9

Natural Resources

This chapter assesses the potential for a proposed action to result in significant adverse impacts to natural resources, which are defined as the city's biodiversity (plants, wildlife, and other organisms); any aquatic or terrestrial areas capable of providing suitable habitat to sustain the life processes of plants, wildlife, and other organisms; and any areas capable of functioning in support of the ecological systems that maintain the city's environmental stability.

Introduction

Pursuant to the *2021 City Environmental Quality Review* (*CEQR) Technical Manual*, a natural resources assessment considers species in the context of the surrounding environment, habitat, or ecosystem, and examines the potential for a project to affect the species and/or any supporting resources, which include the City's water, wetland, upland, and built resources. The determination of whether a natural resources assessment is appropriate should consider whether a natural resource(s) occurs on or near the site of a project and if the project would result in disturbance of the identified resource(s). As defined in Chapter 11 of the *CEQR Technical Manual*, disturbance to natural resources can include both direct and indirect effects. Direct effects on natural resources are defined as: "*activities that directly alter the condition of a resource*." Indirect effects occur when: "*…the changes on a site alter conditions to adjacent or nearby resources or on the site itself after construction has ended*."

As detailed in **Chapter 1, Project Description**, the Proposed Actions would facilitate on the Development Site (Brooklyn Block 2590, Lots 1 and 25)[1] a mixed-use development that would comprise three buildings totaling approximately 1,215,000 gross square feet (gsf) (the Proposed

[1] On December 17, 2024, the southern half of former Quay Street was incorporated into Lot 25. The northern half of former Quay Street is not controlled by the Applicants.

Development). The Proposed Development would include the construction of two buildings on Lot 1 totaling approximately 1,106,500 gsf of residential space for up to approximately 1,150 total dwelling units (DUs). Additionally, the Proposed Development would include the construction on Lot 25 of approximately 35,000 gsf of community facility space earmarked as a permanent home for the Greenpoint Monitor Museum, which is owned by the Monitor Museum.

The Proposed Development would also include substantial open space improvements. The development would include the creation of over an acre of waterfront open space (approximately 50,000 sf or 1.15 acres). This new open space would include a 34,000-sf Waterfront Public Access Area (WPAA), which would provide a pedestrian connection between the future Bushwick Inlet Park and the existing Shore Public Walkway to the north of the site and an upland connection between the future Bushwick Inlet Park and West Street, plus approximately 9,000 sf of Public Access Area (PAA). The remaining 7,000 sf of new open space would consist of open space for museum visitors as well as landscaping and planting areas that would visually blend and physically connect with the WPAA and PAA spaces. In addition to this new open space, as part of the Proposed Development, long-term funding, in the amount of $300,000 annually, would be provided to the City/New York City Department of Parks and Recreation (NYC Parks) for the operation of Bushwick Inlet Park.

Furthermore, the Proposed Development would include resiliency and flood protection measures on the Development Site—including installation of a new bulkhead to defend against future flooding due to sea level rise; implementation of wet floodproofing for non-critical and dry floodproofing for critical features; and the inclusion of green roofs, green infrastructure, and soft surfaces where feasible and practicable.

In order to allow for the redevelopment of the Development Site, the Proposed Actions also involve the relocation and consolidation of two existing critical NYCTA facilities to a new 143,000-gsf turnkey facility (the NYCTA Replacement Facility) at the NYCTA Relocation Site. The NYCTA Relocation Site would accommodate the NYCTA Mobile Wash Unit and Materials Storage currently located on a portion of the Development Site (Block 2590, Lot 1) (the NYCTA Facility) and the NYCTA Emergency Response Unit (ERU) facility currently located on 65 Commercial Street (Block 2472, Lot 415) (the ERU Site).

Based on review of existing ecological conditions, the NYCTA Relocation Site consists entirely of buildings, pavement, and other unvegetated, impervious surfaces. Therefore, natural resources, as defined in Chapter 11 of the *CEQR Technical Manual,* do not occur at the NYCTA Relocation Site. However, natural resources, as defined in the above-referenced guidance, were identified at and in the vicinity of the Development Site. Accordingly, a natural resources assessment is warranted and has been prepared, as summarized below.

Principal Conclusions

The Development Site is currently characterized by disturbed and developed conditions, limited habitat value, low plant and wildlife species diversity, and high levels of invasive plant species. The adjacent waters of Bushwick Inlet and the East River have been negatively impacted by historical and ongoing impacts to habitats and species from over two centuries of local and regional commercial and industrial development. Water quality within Bushwick Inlet and the East River has been drastically impacted due to urban and industrial development, shipping, stormwater runoff, sewage effluents, and industrial point sources. Further impacts to water quality and habitats are occurring

currently from erosion and sedimentation impacts due to the degraded and failing shoreline revetment at the Development Site.

The Proposed Development includes approximately 50,000 sf of on-site open space, including a 34,000-sf WPAA and a 9,000-sf Public Access Area (PAA). Implementation of the Proposed Development would result in the removal of non-native/invasive plant species, and the introduction of native tree, shrub, herbaceous plant species, and lowland and upland maritime shrub and grass habitats, which would result in increased native plant abundance and diversity, expanded coverage, heterogeneity, and connectivity of native coastal habitats. The Proposed Development would also provide crucial shoreline stabilization along the Bushwick Inlet waterfront.

Construction of the Proposed Development would result in minor, temporary displacement effects to resident terrestrial wildlife at the Development Site and aquatic fauna within Bushwick Inlet and the adjoining East River, including potential temporary effects to habitat for two listed fish species that are known to occur within the East River, but have not been confirmed locally. Similar to the effects of the current waterfront construction and installation of vegetated wetland and upland habitats within and adjacent to Bushwick Inlet at the Motiva Parcel of Bushwick Inlet Park adjacent to the Development Site, such effects would be avoided or minimized with the implementation of best management practices (BMPs) and adherence to regulatory agency permitting requirements during construction. Following implementation of the Proposed Development, improvements to habitat quantity and quality, as well as wildlife species diversity are expected, and many local species, including birds and other terrestrial wildlife, would experience increases in individual population densities due to expanded habitat opportunities.

Implementation of the Proposed Development would result in the removal of the existing shoreline revetment and construction of a new sheet pile bulkhead and rock revetment within the same general footprint as the existing revetment, thereby avoiding permanent loss of tidal wetlands and associated impacts to tidal habitats, vegetation, and organisms. The new bulkhead and revetment would address ongoing shoreline erosion and resulting sedimentation impacts to the intertidal zone that occur currently at the Development Site, thereby improving wetland habitat quality within Bushwick Inlet. Additionally, establishment of the two structures would enable the excavation necessary to perform the required remediation of contaminated soils and groundwater at the Development Site, thereby preventing future contamination of tidal habitats within Bushwick Inlet and the East River. Temporary impacts to Bushwick Inlet and the East River adjacent to Development Site due to site redevelopment, including bulkhead/revetment construction, noise, and vibration, would occur during demolition and construction activities along the shoreline. Similar to the NYC Parks habitat restoration and coastal resiliency efforts at the portions of Bushwick Inlet Park that adjoin the Development Site, both upland and in-water construction activities would employ BMPs and would comply with all conditions, restrictions, and avoidance/minimization measures of the anticipated United States Army Corps of Engineers and New York State Department of Environmental Conservation permits for the Proposed Development. Accordingly, the overall impacts to wetlands and surface water are expected to be minimal and temporary in nature and would be largely avoided due to BMPs and adherence to regulatory agency permitting requirements.

Based on the foregoing, no significant adverse impacts to natural resources are anticipated.

Methodology

This assessment of natural resources follows the methods set forth in Chapter 11 of the *CEQR Technical Manual* for identifying and characterizing natural resources, evaluating the potential for a project to result in direct or indirect effects to natural resources, performing the appropriate analyses to determine the degree of any recognized effects, and identifying potential avoidance, minimization, and/or mitigation measures for any potential adverse effects, as applicable.

