ninth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-8a



View facing toward the south corner of the project site **3**

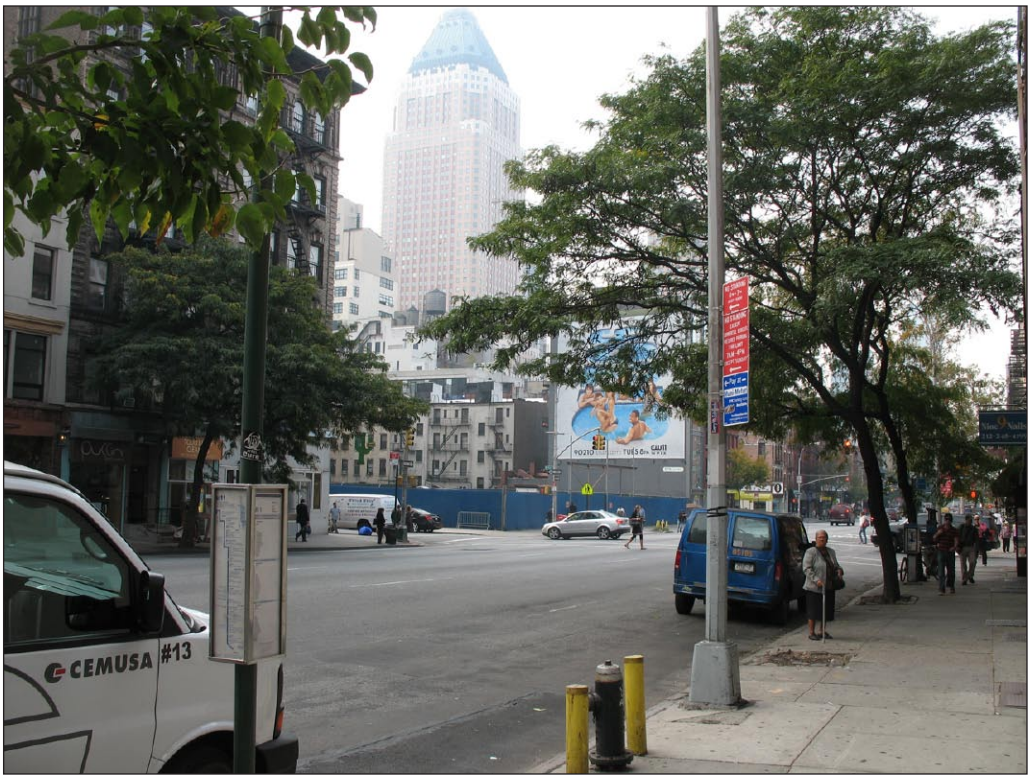


View facing the north corner of the project site **4**

Ninth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-8b



View facing north toward West 54th Street on Ninth Avenue **5**



View facing south toward West 54th Street and the project site **6**

Ninth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-8c



View of study area facing east on West 55th Street **7**

Ninth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-8d



Tenth Avenue Additional Housing Site
Natural Resources Photo Key
Figure 11-9



View from West 48th Street facing northeast toward project site **1**



View of project site from West 48th Street facing West 49th Street **2**

Tenth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-9a



View of project site from West 48th Street facing north to West 49th Street **3**



View of project site from West 49th Street facing West 48th Street **4**

Tenth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-9b



View of Hell's Kitchen Park from west side of Tenth Avenue **5**



View of south end of Hell's Kitchen Park at West 47th Street and Tenth Avenue **6**

Tenth Avenue Additional Housing Site
Existing Conditions Photographs
Figure 11-9c

Classification I saline surface waters. Best usages for Use Class I waters are secondary contact recreation and fishing. Water quality should be suitable for fish propagation and survival. Water quality standards for fecal and total coliform, DO, and pH for Use Class I waters are as follows (there are no New York State standards for chlorophyll *a* or water clarity):

- Fecal coliform—Monthly geometric mean less than or equal to 2,000 colonies/100 milliliters (mL) from five or more samples.
- DO—Never less than 4 milligrams per liter (mg/L).
- pH—The normal range shall not be extended by more than 0.1 of a pH unit.

The results of recent Harbor Surveys conducted by DEP (DEP 2004, 2005, 2006, 2007a and b) show that the water quality of New York Harbor has improved significantly since the 1970s as a result of measures undertaken by the City and others. These measures include infrastructure improvements, eliminating 99 percent of raw dry-weather sewage discharges, reducing illegal discharges, increasing the capture of wet-weather related floatables, and reducing the toxic metals loadings from industrial sources by 95 percent (DEP 2002). The 1999 and 2000 Interstate Environmental Commission (IEC) 305(b) reports also indicate that the year-round disinfection requirement for discharges to waters within its district (including New York Harbor) has contributed significantly to water quality improvements since the requirement went into effect in 1986 (IEC 2000, 2001).

As presented in Chapter 14, "Infrastructure," stormwater runoff generated within the northern two-thirds of the Development Site is conveyed to a box culvert near the extension of West 31st Street with Twelfth Avenue, runs south under the southbound lanes of Twelfth Avenue to tie into a DEP combined sewer outfall at West 30th Street, downstream of Regulator N-45. Stormwater runoff generated within the southern third of the Development Site, fronting West 30th Street, is conveyed into the combined sewer system within West 30th Street. Depending on downstream flows within the interceptor sewer, Regulator N-45 either allows the combined stormwater and sanitary sewage flow to enter the interceptor sewer where it is conveyed to the North River Water Pollution Control Plant, or discharges the flow to the Hudson River through the combined sewer outfall. Stormwater runoff generated within the Additional Housing Sites is conveyed to the combined sewer system.

Recent survey data (2003 through 2007) from the Harbor Survey station closest to the Development Site, off of West 42nd Street (Station N4) located north of the Development Site, indicate that the water quality in this part of the lower Hudson River is good and meets the water quality standards for Use Classification I waters (see Table 11-1).

The presence of fecal coliform bacteria in surface waters indicates potential health impacts from human or animal waste, and elevated levels of coliform can result in the closing of bathing beaches and shellfish beds. According to the New York Harbor Water Quality Regional Summaries and data from the past five years (DEP 2004, 2005, 2006, 2007a and b), the waters of the Inner Harbor Area meet the fecal coliform standard for Use Class I waters at most sampling locations. Temporary increases in fecal coliform concentrations may occur during wet weather due to increased fecal coliform loadings following a rain event. Overall, fecal coliform concentrations in this area have declined, significantly improving water quality from the early 1970s, when levels were well above 2,000 colonies/100 mL (DEP 2001). From 2003 to 2007, fecal coliform concentrations from the Hudson River station near the Development Site peaked as high as 1,804 colonies/100 mL but generally remained below 200 colonies/100 ml, averaging 124.5 colonies/100 mL (DEP 2004, 2005, 2006, 2007a and b).

Table 11-1
DEP Water Quality Data for the West 42nd Street Sampling Station (2003–2007)

Parameter—[*Class I Standard*]	Top Waters			Bottom Waters		
	Low	High	Avg	Low	High	Avg
Temperature (°C) [*No Standard*]	1.1	27.1	18.6	1.9	24.4	17.2
Salinity (parts per thousand) [*No Standard*]	1.2	23.3	12.7	11.7	30.5	22.4
Fecal coliform (colonies per 100mL) [*Monthly geometric mean less than or equal to 2,000 colonies/100 milliliters (mL) from five or more samples*]	1	1804	124.5	N/M*	N/M*	N/M*
Dissolved oxygen (mg/L) [*Never less than 4 mg/L*]	4.6	13.6	7.8	4.2	12.3	6.6
Secchi transparency (ft) [*No Standard*]	0.5	6	3.2	N/A	N/A	N/A
Chlorophyll *a* (µg/L) [*No Standard*]	0.8	49.4	5.6	N/M	N/M	N/M

Notes: N/M = not measured, N/A = not applicable.
*= During the period of 2003-2007, only one measurement exists for Fecal Coliform, 2.0 colonies per 100 mL, sample taken on 9/22/2003
Source: DEP 2004, 2005, 2006, 2007a, 2007b.