Existing Conditions

Pursuant to the methodology described in Chapter 11 of the *CEQR Technical Manual*, the existing natural resources at the Development Site were assessed through desktop reviews of relevant government agency maps, records, and guidance manuals (as noted throughout the text), as well as ecological field surveys conducted by a Certified Ecologist (*Ecological Society of America*) and Professional Wetland Scientist (*Society of Wetland Scientists*) on January 8 and April 18, 2025.

Habitats and Vegetation

The existing habitats that compose the approximately 3.02-acre Development Site are cultural (i.e., human influenced) habitats that have been created or significantly altered by historical and ongoing disturbance and development at the Development Site for over two centuries. As observed during the field surveys, the terrestrial portions of the Development Site include the unvegetated, impervious surfaces of the existing NYCTA Facility, which occupy 100 percent of Lot 1. Beyond the NYCTA Facility, the upland areas located on Lot 25 are pervious surfaces, including unvegetated areas of gravel and soil, patchy grasses and other herbaceous vegetation occurring over recently placed fill, disturbed brushy areas growing atop a shoreline revetment, and scattered trees. Overall vegetated cover, including tree cover, is fragmented and spatially limited, and forests or other woodland habitats do not occur at the Development Site. The upland flora of the Development Site is composed of a relatively limited number of plant species that are tolerant of urban settings and the harsh growing conditions inherent to waterfront environments (e.g., salt spray, wind, high levels of sun exposure, and periodic inundation from storm events). The observed dominant species of trees, shrub, woody vines, and herbaceous plants include a substantial number of non-native/invasive species. Non-native/invasive species degrade the overall environmental value of a habitat by out-competing ecologically valuable native plants for sunlight, moisture, and other resources, impairing wildlife habitat values, lowering species diversity, and negatively impacting soils and water quality.[2] The non-native/invasive plant populations at the Development Site likely serve as a seed source for the proliferation of these species at adjoining and nearby properties surrounding Bushwick Inlet, including Bushwick Inlet Park, where habitat restoration efforts to establish native plant communities are currently underway.

Based on these existing conditions, the Development Site does not represent a significant source of vegetated habitats or native plant diversity.

The Development Site shoreline along Bushwick Inlet and the East River has been altered through historical installation of a revetment consisting of riprap, broken concrete slabs, and other construction/demolition debris interspersed with decaying timber piles and the dilapidated remnants

[2] U.S. Forest Service. *Invasive Plants.* Available at: https://www.fs.usda.gov/wildflowers/invasives/index.shtml. Accessed January 2025.

of former bulkheads and other shoreline structures. The lower portions of the shoreline revetment occur within the intertidal zone of Bushwick Inlet and the East River and are therefore subject to twice-daily inundation by tidal waters. Due the presence of the revetment, emergent wetland vegetation or vegetated tidal marsh communities do not occur at the Development Site. Portions of the revetment are compromised, resulting in erosion of the adjacent upland areas and ongoing sedimentation impacts to Bushwick Inlet.

To further refine the above field observations, the New York State Department of Environmental Conservation (NYSDEC) New York Natural Heritage Program (NYNHP) publication, *Ecological Communities of New York State (ECNYS)* was consulted.[3] *ECNYS* provides detailed descriptions and includes global and New York State rarity rankings for various habitat types found within New York State. Using *ECNYS,* four distinct cultural ecological community types were identified at the Development Site during the field surveys, as summarized in **Table 9-1**.

Table 9-1 Ecological Communities

***ECNYS* Community**[1]	***ECNYS* Global and NYS Rarity Rankings**[2]	***ECNYS* Community Distribution**	**Field Observations**
Urban Structure Exterior	Unranked cultural community	Throughout NYS	NYCTA Facility building (impervious/unvegetated).
Paved Road/Path	Unranked cultural community	Throughout NYS	Unvegetated, impervious areas located at and adjacent to the NYCTA Facility.
Urban Vacant Lot	Unranked cultural community	Throughout NYS	Early successional habitat growing on fill that was recently placed to the west and southwest of the NYCTA Facility. Low overall plant species diversity.
Estuarine Riprap/Artificial Shore	Unranked cultural community	Coastal NYS	Shoreline revetment consisting of an intertidal zone and a partially vegetated upland zone with high levels of non-native/invasive plant species.

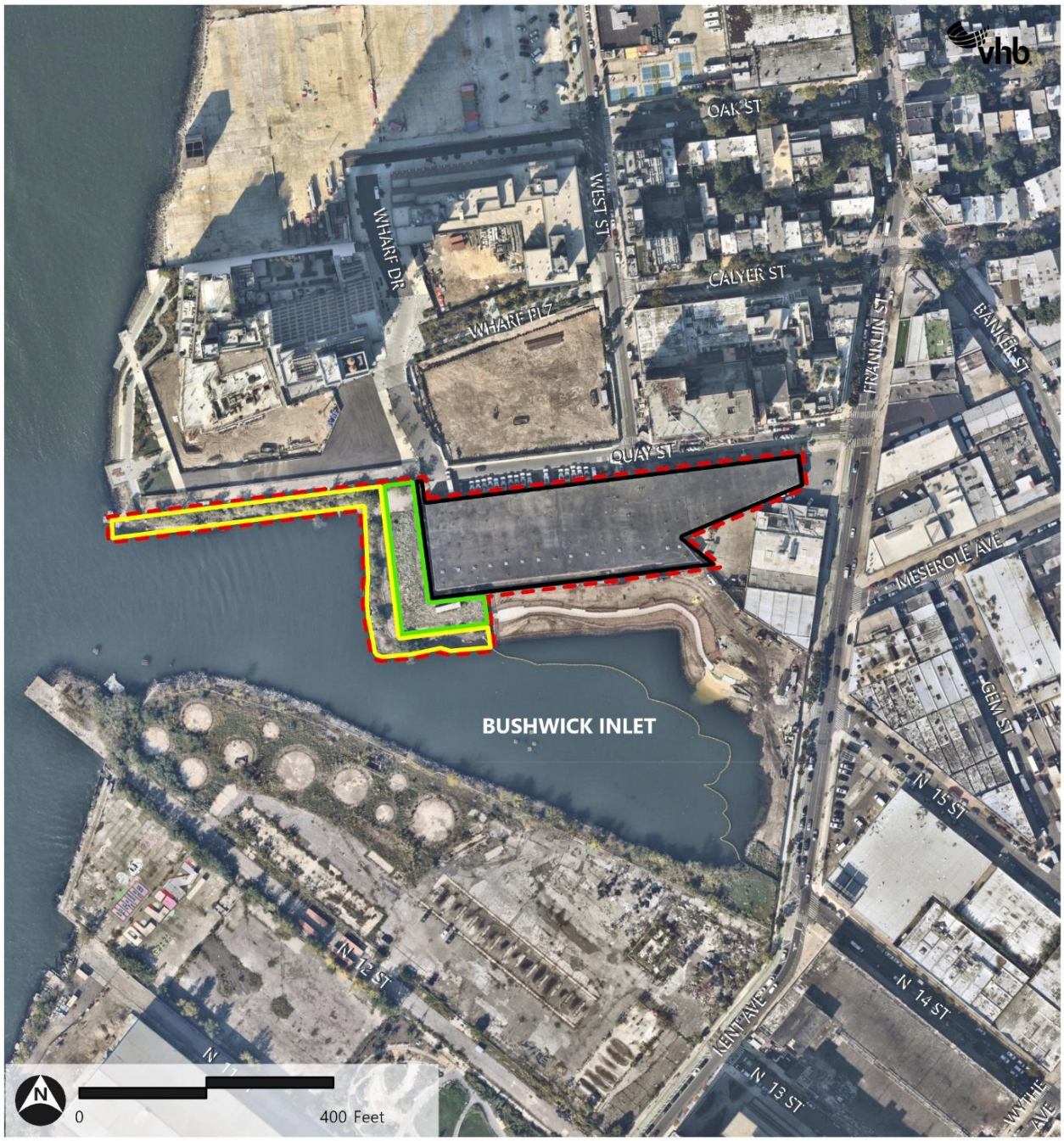
[1] Community types from *Ecological Communities of New York State* (Edinger et. al., 2014).
[2] G5 = demonstrably secure globally, S5 = demonstrably secure in NYS.

As shown in **Table 9-1**, the four *ECNYS* communities that occur at the Development Site have not been assigned rarity rankings by the NYNHP. Instead, they have been designated by the NYNHP as "*unranked cultural communities*" due to their artificial origin, disturbed/developed conditions, and wide distribution throughout New York State. Cultural communities are further described in *ECNYS* as "*substantially different from the character of the substrate or resident community as it existed prior to human influence.*"

The locations of the four cultural ecological communities are shown in **Figure 9-1** and community descriptions based on the *ECNYS* community definitions and supplemented by field observations are provided below. Complete inventories of the vegetative species observed during the field surveys are provided in **Appendix E.**

[3] Edinger, G.J., et al. (editors). 2014. *Ecological Communities of New York State*. Second Edition. New York Natural Heritage Program, NYSDEC.

Figure 9-1 Ecological Communities



Source: Ecological field survey performed by a Certified Ecologist and Professional Wetland Scientist on January 8, 2025; community descriptions from Ecological Communities of New York State (Edinger, et. al., 2014); imagery via Nearmap (2025)

Urban Structure Exterior and Paved Road/Path

The *ECNYS* Urban Structure Exterior and Paved Road/Path communities describe the exterior surfaces of the NYCTA Facility building and the paved areas that adjoin the building, resulting in 100 percent unvegetated cover at Lot 1. These impervious surfaces are devoid of vegetation, and, with the exception of building exterior nesting opportunities for a few species of urban-adapted birds, the two communities are largely insignificant from an ecological perspective.

Urban Vacant Lot

The portion of Lot 25 (a.k.a. the Monitor Lot) located to the west and southwest of the NYCTA Facility building has recently been raised through the placement of fill, as part of ongoing shoreline stabilization and resiliency efforts being implemented by the property owner to combat the effects of sea level rise and erosion. The fill surface is characterized by patches of grass that have been planted for stabilization purposes, as well as herbaceous plants interspersed with unvegetated soil surfaces. Such conditions are indicative of the initial stage of vegetative succession, which is the process by which a cleared or otherwise disturbed land area is initially colonized by herbaceous plants and other "pioneering" vegetation and subsequently progresses through shrub- and tree-dominated stages, in the absence of additional disturbance. These conditions are representative of the *ECNYS* Urban Vacant Lot community which is defined as:

"*An open site in a developed, urban area that has been cleared either for construction or following the demolition of a building. Vegetation may be sparse, with large areas of exposed soil, and often with rubble or other debris…*"

Similar to the above *ECNYS* community description, the vegetation observed within the Urban Vacant Lot community at the time of the field surveys is generally sparse. The community is characterized by low species diversity and dominated by a few common herbaceous plants, including Common Mullein (*Verbascum thapsus*), Mugwort (*Artemesia vulgaris*), Common Evening Primrose (*Oenothera biennis*), Lamb's Quarters (*Chenopodium album*), Seaside Goldenrod (*Solidago sempervirens*), Shepherd's Purse (*Capsella bursa-pastoris*), Northern Crabgrass (Digitaria sanguinalis), and similar "weedy" herbaceous plants that are tolerant of urban environments and the harsh growing conditions inherent to waterfront environments (e.g., salt spray, wind, high levels of sun exposure, and periodic inundation from storm events). The northern portion of the Urban Vacant Lot community was recently resurfaced with a layer of gravel and crushed stone that is largely devoid of vegetation.

Estuarine Riprap/Artificial Shore

The Development Site shoreline along Bushwick Inlet and the East River has been altered with a revetment consisting of riprap, broken concrete slabs, and construction/demolition debris. These conditions are representative of the *ECNYS* Estuarine Riprap/Artificial Shore community, which is defined as:

"*The wetland community of a constructed estuarine shore in which the substrate is composed of broken rocks, wooden bulkheads, or concrete placed so as to reduce erosion. Vegetative cover and species diversity are low compared to natural estuarine shores*."

The linear, westernmost portion of the revetment running adjacent to and parallel to Quay Street features a steeply sloped face within the intertidal zone, and small but dense patches of brushy

vegetation growing within the upland zone atop the revetment. The dominant species within the habitat patches include non-native/invasive Multiflora Rose (*Rosa multiflora*), Amur Honeysuckle (*Lonicera mackii*), Japanese Barberry (*Berberis thunbergii*), Asiatic Bittersweet (*Celastrus orbiculatus*), Japanese Honeysuckle (*Lonicera japonica*), Spotted Knotweed (*Centaurea stoebe*), Common Reed (*Phragmites australis*), Lamb's Quarters, and Mugwort, as well as native Groundsel Bush (*Baccharis halimifolia*), Common Evening Primrose, Seaside Goldenrod, and Tall Goldenrod (*Solidago altissima*). The scattered and mostly stunted trees that grow on the revetment are from several urban-adapted tree species and/or are from species known for high tolerance to the harsh conditions of maritime shoreline environments, including non-native White Mulberry (Morus alba), Tree-of-Heavan (Ailanthus altissima), Callery Pear (Pyrus calleryana), and Autumn Olive (Elaeangus umbelatta), as well as native Black Cherry (Prunus serotina).

In contrast to the conditions described above, the portions of the revetment located immediately seaward of the Urban Vacant Lot community to the west and southwest of the NYCTA Facility do not support densely vegetated conditions and provides a more gradual transition in elevation from upland areas to the intertidal waters of Bushwick Inlet. Dominant vegetative species within the upland portions of the revetment in this area include several White Mulberry and Black Cherry trees, numerous Groundsel Bush shrubs, and herbaceous plants including Mugwort, Spotted Knapweed, Common Evening Primrose, and Seaside Goldenrod.

Vegetation observed during the field surveys within the intertidal zone of the revetment includes several species of seaweeds affixed to rock surfaces of the structure, including Irish Moss (Chondrus crispus), Rockweeds (Fucus filiformis and F. vesiculosus), Stone Hair (Blidingia minima), Wire Weed (Ahnfeltia plicata), and Sea Lettuce (Ulva lactuca). Due to the hardened artificial shoreline conditions of the revetment, emergent wetland vegetation and vegetated tidal marsh communities do not occur at the Development Site. Vegetated high and low marsh communities are currently being installed by the New York City Department of Parks and Recreation (NYC Parks) as part of habitat restoration and coastal resiliency efforts at Bushwick Inlet Park (currently under construction), which adjoins the Development Site to the south and east (see **Wetlands and Surface Waters**, below).

Wildlife

The Development Site is situated within a densely developed and populated urban area characterized by high levels of human activity, with associated wildlife stressors (e.g., noise, traffic, etc.). The existing ecological conditions at the Development Site are characterized by disturbed and developed cultural communities, including buildings, pavement and other unvegetated surfaces, as well as limited vegetated habitats with significant occurrences of non-native/invasive plant species populations that have degraded the overall ecological value of the property (see **Habitats and Vegetation**, above). Based on these existing habitat conditions, as well as the desktop reviews and field surveys performed as part of this existing-conditions assessment, the observed and expected terrestrial wildlife fauna of the Development Site is composed of a limited assemblage of species that are adapted to degraded habitat conditions within urban settings with elevated levels of human activity. A summary of the observed and expected birds, mammals, and herpetofauna (amphibians and reptiles) at the Development Site follows.

Birds

Birds make up the majority of the observed and expected wildlife species at the Development Site. To investigate migratory and non-migratory bird diversity at the regional and local levels, the following databases were reviewed:

- *National Audubon Society Christmas Bird Count*:[4] At the regional level, data from this resource indicates that 136 bird species were identified by Brooklyn Bird Club members during 176.50 total survey hours throughout Brooklyn during the December 16, 2023, regional bird count (**Appendix E**).
- *Cornell Lab of Ornithology eBird*:[5] According to this local resource, observers noted 137 avian species at Bushwick Inlet Park (between Quay Street and N. 9th Street) from September 2018 to December 2024, (**Appendix E**).
- *New York State Breeding Bird Atlas (NYSBBA)*:[6] According to this local resource, a total of 10 bird species were identified between 2000 and 2005 within the *NYSBBA* survey block that the Development Site occurs in (Block 5850A). Of these species, five are confirmed as breeding, four are listed as probable breeders, and one is listed as possibly breeding within the survey block (**Appendix E**).