DO in the water column is necessary for respiration by all aerobic forms of life, including fish, invertebrates such as crabs and clams, and zooplankton. The bacterial breakdown of high organic loads from various sources can deplete DO to low levels. Persistently low DO can degrade habitat and cause a variety of sublethal or, in extreme cases, lethal effects. Consequently, DO is one of the most universal indicators of overall water quality in aquatic systems. DO summer concentrations in the Inner Harbor Area have increased over the past 30 years from an average of bottom water that was below 3 mg/L in 1970 to above 6 mg/L in 2007, a value fully supportive of ecological productivity (DEP 2007b). For the period from 2003 to 2007, the average DO concentration of bottom water near the Development Site at the Hudson River station was 6.6 mg/L. All pH levels in the New York Harbor Area are in attainment, with the average being 7.5 at the West 42nd Street sampling station (DEP 2004, 2005, 2006, 2007a and b).

High levels of nutrients can lead to excessive plant growth (a sign of eutrophication) and depletion of DO. Concentrations of the plant pigment chlorophyll-*a* in water can be used to estimate productivity and the abundance of phytoplankton. Chlorophyll-*a* concentrations greater than 20 micrograms per liter (µg/L) are considered suggestive of eutrophic conditions. From 2003 to 2007, concentrations averaged 5.6 µg/L and only exceeded 20 µg/L seven times within the five-year period (DEP 2007a and b). With DEP implementing its program to reduce nitrogen loadings from wastewater treatment plants, nitrogen discharges have decreased from these plants by over 30,000 pounds per day since 1993.

Secchi transparency is a measure of the clarity of surface waters. Transparency greater than 5 feet (1.5 meters) indicates relatively clear water. Decreased clarity can be caused by high suspended solid concentrations or blooms of plankton. Secchi transparencies less than 3 feet (0.9 meters) may be considered indicative of poor water quality conditions. Average Secchi readings in the Inner Harbor area have remained relatively consistent since measurement of this parameter began in 1986, ranging between approximately 3.5 and 5.5 feet (1.1 to 1.8 meters). In the Inner Harbor, secchi values ranged between 4.3 feet (1.31 meters) in 2003 and 4.5 feet (1.37

meters) in 2004 (DEP 2007c). Average Secchi transparency recorded near the Development Site from 2003 to 2007 at the West 42nd Street station was 3.2 feet (1 meter) (DEP 2004, 2005, 2006, 2007a and b).

AQUATIC BIOTA

The New York/New Jersey Harbor Estuary, including the lower Hudson River Estuary, supports a diverse and productive aquatic community of over 100 species of finfish (see Table 11-2), more than 100 invertebrate species that include aquatic earthworms (oligochaetes), segmented worms (polychaetes), snails (gastropods), bivalves, barnacles, cumaceans, amphipods, isopods, crabs, and shrimp (Bain et al. 2006, EEA 1988, EA Engineering Science and Technology 1990, Coastal 1987, and PBS&J 1998), and a variety of phytoplankton and zooplankton. The Hudson River in the vicinity of the Development Site supports a number of existing operational and deteriorated piers and pile fields. These structures provide structurally complex potential habitat and protection to certain marine species, including algae, mussels, and barnacles, as well as clams, striped bass, summer and winter flounder, American eel, Atlantic herring, white perch, bay anchovy, tautog, Atlantic tomcod and other species. In addition, the older piers may provide habitat for a number of bird and other wildlife species, due to the lack of human activity in the area and their proximity to water.

Table 11-2
Finfish Species With the Potential to Occur in the Hudson River in the Vicinity of the Development Site

Common Name	Scientific Name
Alewife[(1)]	*Alosa pseudoharengus*
American eel[(1)]	*Anguilla rostrata*
American sand lance	*Ammodytes hexapterus*
American shad[(1)]	*Alosa sapidissima*
Atlantic cod	*Gadus morhua*
Atlantic croaker[(1)]	*Micropogonias undulatus*
Atlantic herring[(1)]	*Clupea harengus*
Atlantic mackerel	*Scomber scombrus*
Atlantic menhaden[(1)]	*Brevoortia tyrannus*
Atlantic moonfish	*Selene setapinnis*
Atlantic needlefish	*Strongylura marina*
Atlantic seasnail	*Liparis atlanticus*
Atlantic silverside[(1)]	*Menidia menidia*
Atlantic sturgeon	*Acipenser oxyrhynchus*
Banded killifish	*Fundulus diaphanous*
Bay anchovy[(1)]	*Anchoa mitchilli*
Black sea bass	*Centropristis striata*
Blackfish	*Tautoga onitis*
Blueback herring[(1)]	*Alosa aestivalis*
Bluefish[(1)]	*Pomatomus saltatrix*
Butterfish[(1)]	*Peprilus triacanthus*
Clearnose skate	*Raja eglanteria*
Conger eel	*Conger oceanicus*
Crevalle jack	*Caranx hippos*
Cunner[(1)]	*Tautogolabrus adspersus*
Fawn cusk eel	*Lepophidium cervinum*
Feather blenny[(1)]	*Hypsoblennius hentzi*
Fourbeard rockling	*Enchelypus cimbrius*
Foureye butterflyfish	*Chaetodon capistratus*
Four-spot flounder	*Paralichthys oblongus*
Gizzard shad[(1)]	*Dorosoma cepedianum*
Goosefish[(1)]	*Lophius americanus*
Grey snapper	*Lutjanus griseus*

Table 11-2 (cont'd)
Finfish Species With the Potential to Occur in the Vicinity of the Project Area

Common Name	Scientific Name
Grubby[(1)]	*Myoxocephalus aenaeus*
Gulf Stream flounder[(1)]	*Citharichthys arctifrons*
Hickory shad[(1)]	*Alosa mediocris*
Hogchoker[(1)]	*Trinectes maculatus*
Inshore lizardfish	*Synodus foetens*
Lined seahorse[(1)]	*Hippocampus erectus*
Little skate	*Raja erinacea*
Longhorn sculpin	*Myoxocephalus octodecimspinosus*
Lookdown[(1)]	*Selene vomer*
Mummichog	*Fundulus heteroclitus*
Naked goby	*Gobiosoma bosci*
Northern stargazer[(1)]	*Astroscopus guttatus*
Northern kingfish[(1)]	*Menticirrhus saxatilis*
Northern pipefish[(1)]	*Syngnathus fuscus*
Northern puffer	*Sphoeroides maculatus*
Northern searobin[(1)]	*Prionotus carolinus*
Orange filefish	*Aluterus schoepfi*
Oyster toadfish	*Opsanus tau*
Planehead filefish	*Monacanthus hispidus*
Pollock	*Pollachius virens*
Rainbow smelt	*Osmerus mordax*
Red hake[(1)]	*Urophycis chuss*
Rock gunnel	*Pholis gunnellus*
Rock sea bass[(1)]	*Centropristis philadelphica*
Rough scad	*Trachurus lathami*
Scup[(1)]	*Stenotomus chrysops*
Seaboard goby[(1)]	*Gobiosoma ginsburgi*
Sheepshead	*Archosargus probatocephalus*
Short bigeye	*Pristigenys alta*
Silver hake[(1)]	*Merluccius bilinearis*
Silver perch	*Bairdiella chrysoura*
Smallmouth flounder	*Etropus microstomus*
Spot[(1)]	*Leiostomus xanthurus*
Spotfin butterflyfish	*Chaetodon ocellatus*
Spotted hake[(1)]	*Urophycis regia*
Striped anchovy[(1)]	*Anchoa hepsetus*
Striped bass[(1)]	*Morone saxatilis*
Striped burrfish	*Chilomycterus schoepfi*
Striped cuskeel	*Ophidion marginatum*
Striped killifish	*Fundulus majalis*
Striped mullet	*Mugil cephalus*
Striped searobin[(1)]	*Prionotus evolans*
Summer flounder[(1)]	*Paralichthys dentatus*
Tautog	*Tautoga onitis*
Threespine stickleback	*Gasterosteus aculeatus*
Tomcod[(1)]	*Microgadus tomcod*
Weakfish[(1)]	*Cynoscion regalis*
White hake	*Urophycis tenuis*
White mullet	*Mugil curema*
White perch[(1)]	*Morone americana*
Windowpane[(1)]	*Scophthalmus aquosus*
Winter flounder[(1)]	*Pseudopleuronectes americanus*
Yellowtail flounder	*Limanda ferruginea*

Notes: [(1)] Collected within Hudson River Park by Bain et al. (2006) from June 2002 through June 2004.