With respect to site-specific field observations, a total of 15 bird species were observed (i.e., seen and/or heard) at or over the Development Site during the field surveys. An additional nine bird species were observed within or over the adjacent waters of Bushwick Inlet or within Bushwick Inlet Park (**Appendix E**). The majority of the birds observed at the Development Site are species adapted to disturbed and developed conditions, and habitats that support little or no vegetation, including Rock Pigeon (*Columba livia*), House Sparrow (*Passer domesticus*), European Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*), and Mourning Dove (*Zenaida macroura*). While it is likely that the Development Site provides some potential nesting habitat for these species (including the exterior surfaces of the NYCTA Facility), suitable nesting habitat for other avian species that are not adapted to developed conditions is limited, with the exception of Canada Goose (*Branta canadensis*), as several active Canada Goose ground nest were observed on Lot 25 during the April 18, 2025, field survey. The trees, brushy vegetation, and early successional habitats at the Development Site offer foraging and/or perching opportunities for common songbirds that occur locally (as determined through review of the above-referenced avian databases and/or through field observations), including American Robin (*Turdus migratorius*), Dark-eyed Junco (*Junco hyemalis*), Northern Cardinal (*Cardinalis cardinalis*), Song Sparrow (*Melospiza melodia*), American Goldfinch (*Spinus tristis*), Carolina Wren (*Thryothorus ludovicianus*), Northern Mockingbird (*Mimus polyglottos*), Blue Jay (*Cyanocitta cristata*), and White-throated Sparrow (*Zonotrichia albicollis*). The latter five species were observed during the field surveys. Avian species diversity at the Development Site is likely greatest during the spring and early autumn periods, when warblers and other migratory species move through and temporarily inhabit the region. However, due to disturbed/developed conditions, substantial areas of unvegetated habitat, and a paucity of trees, the Development Site does not function as a significant breeding or nesting habitat for birds.

[4] National Audubon Society. Christmas Bird Count. Available at: http://netapp.audubon.org/cbcobservation/. Accessed August 2021.

[5] Cornell Lab of Ornithology. eBird. Available at: https://ebird.org/explore. Accessed December 2024.

[6] New York State Department of Environmental Conservation. *New York State Breeding Bird Atlas*. Available at: http://www.dec.ny.gov/animals/51030.html. Accessed December 2024.

Beyond the Development Site, Bushwick Inlet and the East River provide important habitat for waterfowl, shorebirds, and other migratory and non-migratory birds. Several such species were observed within or over the waters of Bushwick Inlet during the field surveys, including Mallard (*Anas platyrhynchos*), American Black Duck (*Anas rubripes*), Gadwall (*Mareca strepera*). Ring-billed Gull (*Larus delawarensis*), Laughing Gull (*Larus marinus*), Herring Gull (*Larus argentatus*), Canada Goose (*Branta canadensis*), and Double-crested Cormorant (*Nannopterum auritum*). Based on the above-referenced database inventories, several raptor species, including Red-tailed Hawk (*Buteo jamaicensis*) and Cooper's Hawk (*Astur cooperii*), have been observed from Bushwick Inlet Park.

Mammals

No mammals were observed at the Development Site during the field surveys. Due to its urban surroundings and the disturbed/developed conditions described previously, the expected mammalian fauna of the Development Site is limited to several species that are adapted to these conditions, including Raccoon (*Procyon lotor*), Virginia Opossum (*Didelphis virginiana*), Eastern Gray Squirrel *(Sciurus carolinensis*), Norway Rat (*Rattus norvegicus*), and feral cats (*Felis catus*). Small rodent species (e.g., several species of mice, moles, and shrews) are likely the most abundant mammals at the Development Site. However, due to their diminutive sizes and predominantly subterranean life histories, these species are not easily observed.

Herpetofauna

Populations and verified occurrences of herpetofauna within northwestern Brooklyn are limited.[7] Due to its urban surroundings, disturbed/developed conditions, and the absence of freshwater surface features that many herpetofauna species require for breeding, larval habitat, or other life stages, the Development Site does not represent a significant potential habitat area for this faunal group. With the possible exception of Brown Snake (*Storeria dekayi*), which is a diminutive and primarily subterranean snake species with a known tolerance for disturbed, urban conditions that has been documented in the general surrounding area of the Development Site,[8] it is likely that no herpetofauna species occur onsite.

Bushwick Inlet/East River

Over two centuries of commercial and industrial development along Bushwick Inlet and the adjoining East River waterfront, including the installation of hardened shoreline structures, has resulted in the elimination of vegetated wetlands, shoreline erosion, and alterations in tidal processes.[9] Water quality within Bushwick Inlet and the East River has been drastically impacted due to urban and industrial development, shipping, stormwater runoff, sewage effluents, and industrial point sources.[10] As a consequence, the overall ecosystem health of Bushwick Inlet has been significantly impaired, including substantial declines in fish and wildlife habitat quality. Despite these conditions, the

[7] New York State Department of Environmental Conservation. *New York State Amphibian and Reptile Atlas Project*. Available at: http://www.dec.ny.gov/animals/7140.html. Accessed January 2025.

[8] New York State Department of Environmental Conservation. *New York State Amphibian and Reptile Atlas Project Lizards and Snakes Distribution Map*. Available at: https://extapps.dec.ny.gov/docs/wildlife_pdf/herpatlaslizardssnakes.pdf. Accessed January 2025.

[9] U.S. Army Corps of Engineers New York District. *Hudson-Raritan Estuary Ecosystem Feasibility Study Draft Integrated Feasibility Report and Environmental Assessment Appendix F – Essential Fish Habitat*.

[10] Restoring New York City - Proposals for Improving Ecological and Human Health. *Oyster and Oyster Reef Restoration in the East River.* Available at: file://vhb/gbl/proj/NewYorkCity/22383.00%2040%20Quay%20Street%20EIS/tech/Natural%20Resources/East%20River-Bushwick%20Inlet%20Resources/Restoring%20New%20York%20City.html Accessed January 2025.

intertidal and subtidal waters of Bushwick Inlet and the East River that adjoin the Development Site support a diverse community of benthic, planktonic, and pelagic species, including finfish, shellfish and other macroinvertebrates, and various microinvertebrate life forms.[11] According to the National Oceanographic and Atmospheric Administration (NOAA) Marine Fisheries, Bushwick Inlet and the adjoining East River provide Essential Fish Habitat for adult, juvenile, larvae, and/or egg life stages for Winter Flounder (*Pseudopleuronectes americanus*), Atlantic Butterfish (*Peprilus triacanthus*), Little Skate (*Leucoraja erinacea*) and eight other species (**Appendix E**). As noted previously, both waterbodies also provide habitat for a number of avian species, including wintering habitat for several waterfowl species observed during the field surveys and others noted in local avian habitat surveys. As part of ongoing efforts to establish self-sustaining oyster reef populations within New York Harbor and surrounding waters, the Billion Oyster Project currently maintains and monitors a research station within Bushwick Inlet consisting of four living docks and 16 oyster cages.[12]

With respect to the Development Site, due to its varied rock surfaces, gaps, crevices, accumulated sediments, and affixed seaweed populations, the existing revetment that occurs within the intertidal zone along the Development Site shoreline is a source of high habitat heterogeneity for local estuarine species, including juvenile finfish, crustaceans, mollusks, and other macroinvertebrates.

Rare/Protected Species

No federal- or New York State-listed plant or wildlife species were observed at the Development Site during the field surveys.

The federal Endangered Species Act provides for the protection of federally designated Endangered and Threatened species and the habitats on which these species depend for survival. For terrestrial species, project reviews under the federal Endangered Species Act are administered by the United States Fish and Wildlife Service (USFWS). For marine species, project reviews are administered by NOAA Marine Fisheries. For projects that are carried out by federal agencies or that include federal funding, permits, or approvals, project reviews are conducted by the federal lead agency under Section 7 of the federal Endangered Species Act.