Sources: Bain et al. (2006), Woodhead 1990; EEA 1988; EA Engineering, Science & Technology 1990; LMS 2003a, 2003b; Able et al. 1995.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

Requests for information on rare, threatened or endangered species within the immediate vicinity of the three project sites were submitted to USFWS, NMFS, and NYNHP in August 2008. According to the list of threatened or endangered species for New York County posted by USFWS (http://www.fws.gov/northeast/nyfo/es/CountyLists/NewYorkDec2006.htm) reviewed on October 22, 2008, and correspondence dated August 29, 2008 from NMFS (Colligan 2008), the endangered shortnose sturgeon (*Acipenser brevirostrum*) is listed as occurring in the lower Hudson River within New York County. No habitats designated or proposed as "critical habitat" in accordance with provisions of the Endangered Species Act are listed as occurring in New York County. Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) also occurs in the Hudson River and surrounding coastal waters. This species is considered a candidate for protection under the Endangered Species Act, and NMFS has initiated a status review for this species to determine whether listing is warranted (NMFS 2007).

The State-and federally-endangered shortnose sturgeon is an amphidromous (confined to natal river and its estuary) bottom-feeding fish that can be found throughout the Hudson River in both tidal freshwater river and brackish estuary habitats. Shortnose sturgeon spend most of their lives in the Hudson River Estuary and prefer cold, deep waters for all life stages—observations in coastal waters are rare (Bain et al. 2007). Spawning, development, and overwintering occur well up-river of Tappan Zee Bridge and the project sites (Bain et al. 2007), and the primary summer habitat for shortnose sturgeon is in the deep river channel of middle section of the Hudson River Estuary, typically upstream of River Mile (RM) 23 and the Manhattan shoreline (Bain 1997).

Multi-year sampling did not collect any shortnose sturgeon from interpier and underpier habitats in the lower Hudson River or the Hudson River Park specifically (EEA 1988, Hoff et al. 1988, EA 1990, Peterson and Bain 2002, Meixler et al. 2003, Cornell University 2004, Bain et al. 2006), and the Hudson River below Tappan Zee is not considered optimal shortnose sturgeon habitat (Bain 2004). However, during winter sampling in 2003-2004 and 2004-2005, bottom trawls conducted in the Hudson River channel as part of the New York Utilities long-term monitoring program (since 1985) collected 15 and 18 shortnose sturgeon, respectively, for the first time south of the George Washington Bridge (river km 19, river mile 11.8). Individuals are only expected to occur within the portion of the Hudson River near the Development Site as transient individuals while traveling to or from Hudson River spawning, nursery, and overwintering areas (Bain 2004).

The Hudson River shortnose sturgeon population was recently estimated to contain approximately 61,000 fish (Woodland and Secor 2007). The population has increased more than 400 percent since the 1970s. According to Secor and Woodland (2005), the shortnose sturgeon is showing signs of strong recovery in the Hudson River although some population segments, especially in the south, still display low abundance. Size and body condition of the fish caught in these studies indicate the population is primarily healthy, long-lived adults (Secor and Woodland 2005; Bain et al. 2007). A study of year-class strength and recovery of Hudson River shortnose sturgeon population showed that there was a period of high recruitment in the late 1980s to early 1990s relative to decades before and after this period and estimated that that over a 20-year period, recruitment exhibited 10-fold variability (Woodland and Secor 2007). Secor and Woodland (2007) also found that year-class strength was correlated with autumn flow volume and water temperature from the preceding year.

While not federally- or State-listed, NMFS has initiated status review for Atlantic sturgeon to determine whether listing as threatened or endangered under the Endangered Species Act is

warranted. The Atlantic sturgeon is the largest sturgeon species found in New York waters, occasionally weighing over 200 pounds and measuring 6 to 8 feet long (Stegemann 1999). This anadromous species occurs within the New York Harbor Estuary (Woodhead 1990), and the Hudson River Estuary. In the Hudson River, Atlantic sturgeon are found in the deeper portions and do not occur further upstream than Hudson, New York. Atlantic sturgeon migrate from the ocean upriver to spawn above the salt front from April to early July (Smith 1985, Stegemann 1999). Female sturgeon move out of the river following spawning but the males may remain in the river until October or November.

Marine mammals use the waters of the New York Bight, and occasionally come into New York Harbor, but are not commonly observed in the Lower Hudson River Estuary. The most commonly observed marine mammal in the Bight is the harbor seal (*Phoca vitulina*) which winters in the Harbor and hauls out onto islands in Jamaica Bay, Sandy Hook, Staten Island, and the Westchester and Connecticut shorelines of Long Island Sound. Less frequently, but seen in similar locations, is the grey seal (*Halichoerus grypus*). A harp seal (*Pagophilus groenlandicus*) was observed within the Hudson River Park in the winter of 2005. The occasional sightings of cetaceans (e.g., dolphins and whales) in the Harbor are generally of individuals that are likely to be unhealthy and/or lost. Historic records indicate the harbor porpoise (*Phocoena phocoena*) may have once been a regular visitor to the Harbor (USFWS 1997).

Four species of marine turtles—loggerhead (*Caretta caretta*), green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), and leatherback (*Dermochelys coriacea)*—all State and federally-listed, can occur in the Harbor Estuary. Juvenile Kemp's ridley and large loggerhead turtles enter the New York Harbor and bays in the summer and fall. The other two species, green sea turtle and leatherback sea turtle, are usually restricted to the higher salinity areas of the Harbor (USFWS 1997). In general, however, these four turtle species mostly inhabit Long Island Sound and Peconic and Southern Bays. They neither nest in the New York Harbor Estuary, nor reside there year-round (Morreale and Standora 1995). Turtles leaving Long Island Sound for the winter usually do so by heading east to the Atlantic Ocean before turning south (Standora et al. 1990). It is unlikely that these turtle species would occur in the lower Hudson River except as occasional transients.

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT

As discussed in Chapter 13, "Waterfront Revitalization Program," the Development Site is within the New York City coastal zone. NYSDOS has designated 15 Significant Coastal Fish and Wildlife Habitats within New York City, one of which, the Lower Hudson Reach, is within the vicinity of the Development Site. The Lower Hudson Reach is the portion of the Hudson River starting from Battery Park at the tip of Manhattan and extending north to Yonkers in the vicinity of Glenwood. This area runs for 19 miles and includes deepwater, shallows, piers, and interpier basins. The Lower Hudson Reach was designated a Significant Coastal Fish and Wildlife Habitat because it provides an important wintering habitat for young-of-the-year, yearling, and older striped bass. Significant numbers of other fish species and waterfowl also use the Lower Hudson Reach (NYSDOS 1992). USFWS (1997) has also designated the Lower Hudson River Estuary (from the Battery at the southern tip of Manhattan up to Stony Point at river mile 41) as a Significant Habitat Complex because it is a regionally significant nursery and wintering habitat for a number of anadromous, estuarine, and marine fish species, including striped bass, and is a migratory and feeding area for birds and fish that feed on the abundant fish and benthic invertebrate resources found in this portion of the estuary.

Striped bass is an anadromous species that occurs along the Atlantic coast from Canada to northern Florida, but is most common from Cape Cod to Cape Hatteras. Some striped bass return to their home rivers to spend the winter while others overwinter in other estuaries or in the warmer coastal waters from New Jersey to North Carolina. Although most migrate to sea, some striped bass adults remain in the Hudson River year-round, never migrating. In the autumn and winter, these resident adults are joined by migratory adults returning to the estuary to spawn and remain in the lower portion of the estuary until the spawning migration starts in the spring.

In the Hudson River, striped bass spawn at or near the surface of freshwater between West Point and Kingston (Hudson River Miles 44 to 56) from April to mid-June (Heimbuch et al. 1994, NYSDOS 1992). This spawning area is considerably upriver of the Development Site. The semibouyant eggs are typically found in the greatest concentration between mid-May and early June (NYSDOS 1992). The post yolk-sac larvae metamorphose to juveniles in 23 to 68 days. Schools of juveniles move down the estuary along the shore during the summer, feeding on crustaceans and insect larvae at or near the bottom (Heimbuch et al. 1994). Juveniles remain near shore until November or December when they move to deeper water. Fish become the primary prey item by the second summer. A significant portion of the juvenile striped bass remains within the lower Hudson Estuary until age two or three when some individuals move out of the estuary along with spent spawners to begin coastal migration.

The lower Hudson River, including the area in the vicinity of the Development Site, contains striped bass throughout the year. Striped bass was one of the four most abundant species collected within Hudson River Park from June 2002 through June 2004 (Bain et al. 2006). The lower Hudson River Estuary, therefore, provides important wintering habitat (mid-November to mid-April) for young-of-the-year, yearling, and older striped bass (Heimbuch et al. 1994, NYSDOS 1992). In the early spring, striped bass move through the lower Hudson River during the upstream passage to the spawning areas.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

FLOODPLAIN, GROUNDWATER, AND TERRESTRIAL RESOURCES

The Future without the Proposed Actions condition is a projection of natural resources on and in the vicinity of the three project sites independent of the Proposed Actions in the 2019 analysis year. In the Future without the Proposed Actions, the groundwater conditions, floodplain, and terrestrial resources within the Development Site, Ninth Avenue Site and Tenth Avenue Site would remain in their current conditions. The below-grade rail yard with service facilities that support LIRR operations would remain in use.

A substantial number of development projects (detailed in Chapter 2, “Framework for Analysis,” and Chapter 3, “Land Use, Zoning, and Public Policy”) are expected to be completed and to alter land use patterns, scale and street patterns within some areas in the vicinity of the project sites and will include residential, hotel, commercial, retail, community facility space, open space, and transportation projects. As discussed in Chapter 3, “Land Use, Zoning, and Public Policy,” and Chapter 6, “Open Space,” a number of planned development projects that would occur in the vicinity of the Development Site in the Future without the Proposed Actions would result in the development of landscaped open space. These open space areas could provide additional habitat for wildlife that is currently unavailable in this portion of Manhattan. The Eastern Rail Yard (immediately adjacent to the Development Site) will be redeveloped with office, retail, community facility, hotel, and residential space, and approximately six acres of publicly

accessible open space. Hudson Park and Boulevard, a broad open space and boulevard system in the midblocks between Tenth and Eleventh Avenues, will extend in its entirety from the large public open space at the Eastern Rail Yard on West 33rd Street to its northern terminus at West 39th Street, and continue to West 42nd Street via a pedestrian bridge. This system will run at an angle between Tenth and Eleventh Avenues and will ultimately include a total of approximately four acres of open space, approximately two acres of which would be constructed by 2013 and analyzed in the 2019 analysis year.

Other projects that would occur in the vicinity of the project sites with notable open space amenities include the reuse of the formerly abandoned High Line. The High Line Park project will provide 4.4 acres of new public open space. To the west of the Development Site, the completion of portions of Segment 5 of Hudson River Park will provide 9.2 acres of parkland along the Hudson River near Piers 62, 63, and 64.

AQUATIC RESOURCES

Construction

Construction activities associated with the planned development projects detailed in Chapter 2, Framework for Analysis," and Chapter 3, "Land Use, Zoning, and Public Policy," that would occur in the vicinity of the project sites in the Future without the Proposed Actions would be expected to be covered under the DEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-08-001). To obtain coverage under this permit, a SWPPP would be prepared and a Notice of Intent (NOI) would be submitted to DEC. The SWPPP would comply with all of the requirements of the General Permit, DEC's technical standard for erosion and sediment control presented in "New York Standards and Specifications for Erosion and Sediment Control," and DEC's technical standard for the design of water quantity and water quality controls (post-construction stormwater control practices) presented in the New York State Stormwater Management Design Manual. Implementation of erosion and sediment control measures, and stormwater management measures identified in the SWPPP would minimize potential impacts on water quality and aquatic resources of the Lower Hudson River Estuary.

Construction of Segment 5 of the Hudson River Park would be completed before 2019. Environmental review was conducted for the construction and operation of the Hudson River Park. The FEIS for the Hudson River Park found that the construction and operation of the park would not result in significant adverse environmental impacts on natural resources. Additionally, in-water construction activities associated with Section 5 would be conducted in accordance with permits issued by the USACE and DEC for the Hudson River Park and any additional approvals required for particular activities.

Operation

Increased Flows to North River Water Pollution Control Plant Drainage Area Due to Other Projects

Planned development projects that would occur in the vicinity of the project sites in the Future without the Proposed Actions would have the potential to affect aquatic resources of the lower Hudson River due to increased discharge of sanitary sewage to the combined sewer system and North River Water Pollution Control Plant, and the discharge of stormwater to the lower Hudson River. The DEP Amended Drainage Plan will be implemented as necessary to meet the additional demands generated by the developments associated with the Hudson Yards rezoning.

No increase in the amount of impervious surfaces in the study area is anticipated in the Future without the Proposed Actions. However, DEP requires stormwater detention in compliance with the drainage plan for existing or new development fronting sewer-lined streets if stormwater flow exceeds the allowable flow of the drainage plan. As a result of these requirements, it is expected that there would be some reduction in uncontrolled runoff from private development sites in the Future without the Proposed Actions. As part of the Amended Drainage Plan for the Hudson Yards area, a new storm sewer is proposed for installation in West 33rd Street from Eleventh Avenue west to the outfall at the Hudson River. This storm sewer will divert some stormwater runoff from the combined sewers that connect to Regulator N-43; thereby accommodating increased sanitary sewage flows into that regulator without resulting in increased CSOs. Stormwater discharges from these future development projects to the Lower Hudson River Estuary via separate storm sewers would be treated to ensure compliance with the DEC standards, including the SPDES General Permit for Construction Activity, GP-0-08-001 requirements for the development of a SWPPP that would include post-construction stormwater management practices. DEP would also review the SWPPP for consistency with DEP requirements related to sizing stormwater management controls based on the 10-year storm event. As part of any new development, the developer would request a new sewer connection, and must satisfy any requirements made by DEP for that connection. The design and construction of the connection to the existing combined sewer system would be in accordance with DEP standards. Therefore, these projects would not be expected to result in an increase in the frequency or volume of CSOs.

The projected average daily flow (wet and dry weather) to the North River Water Pollution Control Plant in the 2019 analysis year includes the 2.8 million gallons per day (mgd) of sanitary flow (dry weather) from the Hudson Yards area (increase of 1.7 mgd from the existing conditions), plus wet weather flow. Ultimately, the sanitary sewage loads to the North River Water Pollution Control Plant due to Hudson Yards developments would reach 8.6 mgd at full build-out (assumed to be in 2025). The projected sanitary flow (dry weather) in the 2019 analysis year plus wet weather flow would be expected to be within the North River Water Pollution Control Plant's permitted daily flow limit of 170 mgd, and would not be expected to adversely affect compliance with its SPDES permit limits. Water quality of the Lower Hudson River in the vicinity of the North River Water Pollution Control Plant would continue to meet the Use Class I water quality standards.

IMPACTS FROM AQUATIC RESOURCE IMPROVEMENT PROJECTS

In addition to proposed development projects, proposed and ongoing projects aimed at improving water quality and aquatic resources in the New York/New Jersey Harbor Estuary have the potential to improve water quality and aquatic habitat in the Lower Hudson River Estuary near the project site. These projects are independent of the Proposed Actions and other anticipated development projects described above and in Chapter 3, "Land Use, Zoning, and Public Policy." The resulting improvements to water quality and aquatic resources will occur regardless of the Proposed Actions.