New York State Endangered and Threatened wildlife species are listed in 6 NYCRR Part 182, which prohibits the taking, import, transport, possession, or selling of Endangered or Threatened species. Taking is further defined in the regulations to include actions that are expected to result in harm to species individuals, as well as any adverse impacts to habitats occupied by Endangered or Threatened species. Pursuant to 6 NYCRR Part 182.8, consultations with the NYSDEC are required for any action that might result in incidental take of Endangered or Threatened wildlife species.

Desktop reviews of rare/protected species and community records performed for this assessment include the USFWS Information for Planning and Consultation (IPaC) database, the NYSDEC Environmental Resource Mapper, EAF Mapper, and Nature Explore databases, and site-specific correspondence from the NYNHP (**Appendix E**).

The IPaC database includes federally listed species that are known to occur regionally and that therefore have the potential to occur at specific locations within a particular region, provided that

[11] New York State Department of State. *Lower Hudson Reach Coastal Fish and Wildlife Habitat Rating Form.* Available at: https://dos.ny.gov/significant-coastal-fish-wildlife-habitats?f%5B0%5D=filter_term%3A2306 Accessed January 2025.

[12] Billion Oyster Project. Available at: https://www.billionoysterproject.org/ Accessed January 2025.

suitable species habitat exists. As such, the inclusion of species on the IPaC list for a specific location does not guarantee the actual presence of the species at the location. According to the USFWS:

"*The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered…Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area.*"[13]

The IPaC Resources List generated for the Development Site includes three listed bird species that are known to occur in the general region of the Development Site, as well as a butterfly that is currently proposed for listing as Threatened. Details regarding the four IPaC species are provided in **Table 9-2**.

[13] United States Fish and Wildlife Service. U.S. Fish & Wildlife Service. IPaC Information for Planning and Consultation. Available at: https://ipac.ecosphere.fws.gov/. Accessed January 2025.

Table 9-2 USFWS and NYSDEC Listed Species

Scientific Name	Common Name	Listing[1]	Habitat[2,3]	Field Survey/Desktop Review Results
Charadrius melodus	Piping Plover	Federal (E) NYS (E)	Annual migrant that breeds and forages during spring and summer on sandy coastal beaches.	Species habitat does not occur at the Development Site. No NYNHP species records exist for the Development Site or vicinity.
Sterna dougalii dougalii	Roseate Tern	Federal (E) NYS (E)	Rocky, barrier beach, and saltmarsh islands with low predation pressure. 95 percent of the NYS population breeds at Great Gull Island, in Block Island Sound.	Species habitat does not occur at the Development Site. No NYNHP species records exist for the Development Site or vicinity.
Calidris canutus rufa	Red Knot	Federal (T) NYS (T)	Uncommon, transient visitor to sandy coastal beaches during migratory stopovers.	Species habitat does not occur at the Development Site. No NYNHP species records exist for the Development Site or vicinity.
Danaus plexippus	Monarch Butterfly	Federal (PT)	Various flowering plants are nectar sources. Adults lay eggs larvae feed on obligate Milkweed (*Asclepias spp.*) host plants.	The limited flowering plants at the Development Site are potential nectar sources. Evidence of host plants was not observed during the field surveys.
Acipenser oxyrinchus	Atlantic Sturgeon	Federal (E) NYS (E)	Subadults and spawning adults occur seasonally within the Lower Hudson River Estuary, including Upper New York Bay and adjoining waters.[2,4]	An NYNHP species record exists for the East River, in the Development Site vicinity.
Acipenser brevirostrum	Shortnose Sturgeon	Federal (E) NYS (E)	Adults and subadults occur seasonally within various depths and bottom substrate types in the Lower Hudson River Estuary, including Upper New York Bay and adjoining waters.[2,4]	An NYNHP species record exists for the East River, in the Development Site vicinity.

[1] E = Endangered T = Threatened PT = Proposed for listing as Threatened

[2] New York Natural Heritage Program. *Online Conservation Guides*. Available at: https://guides.nynhp.org/. Accessed January 2025.

[3] U.S. Fish and Wildlife Service. *Long Island Recovery Efforts*. Available at: https://www.fws.gov/office/long-island-ecological-services. Accessed January 2025.

[4] U.S. Army Corps of Engineers New York District. *Hudson-Raritan Estuary Ecosystem Feasibility Study Draft Integrated Feasibility Report and Environmental Assessment Appendix F – Essential Fish Habitat.*

As detailed in **Table 9-2**, based on field survey observations, suitable shoreline habitats for Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougalii dougalii*), and Red Knot (*Calidris canutus rufa*) do not occur at or adjacent to the Development Site, and no NYNHP records for these species exist for the Development Site and its vicinity.

Although currently unlisted, the Monarch Butterfly (*Danaus plexippus*) has been proposed for listing as a Threatened species by the USFWS. The Monarch Butterfly uses a variety of flowering plants as nectar sources and obligately requires plants from the Milkweed (*Asclepius*) genus as host plants for egg-laying and larval feeding sites during annual migrations.[14] As the limited flowering plant occurrences at the Development Site are potential nectar sources, Monarch Butterfly may occur seasonally at the Development Site. Winter evidence of Milkweed host plants was not observed at the Development Site during the field surveys.

According to the NYSDEC Environmental Resource Mapper and EAF Mapper databases, and site-specific correspondence from the NYNHP (**Appendix E**), Endangered Atlantic Sturgeon and Shortnose Sturgeon adults and subadults occur seasonally within Upper New York Bay and adjoining estuarine waters and records for the two species exist for the East River to the south of the Development Site (**Table 9-2**). Accordingly, both species have the potential to occur seasonally in the waters adjacent to the Development Site.

Wetlands and Surface Waters

Bushwick Inlet and the East River are classified as Estuarine Subtidal, Unconsolidated Bottom, Subtidal (E1UBL) waters on the USFWS National Wetland Inventory (NWI) Maps (**Figure 9-2**), which are non-regulatory maps created by the USFWS to provide information to the public on the extent and status of the Nation's wetlands and to aid agency biologists and others in wetland conservation efforts.[15] The E1UBL designation describes the subtidal zone that is located seaward of mean low water and is permanently inundated by water.

The intertidal waters of Bushwick Inlet and the East River adjoin the Development Site waterfront, which has been altered through historical installation of a hardened shoreline revetment. The resulting artificial shoreline (Estuarine Riprap/Artificial Shore community, see **Habitats and Vegetation**, above) precludes the establishment of emergent wetland vegetation, vegetated tidal marshes, or other natural shoreline conditions within the intertidal zone. As part of habitat restoration and coastal resiliency efforts for a 1.90-acre portion of Bushwick Inlet Park that is presently under construction, NYC Parks is currently installing vegetated high and low marsh communities and native upland plant communities along the park shoreline section that adjoins the Development Site shoreline to the east.[16] Descriptions of the observed and expected flora and fauna within Bushwick Inlet are provided above in **Habitats and Vegetation** and **Wildlife**, respectively.

Bushwick Inlet and the East River are subject to United States Army Corps of Engineers (USACE) regulation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Permits for regulated activities is administered by the USACE for various activities that occur

[14] United States Fish and Wildlife Service. Monarch. Available at: https://www.fws.gov/species/monarch-danaus-plexippus. Accessed January 2025.

[15] United States Fish and Wildlife Service. National Wetland Inventory Overview. Available at: http://www.fws.gov/wetlands/NWI/index.html. Accessed January 2025.

[16] Friends of Bushwick Inlet Park. *Motiva Parcel New Park Construction.* Available at: https://bushwickinletpark.org/movita-section-construction-breaks-ground/ Accessed January 2025.

seaward/below the spring high water elevation of regulated tidal waters. USACE permits are required for dredging, placement of fill, construction of docks, bulkheads, and other in-water structures, and other regulated uses. Pursuant to Section 401 of the Clean Water Act, applicants for discharges of fill to navigable waters in New York State must also obtain a Clean Water Act Section 401 Water Quality Certification from the NYSDEC.