New York/New Jersey Harbor Estuary Program ("HEP") Projects

The HEP Final Comprehensive Conservation and Management Plan (CCMP) includes a number of goals to improve water quality and aquatic resources throughout the Harbor Estuary. To meet these goals, the CCMP outlines objectives for the management of toxic contamination, dredged material, pathogenic contamination, floatable debris, nutrients and organic enrichment, and

rainfall-induced discharges. Most of these objectives aim to increase knowledge of the nature and extent of various forms of pollution (e.g., toxic chemicals, sewage overflows, and floatables), reduce inputs of these pollutants, and increase the habitat and human use potential of the Harbor Estuary area. The floatables action plan of HEP aims to reduce the amount of debris in the States' waters. It includes marine debris survey collection programs, improved street cleaning, combined sewer overflow and stormwater abatement, enforcement of solid waste transfer regulations, shoreline cleanup programs, and public education.

The HEP Habitat Workgroup developed watershed-based priorities for acquisition, protection, and restoration (see http://www.harborestuary.org/interactivemap.htm). The USACE New York District began a feasibility study in 2001 to assess potential sites for habitat restoration in New York Harbor. In May 2003, the Regional Plan Association (RPA) identified needs and opportunities for environmental restoration in the Hudson-Raritan Estuary. These sites are not local to the project sites, but involve the preservation and enhancement of tidal wetlands that will provide improved habitat for fish and macroinvertebrates as well as the birds, mammals, and reptiles that depend on these habitats. The HEP Acquisition and Restoration Site Hudson River/Riverside Park is located in the Lower Hudson River Estuary along the Manhattan shoreline in the vicinity of the project sites. It has been identified as a priority restoration site for reducing non-point source pollution. HEP actions taken with respect to this site, would occur in the Future with or without the Proposed Actions.

New York City Projects

As required by EPA's CSO Control Policy, DEP initiated the development of the Long Term Control Plan (LTCP) Project in 2004. The LTCP Project integrates CSO Facility Planning Projects and the Comprehensive City-Wide Floatables Abatement Plan, incorporates ongoing Use and Standards Attainment Program Project work, and develops Waterbody/Watershed Facility Plan Reports and the LTCP for each waterbody area. The LTCP Project monitors and assures compliance with applicable Administrative Consent Orders between DEC and New York City for the CSO Abatement Program. Additionally, DEP plans to increase identification and control of pollutants of concern, including mercury, PCBs, and solvents.

The City is currently developing the East River and Open Waters Waterbody/Watershed Facility Plan (DEP 2007c). The plan covers a large region of open waters encompassing the lower Hudson River, the Harlem River, the East River, western Long Island Sound, the Arthur Kill, the Kill Van Kull, and Upper and Lower New York Bay, Raritan Bay, and the New York Bight to the New York State Boundary. Within the plan, this network of waterways is divided into several specific assessment areas. The "Hudson River – Manhattan" portion runs southwestward from the Harlem River to the Battery in lower Manhattan and includes the study area of the Development Site. Measures of the plan include: Regulator improvements to be made to 123 regulators within the Inner Harbor study area for this Waterbody/Watershed Facility Plan, including some of the regulators to the north (near the Convention Center) and south of the Development Site; gravity diversion around the Hannah Street Pumping Station on Staten Island to reduce CSO discharges; continued upgrades to the headworks at Bowery Bay, Hunts Point, Newtown Creek, Tallman Island, and Wards Island Water Pollution Control Plants; a skimmer vessel fleet upgrade to be made to improve the City's Floatables Skimming Program; a Public Notification Program to be enhanced to increase the public's knowledge of CSOs; and DEP to continue coordination with other City Agencies to investigate and implement BMPs and Low Impact Development (LIDs) techniques. Elements of the plan within the Inner Harbor study area would be implemented by the 2019 analysis year (DEP 2007c).

State and Regional Projects

The Hudson-Raritan Estuary Ecosystem Restoration Project (HRE) is a cooperative project being led by the USACE that was funded by a House of Representatives Resolution on 15 April 1999. The Port Authority of New York and New Jersey (PANYNJ) is a co-sponsor of this project. Other agencies involved in this project include EPA, USFWS, NOAA, National Resource Conservation Service, New Jersey Department of Environmental Protection (NJDEP), New Jersey Department of Transportation (Office of Maritime Resources), DEC, NYSDOS, DEP, DPR, and New Jersey Meadowlands Commission. The focus of the study is to identify the actions needed to restore the Hudson-Raritan Estuary and develop a plan for their implementation. The study area for the program includes all the waters of the New York/New Jersey Harbor and the tidally influenced portions of all rivers and streams that empty into the Harbor and ecologically influence the Harbor. The program has drafted a plan that presents an ecosystem approach to restoration of the estuary, guidance for selecting specific projects, measurable objectives called target ecosystem characteristics, and tracking of program performance. The program identifies measures and plans to restore natural areas within the estuary and to enhance their ecological value and addresses habitat fragmentation and past restoration and mitigation efforts that were piecemeal in nature.

The project sites are located within the Lower Hudson River Study Area, where ten sites have been identified as potential restoration projects. The Riverside Park/Hudson River site has been identified as a potential restoration project and is located just north of the project sites. Restoration measures identified by the HRE to enhance aquatic and nearshore terrestrial habitat within the Lower Hudson River Study Area include restoring/creating intertidal wetlands/mudflats, restoring benthic habitat, restoring fishery habitats, restoring/enhancing shoreline/coastal fringe habitats, creating/restoring/enhancing shallow water habitat, enhancing shorelines and stabilizing banks, water quality improvement and environmental interpretation (USACE 2004). It is anticipated that expedited restoration of these representative restoration sites would provide substantial immediate value to the ecosystem.

DEC and NJDEP, in coordination with the IEC, would continue to develop total maximum daily loads (TMDLs) and to identify priority waterbodies in bi-annual 305(b) reports to EPA. TMDLs, once implemented, would reduce the daily inputs of various contaminants in an effort to improve water quality. New York State provided $255 million to implement wastewater improvements, nonpoint source abatement and aquatic habitat restoration projects in 1998. The State intends to continue water quality improvement projects in the Harbor for the foreseeable future.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2019

GROUNDWATER

DEVELOPMENT SITE

No significant adverse impact on groundwater are expected to occur as a result of construction or operation of the Development Site Project. Because groundwater is not used as a potable water supply in Manhattan, the Proposed Actions would not affect drinking water supplies. Construction activities associated with the Proposed Actions would involve both the demolition or disturbance of existing structures and a variety of earthmoving or excavating activities with the potential of encountering subsurface soil contamination. Groundwater depth at the three project sites are relatively shallow (i.e., 4 to 15 feet below grade surface) and may be

encountered during earthmoving or excavation activities. Groundwater recovered during dewatering would be tested and pre-treated, if necessary, to ensure compliance with applicable DEP and DEC discharge requirements prior to discharge to the combined sewer, or to the existing storm drains within the Western Rail Yard.

As presented in Chapter 12, "Hazardous Materials," the results of soil sampling indicated the presence of contaminants within the Development Site, the level of which was consistent with the presence of historic urban fill. The presence of hazardous materials contamination only threatens human health or the environment when exposure to such contaminants occurs. Even in these situations, a health risk requires both an exposure pathway to the contaminants and a sufficient dose to cause adverse health effects. To prevent such exposure pathways and doses, the Proposed Actions would include appropriate health and safety, investigative, or remedial measures (conducted in compliance with both DEC Consent Order agreements, as well as applicable laws and regulations and conforming to appropriate engineering practice) that would be implemented before, after, or govern both demolition and soil disturbance activities. These measures (discussed more fully in Chapter 12, "Hazardous Materials") would include:

- Development of a Construction Health and Safety Plan (CHASP) for site remediation and excavation that would include detailed procedures for managing both known contamination issues and any unexpectedly encountered contamination issues. The CHASP would also include procedures for avoiding the generation of dust that could affect the construction workers on-site and the surrounding community as well as the monitoring necessary to ensure that no such impacts occur;
- Installation of vapor intrusion control systems and/or barriers within structures; and
- Procedures for pre-demolition or pre-disturbance removal of asbestos and appropriate management of LBP and of PCB-containing equipment would be developed if such contaminants are identified during a hazardous materials survey.

With the implementation of these measures, the construction and operation of the Development Site Project would not result in a significant adverse impact on groundwater.

ADDITIONAL HOUSING SITES

Dewatering may be performed as part of construction activities. Groundwater recovered during dewatering would be tested and pre-treated, if necessary, to ensure compliance with applicable DEP and DEC discharge requirements prior to discharge to the combined sewer system (LBA 2008a,b).

As discussed in Chapter 12, "Hazardous Materials," the Ninth Avenue Site is undergoing remediation. In accordance with the DEC Global Consent Order, dated May 2001, remediation activities will continue to take place until the cleanup objectives are met. CHASP documents would be prepared for the project. The CHASP would meet the requirements set forth by the Occupational, Safety and Health Administration (OSHA), the New York State Department of Health (DOH), DEP, and any other applicable regulations. The CHASP should identify the possible locations and risks associated with the potential contaminants that may be encountered, and the administrative and engineering controls that will be utilized to mitigate concerns (LBA 2008a,b). With the implementation of these measures, the Proposed Actions at the Additional Housing Sites would not result in a significant adverse impact on groundwater.

WETLANDS

DEVELOPMENT SITE

As discussed in the "Existing Conditions" section above, the Hudson River within the vicinity of the Development Site is mapped by NWI as a subtidal estuary with unconsolidated bottom habitat and littoral zone by DEC. However, no wetlands are located on the Development Site and no in-water work will be conducted as part of the Proposed Actions.

The Proposed Actions would be covered under the DEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-08-001. To obtain coverage under this permit, a SWPPP would be prepared and an NOI would be submitted to DEC. The SWPPP would comply with all of the requirements of GP-0-08-001, DEC's technical standard for erosion and sediment control presented in "New York Standards and Specifications for Erosion and Sediment Control," and DEC's technical standard for the design of water quantity and water quality controls (post-construction stormwater control practices) presented in the New York State Stormwater Management Design Manual. Implementation of erosion and sediment control measures, and stormwater management measures identified in the SWPPP would minimize potential impacts on littoral zone tidal wetlands within the Hudson River associated with discharge of stormwater runoff during land-disturbing activities resulting from construction of the Development Site Project.

ADDITIONAL HOUSING SITES

The Additional Housing Sites do not contain wetlands and are not in the vicinity of tidal wetlands associated with the Hudson River. Therefore, the construction of the Additional Housing Sites would not result in a significant adverse impact on wetlands.

FLOODPLAINS

DEVELOPMENT SITE

The majority of the Development Site is located within the 100-year floodplain (Coastal A Zone), which is affected by coastal flooding. Unlike fluvial flooding, which is affected by activities within the floodplain of a river, coastal flooding is influenced by tidal and meteorological forces and is not affected by activities within the floodplain. Therefore, the Proposed Actions would not adversely affect flooding of areas adjacent to the Development Site.

Additionally, approximately two-thirds of the Development Site Project would be located on the platform over the LIRR facilities and would be elevated above the base flood elevation (BFE) for the 100-year flood. Any development that would occur within the terra firma portion of the Development Site (see Figure 1-6) would be consistent with the New York City Building Code requirement that residential buildings have a finished floor elevation (FFE) at or above the BFE for the 100-year flood, and would meet the minimum elevation requirements for the lowest floor relative to the design flood elevation (DFE) as specified in Appendix G: "Flood Resistant Construction," of the New York City Building Code (http://home2. nyc.gov/html/dob/ downloads/pdf/cc_appendix_g.pdf) for the applicable building category (see Table 1604.5 of the *New York City Building Code* or Table 1-1 of Appendix G to the *New York City Building Code*). The Proposed Actions would result in the development of three structures within the terra firma portion of the Development Site—WR-2, WR-3, and WR-4—all of which would contain residential units and would normally be classified as Category II structures in accordance with

the New York City Building Code. Within A-Zones, the minimum elevation of the lowest floor for Category II structures must be at the BFE[1]. WR-4 would be designed with the elevation of the lowest floor at least one foot above the current BFE for the 100-year flood.

WR-2 and WR-3 are residential towers developed on a base that would contain a public school with 750 school seats. Because it is proposed to contain a school with an occupant load greater than 250, the base of the WR-2 and WR-3 building would be classified as a Category III structure in accordance with the New York City Building Code. Within A-Zones, the minimum elevation of the lowest floor for Category III structures must be at least one foot above the BFE. Additionally, the basement spaces for the structures developed within the terra firma portion of the Development Site would be waterproofed and designed structurally to withstand the hydrostatic pressure exerted by the groundwater (which will also rise to about the 100-year elevation during a 100-year flood) consistent with the Appendix G of the *New York City Building Code*. For these reasons, the Proposed Actions would minimize the potential for public and private losses due to flood damage, and reduce the exposure of public utilities to flood hazards.

Projections of sea-level rise, changes in 100-year flood elevation, and reduction of the 100-year flood return period have been generated by the New York City Panel on Climate Change (NPCC 2009). The *Climate Risk Information* report released by the NPCC, was prepared as part of PlaNYC, the City's comprehensive sustainability plan, to advise the Mayor and the New York City Climate Change Adaptation Task Force on issues related to potential impacts on infrastructure due to climate change (i.e., temperature, precipitation, and rising sea levels). Projections for New York City were developed using Intergovernmental Panel on Climate Change (IPCC)-based methods to generate model-based probabilities for sea level rise in the 2020s, 2050s and 2080s from global climate model (GCM) simulations based on three Greenhouse Gas (GHG) emission scenarios developed by the IPCC[2]. The methods used to project sea level rise for the New York City region included global expansion of the oceans due to warming, meltwater from glaciers, ice caps, and ice sheets, and local land subsidence and water surface elevation. In addition to the IPCC approach to sea level rise, the NPCC also employed an alternative "rapid ice-melt" approach which is based on an extrapolation of recent accelerating rates of ice melt from Greenland and West Antarctic ice sheets and paleoclimate studies that suggest sea level rise on the order of approximately 0.39 to 0.47 inches per decade may be possible.

Current rates of sea level rise[3] in New York City range between 0.86 and 1.5 inches per decade. The long-term rate since 1900 averages 1.2 inches per decade. The NPCC report projects a sea

[1] At the Development Site the BFE for 100-year flood is 8.25 feet Manhattan Borough Datum (10 feet National Geodetic Vertical Datum of 1929).

[2] IPCC Special Report on Emissions Scenarios (SRES), IPCC 2000.

[3] Observed current rates of sea level rise over the past century can be attributed to regional subsidence of the earth's crust and expansion of the oceans as they warm due to global increases in temperature (NPCC 2009).

level rise in New York City for the 2020s period (i.e., a 30-year period extending from 2010 to 2039), the period applicable to the 2019 build year, of 2 to 5 inches based on GCM simulations.[1]

The portion of the Development Site Project that would be located on the platform would not be affected by projected increases in frequency and elevation of the 100-year storm event. For the portion of the Development Site Project that would be developed on terra firma, the placement of the elevation of the lowest floor for the base of structures WR-2, WR-3, and WR-4 at least one foot above the current BFE for the 100-year flood would result in the elevation of the lowest floor that would also be above the NPCC projected increased 100-year flood elevation in the 2020s. The placement of the elevation of the lowest floor for the three proposed structures on terra firma would be at least 1 foot above the current BFE, or as specified by revisions to the Building Code that may be implemented prior to construction, whichever is higher. These design specifications would be set forth as a requirement in the Restrictive Declaration for the Development Site. Therefore, the design for these structures would reduce the potential for public and private loses due to flood damage under current and projected flood conditions.

ADDITIONAL HOUSING SITES

The Additional Housing Sites are not located within the 100-year or 500-year floodplain. Therefore, the Proposed Actions at the Additional Housing Sites would not result in a significant adverse impact on the floodplain.