Bushwick Inlet and the East River are mapped by the NYSDEC as Littoral Zone (LZ) tidal wetlands (see **Figure 9-2**) which describe:

"*all lands under tidal waters which are not included in any other* [tidal wetland] *category, extending seaward from shore to a depth of six feet at mean low water*."[17]

Mapped tidal wetlands are regulated by the NYSDEC pursuant to Environmental Conservation Law (ECL) Article 25 (Tidal Wetlands Act) and its implementing regulations (6 NYCRR Part 661). As set forth in Part 661, a tidal wetlands permit is required for most land uses and activities within mapped tidal wetlands and the tidal wetland adjacent area, which in the five boroughs of New York City extends up to 150 feet inland from the tidal wetland boundary, with certain exceptions that can limit the tidal wetland adjacent area to less than 150 feet including the presence of certain shoreline and landward structures that meet specific qualifications regarding their construction date, functionality, and size. However, according to the *Existing TWAA Impervious Cover (Upper Bound)* drawing prepared by Langan Engineering and Environmental Services Inc., dated December 31, 2024 (**Appendix E**), no such exceptions are applicable to the Development Site. Therefore, pursuant to the aforementioned drawing, the NYSDEC's tidal wetland jurisdiction at the Development Site includes all of Lot 25 and those portions of Lot 1 within 150 feet of mean high water. Official determinations for the NYSDEC's tidal wetland jurisdictional limits are obtained through submission of a jurisdictional determination request to the NYSDEC Region 2 office.

Bushwick Inlet and the East River are also regulated by the NYSDEC under ECL Article 15, Title 5 (Protection of Waters Program) and its implementing regulations (6 NYCRR Part 608) which provide protections for surface waters (e.g., rivers, streams, lakes, and ponds) and requires review and permitting for various uses and activities within same. Pursuant to Part 608, an Excavation or Placement of Fill in Navigable Waters permit under the Protection of Waters Program is required for in-water work and improvements, including excavation, dredging, and construction of in-water structures such as piers, bulkheads, and revetments.

[17] New York State Department of Environmental Conservation. Tidal Wetland Categories. Available at: https://www.dec.ny.gov/lands/5120.html Accessed January 2025.

Figure 9-2 NWI Wetlands and NYSDEC Tidal Wetlands



Source: NYSDEC; USFWS; imagery via Nearmap (2025)

No-Action Condition

Absent the Proposed Development, ongoing shoreline stabilization measures to prevent further erosion of the shoreline revetment and adjacent upland areas may continue. If shoreline stabilization measures are discontinued, it is expected that erosion of the shoreline revetment and adjacent upland areas would continue to occur. Therefore, absent construction of the new bulkhead, the Development Site's coastal resiliency would be compromised, leading to potential water intrusion that could adversely affect the Development Site and the adjacent Bushwick Inlet Park, as well as surrounding areas. Due to the presence of the NYCTA Facility, the eastern portions of the Development Site would continue as unvegetated/impervious surfaces that are largely insignificant from an ecological perspective. Within the existing vegetated and unvegetated areas of the Urban Vacant Lot community that have been raised through the placement of fill materials, ecological succession to shrub- and tree-dominated conditions would occur over time, barring future periodic maintenance or additional disturbance. It is further expected that the non-native/invasive plant populations that currently occur at the Development Site would continue to proliferate and serve as a seed source for the spread of these species at other adjoining and nearby properties surrounding Bushwick Inlet, including Bushwick Inlet Park, where habitat restoration efforts to establish native plant communities are currently underway.

With-Action Condition

As described in detail in **Chapter 1, Project Description**, implementation of the Proposed Development would result in the removal of the existing NYCTA Facility, construction of three new buildings (the Greenpoint Monitor Museum and two mixed-use residential and commercial buildings), installation of approximately 50,000 sf of on-site open space, including the 34,000-sf WPAA and 9,000-sf PAA, construction of a shoreline stabilization structure, installation of native plantings, and associated improvements. An assessment of the potential impacts of the Proposed Development on the natural resources identified in **Existing Condtions** is provided below.

Habitats and Vegetation

The primary impact of the Proposed Development to existing habitats and vegetation would be the removal of all existing landcover to facilitate redevelopment. Both habitat replacement and removal of vegetation are identified as direct effects to natural resources in Chapter 11 of the *CEQR Technical Manual*.

As described in detail in **Existing Conditions**, the Development Site does not represent a significant source of vegetated habitats or native plant diversity. Substantial portions of the Development Site, including Lot 1 in its entirety, are occupied by buildings, pavement, or other unvegetated surfaces. Overall vegetated cover at the Development Site, including scattered tree cover, is fragmented and spatially limited. The site flora is characterized by low overall species diversity and includes a number of non-native/invasive tree, shrub, woody vine, and herbaceous plant species that have degraded the overall ecological functions and value of the Development Site. The two unvegetated communities (Urban Structure Exterior and Paved Road/Path) and two vegetated communities (Urban Vacant Lot and Estuarine Riprap/Artificial Shore) that compose the Development site have been designated by the NYNHP as unranked cultural communities, due to their artificial origin, disturbed/developed conditions, and wide distribution throughout New York State. Based on the foregoing, the removal of

existing habitats and vegetation at the Development Site is not expected to result in significant adverse effects to local vegetated habitat abundance, native plant diversity, or individual plant species populations.

Moreover, the Proposed Development would facilitate the removal of the non-native/invasive tree, shrub, woody vine, and herbaceous plants that currently dominate the existing Development Site flora and serve as a seed source for the spread of these species to other adjoining and nearby properties surrounding Bushwick Inlet, including Bushwick Inlet Park, where habitat restoration efforts to establish new native plant communities are currently underway.

In contrast to the current dominance and proliferation of non-native/invasive plant species at the Development Site under existing conditions and the No-Action condition, the planting plan for the Proposed Development includes the installation of native tree, shrub, and herbaceous plant species that occur in New York coastal habitats. The native plants would be installed within proposed habitat zones along the waterfront and in landward areas of the Development Site, including Lot 1, which is currently completely devoid of vegetation due to the presence of the existing NYCTA Facility. The proposed habitat zones include lowland and upland maritime shrub and grass habitats that would mimic the native plant associations and ecologies occurring in undisturbed shoreline habitats in local coastal areas, including those currently being installed by NYC Parks at Bushwick Inlet Park. The lowland maritime habitat plantings would be installed in linear configurations in the area immediately landward of the proposed shoreline bulkhead, thereby providing a vegetated native plant buffer and transition zone between the tidal habitats along the seaward edge of the bulkhead and the upland habitats located landward. Upland maritime habitat planting zones would occur further landward between the proposed shore public walkway and the three proposed buildings, providing additional vegetated buffer functions and further increasing habitat diversity and native plant species abundance. Native tree species characteristic of local coastal habitats would be installed within the lowland and upland maritime shrub and grass habitats and at other locations throughout the Development Site, including interior portions of Lot 1 and within the northern perimeter of Lot 1 along Quay Street. The trees in the latter two areas would occur over understory shrub and grass plantings and streetscape shrub plantings, respectively. In addition to expanding native plant diversity, the native plantings would improve habitat quality and provide expanded habitat opportunities for birds and other wildlife.

As noted above, the Proposed Development includes approximately 50,000 sf of on-site open space, including the 34,000-sf WPAA and 9,000-sf PAA. The proposed shore public walkway would connect the Development Site with the existing shore public walkway and open space at the adjoining property to the north of the Development Site and Bushwick Inlet Park to the south and east (currently under construction). Significantly, the lowland and upland maritime shrub and grass habitats that would be installed alongside the shore public walkway at the Development Site would connect to similar native coastal habitat zones currently being installed at Bushwick Inlet Park, thereby providing habitat connectivity between vegetated coastal ecologies along the Bushwick Inlet waterfront.