TERRESTRIAL RESOURCES

DEVELOPMENT SITE

Construction

As discussed above under the "Existing Conditions" section of this chapter, the ground surface and High Line portions of the Development Site are currently occupied by urban uses that limit the growth of vegetation. Vegetated communities currently present on the Development Site at grade level (i.e., ground surface) are minimal, and their value in support of breeding and migrating wildlife populations is relatively modest. The Proposed Actions would result in the demolition of existing structures, grading, and excavation during construction that would result in the removal of the existing urban structure exterior habitat and rail habitat. The loss of this habitat would have the potential to adversely affect some individual birds and other wildlife currently using the limited wildlife habitat within the Development Site should these individuals be unable to find suitable available habitats nearby. However, the wildlife species expected to occur within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on the bird and wildlife community of the New York City region. Therefore, the construction of the Development Site Project would not result in a significant adverse impact on terrestrial resources.

For the High Line segment within the Development Site, this elevated community represents a unique vegetated community for New York City. As part of the Proposed Actions, the High Line within the Development Site would be adaptively reused to provide passive open space. Similar

[1] Range of projected sea level rise represents middle 67 percent of values from model-based probabilities to the nearest inch, as presented in *Climate Risk Information*, New York City Panel on Climate Change, February 17, 2009.

to other segments of the High Line, the segment within the Development Site may require structural reconfiguration to allow for the planned public access, which would also adversely affect the vegetation growing within the High Line. This loss of existing vegetation has previously occurred along the southern end of the High Line, outside the Development Site. While the loss of the existing vegetation within the portion of the High Line located within the Development Site would be adverse, it would not be expected to result in a significant adverse impact on terrestrial resources within New York City.

Operation

The Proposed Actions would result in the development of approximately five acres of landscaped publicly accessible open space that would complement the open space areas developed as part of the Eastern Rail Yard project adjacent to the Development Site, and the Hudson Park and Boulevard project to the north east. As currently contemplated the publicly accessible open space areas would include:

- An approximately 1.6-acre central open space located between the northern and southern vehicular roadways. Plans for this area include a tree-lined pathway, a seating area, plaza, café, and playground.
- An approximately 1.1-acre waterfront lawn in the western portion of the Development Site between residential buildings that would allow for active and passive recreation, and occasional outdoor events, and an amphitheater.
- A tiered open space at the southwest corner of the site, that would lead down from the central open space, and would go under the High Line to street level on West 30th Street and Twelfth Avenue.
- Two smaller open space areas along West 33rd Street, comprising a 2,500-sf plaza, and a 6,800-sf plaza with a dog run.
- A 0.99-acre passive open space developed on the High Line within the Development Site. Where feasible, the landscape design of the High Line would include native herbaceous and woody plant species in keeping with the successional communities that encouraged interested parties to view this former railroad as a potentially valuable greenway and park. This open space would connect to the portion of the High Line on the Eastern Rail Yard (to be developed in the Future without the Proposed Actions).

The site is located within the boundaries of a State and federal quarantine zone for Asian Longhorned Beetle, an important pest that colonizes woody plant species, and is currently the subject of a concentrated eradication effort in the New York/New Jersey Harbor area. No woody plant species that are known to be Asian Longhorned Beetle host species will be planted within the Development Site.

Landscaping vegetation within the proposed open space areas would provide substantially more high quality habitat for wildlife than currently found within the Development Site. The five acres of open space proposed for the Development Site would complement those being developed as part of the Hudson River Park, High Line, Eastern Rail Yard, and Hudson Park and Boulevard, by creating additional compatible upland habitat for native plants and wildlife such as birds and butterflies. For these reasons, the construction and operation of the Development Site Project would have a positive impact on the quality and quantity of habitat available to wildlife within the vicinity of the Development Site. The landscaping that would be planted and developed as a result of the Proposed Actions would also have the potential to provide improved resting or

stopover habitat for migratory songbirds during the spring and autumn migrations. However, this increase in bird habitat for resident and migratory species would have the potential to attract more bird and thus result in potential daytime bird strikes on glass surfaces associated with the proposed development.

The construction of tall buildings within the project sites has the potential to adversely affect migratory bird species. In the U.S., estimates of bird mortality due to building window strikes vary widely, from 97 million to 976 million deaths per year (Klem 1990, USFWS 2002, Hager et al. 2008). Bird species that have been recorded as window strike casualties in the New York City area include both breeding and migratory species, and have been recorded during both nocturnal and diurnal periods (Seewagen 2008). Avian nighttime collisions with buildings and towers are more common than daytime collisions. During migration, over 50 million birds have been documented via radar flying north and passing over the southern U.S. over the course of a few hours (Evan Ogden 1996). Most species of migratory birds use the stars to navigate at night, and brightly illuminated buildings and broadcast towers can attract birds, particularly when poor weather conditions cause birds to fly at lower altitudes. Migration altitudes vary depending on species, location, geographic features, season, time of day, and weather (Evans Ogden 1996). Approximately 75 percent of neotropical migratory birds fly at altitudes between 500 and 6,000 feet during migration (Gill 1990; Able 1999). Shorebirds generally migrate at altitudes of between 1,000 and 13,000 feet. Building height, nighttime lighting, and the reflective nature of the glass façades would affect the potential for the proposed buildings to result in collisions by birds migrating at night (Schmidt-Keonig 1979, Ogden 1996, Avery et al. 1976 in Ogden 1996, Martin 1990 in Ogden 1996). Additionally, landscaping design and the design of the lower building stories would affect the potential for the proposed buildings to result in daytime bird strikes. Locating landscaping within 1 to 33 feet of the building, use of reflective glass, and the presence of highly visible indoor plants behind clear glass have been found to affect the potential for buildings to result in daytime bird strikes (Klem 1990b, Klem 1991 in Ogden 1996).

Proposed building massing and heights, ranging between 40 and 70 stories, reflect a gradual decrease in height and mass descending from Eleventh Avenue and West 33rd Street to Twelfth Avenue and West 30th Street. Therefore, it is anticipated that the tallest building on site (between 850 and 950 feet tall) would be the commercial building at the northeast corner. Taller residential buildings are proposed generally in the eastern and northern portion of the Development Site (between 550 and 810 feet tall) and shorter residential buildings (350 to 500 feet tall) in the southwest quadrant of the Development Site. These structures may result in a strike hazard for migratory birds, and may have the potential to result in increased collisions of migrating birds over those realized under the existing and Future without the Proposed Actions conditions.

Although the proposed building heights are taller than structures to the north and south of the Development Site, they are comparable in height to buildings east of the Development Site, which may reduce potential increases in bird losses within the Development Site associated with nighttime bird strikes. While the proposed building heights may result in the losses of some bird individuals resulting from building collisions, these losses would not be expected to result in a significant adverse impact on populations of songbirds migrating through New York City. However, measures to reduce potential impacts on birds from striking the surface of the buildings during the daytime and at night during spring and fall migratory periods would be considered in the development of the design for these structures. Various “bird-safe” building guidelines (see NYC Audubon 2008) note that lower levels of buildings (i.e., first 12 meters above grade, first seven floors above grade) are key areas for the use of bird-friendly building

techniques. Examples of measures that may reduce bird losses due to daytime building collisions include the following:

- Minimize the use of reflective surfaces on lower levels in close proximity to landscaped areas;
- Maximize a façade's "visual noise," or the readily visible differentiations of material, texture, color, opacity, or other features that help to fragment glass reflections and reduce overall transparency—make the building a readily recognizable obstacle;
- Minimize the reflection of existing vegetation on building facades;

External and internal illumination of buildings has also been shown to result in an increased potential for bird mortality. For instance, upward-directed nighttime lighting of a structure could disorient migrating birds and cause collisions.

Measures that have the potential to decrease bird strikes of nocturnal migrants include:

- Minimizing the amount of light emanating upward from the structure at night during the migratory season;
- Extinguishing interior lights at night during the migratory season;
- Minimizing exterior floodlighting during the migratory season; and
- Installing perches on tall buildings so birds attracted to and entrapped by nighttime lighting can rest (IESNA 1999, FLAP 2009, Ogden 1996).