As noted in **Existing Conditions**, the Development Site shoreline along Bushwick Inlet and the East River is currently occupied by a revetment consisting of riprap, broken concrete slabs, and other construction/demolition debris interspersed with decaying timber piles and the dilapidated remnants of former bulkheads and other shoreline structures. The area atop the revetment includes brushy habitat patches dominated by invasives plant species, and portions of the revetment are compromised, resulting in erosion of the adjacent upland areas and ongoing sedimentation impacts

to Bushwick Inlet. Implementation of the Proposed Development would result in the removal of the failing revetment, including its associated debris and invasive plants. In its place, a steel sheet pile bulkhead would be installed along the entire shoreline area of the Development Site. As described previously, a lowland habitat zone would be installed landward of the bulkhead to provide a vegetated native plant buffer and transition zone between the tidal habitats seaward of the bulkhead and the proposed shore public walkway and other upland areas located beyond. The rock revetment that would be installed along the toe of the revetment for stability purposes would also ensure the continuation of this habitat type and its resident flora and fauna following redevelopment. The bulkhead and revetment would further provide enhanced flood protection and other coastal resiliency benefits and address ongoing shoreline erosion and sedimentation impacts to Bushwick Inlet that currently occur at the Development Site. Additionally, as described in **Chapter 10, Hazardous Materials**, establishment of the two structures would enable the excavation necessary to perform the required remediation of contaminated soils and groundwater at the Development Site, thereby preventing future contamination of tidal habitats within Bushwick Inlet and the East River.

Based on the foregoing, removal of existing habitats and vegetation to facilitate the Proposed Development would not result in significant adverse effects to local vegetated habitat abundance, native plant diversity, or individual plant species populations. Furthermore, implementation of the Proposed Development would result in the removal of non-native/invasive plant species, increase native plant abundance and diversity, expand the coverage, heterogeneity, and connectivity of native coastal habitats, improve wildlife habitat (as described below), and provide crucial shoreline stabilization along the Bushwick Inlet waterfront. Accordingly, no significant adverse effects to habitats and vegetation are anticipated.

Wildlife

As detailed in **Existing Conditions**, the observed and expected terrestrial wildlife fauna of the Development Site is composed of a limited assemblage of species that are adapted to degraded habitat conditions of urban settings with elevated levels of human activity and associated wildlife stressors (e.g., noise, traffic, etc.). These include an avian species assemblage dominated by common birds species adapted to urban conditions and several common mammal species. The Development Site is not a significant habitat area for herpetofauna.

The immediate impact of the Proposed Development to wildlife would be the temporary displacement of resident species, due to removal of existing habitats during clearing and redevelopment, similar to the effects of the current waterfront construction and installation of vegetated wetland and upland habitats within and adjacent to Bushwick Inlet, including at the adjacent Motiva Parcel, which is an active construction site. In analyzing the potential impacts to wildlife due to displacement, it is noteworthy that many factors influence wildlife population densities other than habitat availability, including disease, parasites, predation, weather, etc., as well as development and associated human activity. Therefore, it is highly likely that resident wildlife species populations are already below the theoretical carrying capacity of the Development Site and surrounding area, due to existing conditions characterized by extensive urban development, high levels of human presence and activity, substantial occurrences of invasive plant species, and other limiting factors for many local wildlife species.

Notwithstanding the above, under the assumption that resource availability is the only limiting factor affecting wildlife population density, and taking into account that the majority of the observed and expected wildlife identified in **Existing Conditions** are considered to be generally mobile species of

birds and mammals, it is therefore anticipated that resident wildlife would be displaced to adjacent and nearby habitat areas during construction. These include contiguous habitat areas at Bushwick Inlet Park and other vegetated habitats in the general surrounding area. As the observed and expected fauna of the Development Site is composed primarily of avian species adapted to disturbed and developed conditions, high levels of noise and activity, and habitats that support little or no vegetation (e.g., Rock Pigeon, House Sparrow, European Starling, and Mourning Dove, etc.), resident species may also be displaced to buildings, streetscapes, and similar unvegetated or sparsely vegetated local habitats. In the short term, it is anticipated that these areas would experience a temporary increase in wildlife species populations. Subsequently, it is anticipated that inter- and intra-specific competition for available resources within the habitats would result in a net decrease in local population sizes for most species, until equilibrium between wildlife populations and available resources is achieved. Given that resident species populations at the Development Site are already limited due to the small size of the property and the disturbed and developed status of the existing site habitats, temporary population decreases due to displacement effects to other nearby habitats and properties are anticipated to be minimal.

Following implementation of the Proposed Development, it is anticipated that most, if not all displaced resident species would return to the Development Site. Moreover, due to the proposed removal of non-native/invasive plant species and increases in the spatial extent of tree and vegetated habitat zones, the resulting quantitative and qualitative habitat improvements are expected to result in increased habitat opportunities and individual species population densities for birds and other local wildlife. With respect to bird species in particular, the numerous native trees to be installed at the Development Site would significantly expand perching, foraging, and nesting habitat opportunities, as compared to existing conditions and the No-Action condition.

It is further anticipated that the establishment of lowland and upland maritime shrub and grass habitats that currently do not occur onsite will provide nesting and foraging opportunities for birds and other wildlife that similarly do not occur at the Development Site under existing conditions, thereby increasing wildlife species diversity. Additionally, the proposed habitat connectivity between the maritime shrub and grass habitats at the Development Site and similar habitats that are currently being established at Bushwick Inlet Park would facilitate movement of wildlife between contiguous areas of the two properties.

Similar to existing development, as well as multiple projects that are currently under construction along the East River waterfront of Brooklyn and Queens (including projects in the immediate surrounding area of the Development Site), the Proposed Development includes multi-story buildings. Glass and other transparent or highly reflective building exterior surfaces can disorient birds and are a significant cause of fatal bird-building collisions.[18] Therefore, as compared to existing conditions and the No-Action condition, the three multi-story buildings that would be constructed under the Proposed Development have the potential to increase bird strikes at the Development Site. In order to avoid/minimize the potential for bird/building collisions throughout New York City, the New York City Council adopted Local Law 15 of 2020, which requires that materials that reduce bird strike fatalities be installed on newly constructed or altered buildings. Specifically, Local Law 15 amended Section 1403.8 of the New York City Building Code to include the following bird-friendly measures:

› *1403.8.1 Exterior wall envelope. The exterior wall envelope, and any associated openings,*

[18] United States Fish and Wildlife Service Division of Migratory Bird Management. 2016

shall be constructed with bird friendly materials up to 75 feet (22 860 mm) above grade. Materials other than bird friendly materials shall not exceed an aggregate of 10 square feet (0.93 m^2) within any 10 feet (3048 mm) by 10 feet (3048 mm) square area of exterior wall below 75 feet (22 860 mm) above grade.

- *1403.8.2 Bird hazard installations. Bird hazard installations shall be constructed of bird friendly materials regardless of their height above grade.*
- *1403.8.3 Fly-through conditions. Fly-through conditions located 75 feet (22 860 mm) or less above grade shall be constructed with bird friendly materials.*
- *1403.8.4 Adjacency to green roofs. The exterior wall envelope, and any associated openings, installed adjacent to a green roof system on the same building shall be constructed with bird friendly materials up to 12 feet (3658 mm) above the walking surface.*

To avoid/minimize the potential for bird collisions, the Proposed Development would be designed and constructed in compliance with Local Law 15, including the provisions of Section 1403.8 of the New York City Building Code outlined above. Accordingly, the Proposed Development would avoid/minimize bird collisions, in compliance with New York City law.

Similar to the terrestrial fauna of the Development Site, it is expected that birds, fish, and other resident organisms within Bushwick Inlet that are capable of mobility would be temporarily displaced to contiguous waters and benthic habitats during construction. Temporary displacement may occur from indirect impacts due to noise, and vibration from demolition and construction at upland areas of the Development Site, as well as from direct impacts due to removal of the existing shoreline revetment and construction of the new bulkhead and revetment. However, any temporarily displaced species are expected to return to the disturbed areas following construction. Some mollusks and other resident organisms that have limited or no mobility would suffer direct elimination during shoreline work. However, due to the limited spatial extent of the shoreline intertidal and adjacent subtidal zone that would be impacted, significant adverse impacts to local or regional populations of these species are not expected, and recolonization of the newly stabilized shoreline area would occur following construction.

With respect to the NOAA Marine Fisheries-designated Essential Fish Habitat of Bushwick Inlet and the East River identified in **Existing Conditions**, upland and in-water construction activities would employ BMPs and would comply with all conditions, restrictions, and avoidance/minimization measures of the anticipated USACE and NYSDEC permits for the Proposed Development (see **Wetlands and Surface Waters**, below). The anticipated BMPs and agency requirement may include, but are not limited to, upland erosion and sediment controls (e.g., silt fence, straw bales, inlet protection, stabilized construction entrances/exits, stockpile stabilization, etc.), in-water turbidity controls (e.g., turbidity curtains, sediment booms, coffer dams), dredging/excavation BMPs, and equipment and materials storage and operations measures designed to avoid potential adverse impacts to wetlands and surface waters. Accordingly, the overall adverse effects to Essential Fish Habitat and all life stages of affected species within Bushwick Inlet and the East River are expected to be minimal and temporary in nature.

From a marine habitat perspective, due to its varied rock surfaces, gaps, crevices, accumulated sediments, and affixed seaweed populations, the intertidal zone along the existing Development Site revetment is a source of high habitat heterogeneity for local estuarine species, including juvenile finfish, crustaceans, mollusks, and other macroinvertebrates. Significantly, under the Proposed

Development, the rock revetment that would be installed along the seaward toe of the bulkhead to provide stability would also serve to replace the temporary loss of this important habitat type that would occur during construction. Therefore, following construction, similar intertidal habitat conditions to those of existing conditions would occur along the shoreline, and a similar species assemblage is expected to recolonize the intertidal and adjacent subtidal zones. Moreover, the new bulkhead and revetment would address ongoing shoreline erosion and resulting sedimentation impacts to Bushwick Inlet that occur currently at the Development Site, thereby improving habitat quality within Bushwick Inlet.

As compared to existing conditions and the No-Action condition, implementation of the Proposed Development would result in minor incremental shading to Bushwick Inlet. However, as described in **Chapter 6, Shadows**, a detailed shadows analysis performed for the Proposed Development indicates that no significant adverse shadow impacts would occur to Bushwick Inlet as a result of the Proposed Development. At no point would incremental project-generated shadows result in the complete elimination of sunlight from Bushwick Inlet. Additionally, due to their dynamic (i.e., constantly moving) nature, shadows at individual locations within the overall affected area of Bushwick Inlet would be temporary and of limited duration. Because the Development Site is located north and east of Bushwick Inlet, incremental shading would be limited to the morning hours during all seasonal analysis days and would not occur within the remaining sunlight hours of the respective analysis days, thereby allowing for substantial periods of direct sunlight to biological resources within the affected areas. Moreover, surface water bodies are dynamic environments that are affected by natural processes such as currents, tides, wind, temperature gradients, etc. that move water. Therefore, most resident organisms within the water column are in a constant state of movement and would be carried through areas impacted by incremental shading, resulting in only temporary exposure to such organisms. Further, many biological organisms that inhabit waterbodies are capable of locomotion and therefore can move from shaded to sunlit areas (or vice versa) of their own volition. For those organisms that are not moved by natural processes or capable of locomotion, the effects of incremental shadows would be temporary and of limited duration.

Based on the foregoing impact analyses, the Proposed Development would result in minor, temporary displacement impacts to resident wildlife at the Development Site and within Bushwick Inlet and the adjoining East River. Such impacts would be avoided or minimized due to BMPs and adherence to regulatory agency permitting requirements during construction. Following implementation of the Proposed Development, improvements to habitat quality and wildlife species diversity are expected, and many local species would experience increases in individual population densities due to expanded habitat opportunities. Accordingly, no significant adverse impacts to wildlife are anticipated.

Rare/Protected Species

As detailed in **Existing Conditions**, Endangered Atlantic Sturgeon and Shortnose Sturgeon adults and subadults occur seasonally within Upper New York Bay and adjoining estuarine waters, and records for the two species exist for the East River to the south of the Development Site. Accordingly, both species have the potential to occur seasonally within the waters adjacent to the Development Site. Construction of the Proposed Development may cause temporary displacement of the two species, if present seasonally within the waters adjoining the Development Site. Displacement may occur from indirect impacts due to noise and vibration from demolition and construction at upland areas of the Development Site, as well as from direct impacts to Bushwick Inlet and the adjoining East

River, due to removal of the existing shoreline revetment and construction of the new bulkhead and revetment. However, if present, any temporarily displaced Atlantic Sturgeon and Shortnose Sturgeon are expected to return following construction. Moreover, pursuant to the federal Endangered Species Act and 6 NYCRR Part 182 (and similar to the NYC Parks habitat restoration and coastal resiliency efforts at the portions of Bushwick Inlet Park that adjoin the Development Site), upland and in-water work for the Proposed Development would be conducted in accordance with all applicable NOAA Marine Fisheries and NYSDEC requirements, respectively. Such requirements may include species noise/vibration avoidance and minimization measures, as well as siltation and turbidity controls to avoid adverse impacts to water column and benthic habitats during construction.

The Monarch Butterfly (currently proposed for listing as a Threatened species by the USFWS) has the potential to occur seasonally at the Development Site, where it may use flowering plants as nectar sources. Significantly, the substantial expansion of vegetated habitats that would occur under the Proposed Development would significantly expand the availability of flowering plant nectar sources for this species, as compared to existing conditions and the No-Action condition. Moreover, as Monarch Butterfly obligately requires plants from the Milkweed genus as host plants for egg-laying and larval feeding sites during annual migrations, the inclusion of Milkweed species in the planting plan would provide breeding habitat for this species.

Based on the foregoing, no significant adverse impacts to rare/protected species are anticipated.

Wetlands and Surface Waters

Implementation of the Proposed Development would result in the removal of the existing shoreline revetment and construction of a new sheet pile bulkhead and rock revetment. The new shoreline structures would be constructed within the same general footprint as the existing revetment on Lot 25, thereby avoiding permanent loss of tidal wetlands and associated impacts to tidal habitats, vegetation, and organisms. From a marine habitat perspective, the rock revetment that would be installed along the seaward toe of the bulkhead would replicate and improve upon the intertidal and subtidal habitat conditions provided by the existing revetment and would include native plant habitats on the landward side of the bulkhead that would provide buffering functions. Following construction, similar intertidal wetland habitat conditions to those of existing conditions would occur along the shoreline, and a similar species assemblage is expected to colonize the intertidal and adjacent subtidal zones. Moreover, the new bulkhead and revetment would address ongoing shoreline erosion and resulting sedimentation impacts to the intertidal zone that occur currently at the Development Site, thereby improving wetland habitat quality within Bushwick Inlet. Additionally, as described in **Chapter 10, Hazardous Materials**, establishment of the two structures would enable the excavation necessary to perform the required remediation of contaminated soils and groundwater at the Development Site, thereby preventing future contamination of tidal habitats within Bushwick Inlet and the East River.

Temporary impacts to Bushwick Inlet and the East River adjacent to Development Site due to site redevelopment, including bulkhead/revetment construction, noise, and vibration, would occur during demolition and construction activities along the shoreline. Both upland and in-water construction activities would employ BMPs and would comply with all conditions, restrictions, and avoidance/minimization measures of the anticipated USACE and NYSDEC permits or permit modifications for the Proposed Development. The anticipated BMPs and agency requirements may include, but are not limited to, upland erosion and sediment controls (e.g., silt fence, straw bales, inlet protection, stabilized construction entrances/exits, stockpile stabilization, etc.), in-water turbidity

controls (e.g., turbidity curtains, sediment booms, coffer dams), dredging/excavation BMPs, and equipment and materials storage and operations measures designed to avoid potential adverse impacts to wetlands and surface waters. Accordingly, the overall impacts to wetlands and surface water are expected to be minimal and temporary in nature, and would be largely avoided due to BMPs and adherence to regulatory agency permitting requirements. Moreover, as detailed in **Chapter 11, Water and Sewer Infrastructure**, following construction, adverse impacts due to stormwater runoff are not expected.

Based on the foregoing, no significant adverse impacts to wetlands and surface waters are anticipated.