ADDITIONAL HOUSING SITES

Similar to the Development Site, the vegetative community at the Additional Housing sites is limited to invasive and pioneer species located at the periphery of the project sites. Although the Tenth Avenue Site supports a small number of trees, these species are invasive in nature and offer limited habitat to wildlife. As a result, the construction and operation of the proposed development that would result from the Proposed Actions would not result in a significant adverse impact on the vegetative communities at either of the Additional Housing Sites.

In general, the Proposed Actions would not have a significant adverse impact on most wildlife that would be expected to use the Additional Housing Sites. The maximum height of the residential buildings proposed for the Additional Housing Sites are 99 and 155 feet. In general, structures that are about 500 feet or less in height (i.e., below the migratory altitude for most migratory songbirds) would be expected to pose a lower risk for bird collisions. Therefore, the proposed maximum building heights within the Additional Housing Sites would pose a low risk for bird losses due to nighttime building strikes, and no significant adverse impact on populations of songbirds migrating through New York City is expected. Measures would be considered to reduce the potential for daytime bird strikes from these new structures.

WATER QUALITY AND AQUATIC BIOTA

Construction

No in-water construction activities in the Hudson River as a result of the Proposed Actions. Construction and operation of the Development Site Project would be covered under DEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-08-001). Implementation of erosion and sediment control measures (e.g., silt fences and straw bale dikes), and stormwater management measures as part of the SWPPP during construction and operation

of the Development Site Project would minimize potential impacts on water quality and aquatic biota of the Hudson River associated with the discharge of stormwater runoff generated within the Development Site during land-disturbing activities. These activities would include demolition of existing structures, debris removal, excavation activities for site grading, and foundation work and placement of utilities. During these activities, any hazardous materials encountered would be handled and removed in accordance with DEC Consent Orders, DEP, DEC, OSHA, and EPA requirements and a CHASP (see Chapter 12, "Hazardous Materials"). The implementation of these measures and the SWPPP prepared for the Proposed Actions during construction activities would minimize the potential for significant adverse impacts on surface water quality.

Operation: Stormwater

As discussed above, the Proposed Actions would not result in an increase in the portion of the Development Site, Ninth Avenue Site, or Tenth Avenue Site covered by impervious surface, and would not result in an increase in stormwater runoff generated within the project sites. Implementation of stormwater BMPs and sustainable components for the Development Site would reduce the quantity and rate at which stormwater runoff would be discharged from the Development Site to the separate storm sewer that would be constructed in the Future without the Proposed Actions as part of the Amended Drainage Plan, or to the separate LIRR storm sewer. These measures would include:

- Capture of roof top runoff to be used for other building uses; and
- For buildings without system to capture roof runoff, employ green roof technology where feasible.

The implementation of these stormwater management measures is anticipated to result in a net decrease in surface runoff. As discussed previously, it is anticipated that stormwater runoff from the northern portion of the Development Site would be conveyed to a new storm sewer developed in the Future without the Proposed Actions within West 33rd Street as part of the Amended Drainage Plan, or to the separate LIRR storm drain system, that will discharge to the Hudson River via the existing DEP outfall at West 30th Street. As presented in Chapter 14, "Infrastructure," the Proposed Actions would result in a decrease in the stormwater flow rate from the Development Site to the combined sewer system. Design and construction for the two Additional Housing Sites would incorporate BMPs and sustainable measures to control the rates of stormwater discharges from each site. During final design of the project, and as part of the SWPPP prepared for the Proposed Actions, stormwater management measures to reduce the amount and rate of stormwater generated within the project site would be considered. The designs of these systems would be created around the Office of Mayor's PlaNYC Sustainability Initiatives, BMPs, and CEQR standards to ensure public and environmental health and safety. Implementation of these measures, as well as other stormwater management measures specified in the SWPPP during operation of the Development Site Project would minimize potential impacts on the Hudson River from the discharge of stormwater from the Development Site.

Operation: Increased Flows to North River Water Pollution Control Plant Drainage From Hudson Yards Area

As discussed in Chapter 14, "Infrastructure," the Proposed Actions would result in the discharge of approximately 1.24 mgd of sanitary sewage from the project sites to the combined sewer system (an increase of 1.21 mgd from the existing conditions), in addition to the 2.8 projected to occur from the Hudson Yards developments in the Future without the Proposed Actions. This

increased flow from the Proposed Actions represents approximately 0.7 percent of the North River Water Pollution Control Plant's permitted daily flow limit of 170 mgd. This small additional sanitary flow would not cause the North River Water Pollution Control Plant to be above its permitted daily flow limit of 170 mgd, or adversely affect compliance with its SPDES permit limits. Therefore, the projected 1.24 mgd flow to the North River Water Pollution Control Plant in the 2019 Future with the Proposed Actions condition would not result in a significant adverse impact on the water quality of the Hudson River in the vicinity of the Water Pollution Control Plant. Water quality of the Hudson River in the vicinity of the North River Water Pollution Control Plant would continue to meet the Use Class I water quality standards.

Management of the landscaped portions of the waterfront park and other landscaped areas within the project sites would include implementation of an Integrated Pest Management (IPM) strategy to minimize use of fertilizers, pesticides, and herbicides, in accordance with DPR policies. Implementation of the IPM would minimize potential impacts on stormwater quality and aquatic biota from the discharge of surface runoff generated within these open space areas to the Hudson River.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

No terrestrial flora or fauna listed federally or by New York State as special concern, threatened or endangered are known from the project sites.

The preference of shortnose and Atlantic sturgeons for deep water habitat suggests that it is unlikely that individuals of either species would occur in the study area of the project sites. Although shortnose sturgeon have been collected from the Hudson River channel south of the George Washington Bridge during recent winter sampling of the channel in 2003-2004 and 2004-2005, the numbers collected were low. Because no in-water work will be conducted as part of the construction, and the Proposed Actions would not result in a significant adverse impact on water quality of the Hudson River, shortnose and Atlantic sturgeon would not be adversely impacted by the Proposed Actions.

Marine mammals use the waters of the New York Bight, and occasionally come into New York Harbor, but are not commonly observed in the Lower Hudson River Estuary. In addition, although threatened or endangered sea turtles have the potential to occur in the lower Hudson River estuary, they only occur as seasonal transients and they neither nest nor reside in the area year-round, and are only rarely observed in this portion of the estuary. Because no in-water work would occur during the construction of the Development Site Project, and operation of the Development Site Project would not result in sa ignificant adverse impact to water quality, marine mammals and sea turtles would not be adversely affected by the Proposed Actions.

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT

The Lower Hudson Reach has been identified as a Significant Coastal Fish and Wildlife Habitat primarily because of its use by large numbers of juvenile striped bass as wintering habitat. As described in preceding sections, the Proposed Actions do not include any in-water activities that could directly impact overwintering striped bass or coastal fish and wildlife habitat. Furthermore, the Proposed Actions are not expected to result in a significant adverse impact on water quality. Therefore, the Proposed Actions would not result in a significant adverse impact to Significant Coastal Fish and Wildlife Habitat.

F. PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2017

As described in Chapter 2, "Framework for Analysis," for analysis purposes, the interim year of development of the Proposed Actions is 2017. By 2017, construction on the Development Site is anticipated to be complete for the three buildings closest to Eleventh Avenue, the central open space area, and a plaza located at the northwest corner of the site. Total program floor area would comprise 1.49 million gsf of office space or a 1,200 room convention-style hotel in the north building, retail space of up to 162,750 sf gsf, and up to 1,558 residential units in the two southerly buildings. The interim development would also include the PS/IS school, and 850 accessory parking spaces. This mixture of land uses is the same for the 2017 Future with the Proposed Actions condition as the 2019 Future with the Proposed Actions condition—residential, commercial, community facility, open space, and parking. In addition, the platform over the existing rail yard would be constructed in stages sequenced to the construction of the mixed use development above.

Given (1) the similarity of uses between the interim and full Build years, (2) that the interim year would have a smaller amount of development, and (3) that the 2019 Future with the Proposed Actions condition would not result in a significant adverse impact on natural resources (see above), the Proposed Actions would also not result in a significant adverse impact on natural resources in the 2017 Future with the Proposed Actions condition. ✷