16.0 Natural Resources

A. INTRODUCTION

The *CEQR Technical Manual* defines a natural resource as a plant or animal species and any area that is "capable of providing habitat for plant and animal species or capable of functioning to support environmental systems and maintain the City's environmental balance." Included in these resources are surface and groundwaters, soils, wetlands, and the City's landscaped areas, gardens, parks, and built structures that are used by wildlife. This chapter characterizes existing terrestrial and marine ecology and other important natural features on and around the Project Site, based on field surveys, published information and agency consultation, and describes how these natural resources would change in the future, both with and without the Proposed Action.

Terra Cotta, LLC has obtained the necessary permits to replace a deteriorating bulkhead along the northern portion of the Project Site. This permit process involved a separate environmental review. NYPA has applied for permits to reconstruct the bulkhead along the southern portion of the Project Site. Reconstruction of the southern and northern portions of the bulkhead would be completed as separate and independent actions from the Proposed Action, and, consequently, are considered to be part of the Future without the Proposed Action. However, in the event that NYPA fails to receive the necessary permits for the reconstruction of the bulkhead along the southern portion of the Project Site, that work will be undertaken as part of the Project. Therefore, an assessment of the potential impact of its reconstruction on natural resources is provided in this chapter.

The analysis concludes that neither the Preferred Development Program nor the variations, which would be constructed within the same building footprint and envelope as the Preferred Development Program, would result in any significant adverse impacts on natural resources. Further, as discussed in Chapter 13, "Infrastructure," the Proposed Action would improve water quality by directing stormwater runoff through an existing stormwater outfall to the East River located beneath 43rd Avenue, and avoiding combined sewers, in accordance with the NYSDEC preferred approach for separating storm and sanitary flows in areas served by combined sewers.

Also as a result of the Proposed Action, the DSNY salt and sand storage pile would be relocated elsewhere in the DSNY service area, in accordance with DSNY siting criteria. Removal of the salt and sand pile would eliminate a source of potential surface water degradation. This would represent a net benefit for water quality regardless of where the new shed would be located. Reestablishment of the bulkhead on the southern portion of the Project Site would require the placement of approximately 2,700 cy of fill between the bulkhead line and the existing adjacent 285-foot-long shoreline. This fill would displace surface waters and tidal wetland areas that have encroached into the Project Site. The surface area displacement would be approximately 2,920 sf. This action would reestablish conditions prior to the bulkhead collapse, would occur in an area with little value as wildlife habitat, and would not result in significant adverse impacts on natural resources.

Impermeable surfaces would reduce the infiltration of precipitation to the water table. However, this would not adversely affect a significant resource since site groundwater at the water's edge is brackish, tidally influenced, and not a source of drinking water.

The Proposed Action would be developed east of the new bulkhead and, consequently, would not have a direct impact on tidal wetlands. Indeed, after the installation of the new bulkhead is complete,

immediately west of the bulkhead the lands underwater will be submerged under more than six feet of water, as they were historically. Such open water areas are not considered to have wetland properties and are not regulated as tidal wetlands. However, on the southern portion of the site, the regulated tidal wetland "Adjacent Area" would extend inland from the shoreline to the 10-foot topographic elevation. NYSDEC permitting requirements limit the introduction of impervious surface in this Adjacent Area to no more than 20 percent of its surface area without a variance. A portion of the Esplanade component of the Proposed Action would be constructed within this Adjacent Area, and would introduce impervious surface beyond this 20 percent coverage limitation. The placement of the Esplanade within the Adjacent Area is necessary to provide enough space within the Project Site for construction of studio spaces meeting industry requirements. This impervious coverage would not affect tidal wetlands, because, as discussed above, the areas west of the bulkhead would not function as wetlands.

As stated previously, because there would be no significant changes to the East River water quality or habitat of the Project Site under the Proposed Action, no significant adverse impacts to terrestrial or aquatic wildlife would result.

The western portion of the Project Area is situated in the 100-year floodplain. However, it is not within an area classified as a floodway. Structures planned for this area would not result in any increases in flood levels in surrounding areas or represent a significant floodplain encroachment. Most of the urbanized waterfront area along the East River is already occupied by impervious development; therefore, the Proposed Action would not significantly alter existing primary floodplain characteristics.

B. EXISTING CONDITIONS

The Project Site can be characterized as having three distinct zones distinguished by their differing natural conditions (see Figures 16-1 and 16-2). The first two are upland portions of the Project Site, while the third is associated with the East River shoreline.

The southernmost portion of the two upland zones is currently occupied by a NYPA facility, and is substantially devoid of natural features. The northern upland zone is unimproved and occupied by old field invasive/pioneer (weedy) vegetation typical of disturbed sites.

The third zone is the western edge of the Project Site, an intertidal area (the area between low and high tides). Although it borders the East River, ecological features associated with tidal wetlands have not developed in this zone due to its relatively recent exposure to the river caused by deterioration of the bulkhead during the past several years. Deterioration of the bulkhead has allowed East River currents and tidal fluctuations, coupled with storm events, to erode portions of the shoreline. A recent field survey indicates that the intertidal zone adjacent to the Project Site contains rip rap, large pieces of debris, and dilapidated pier structures on a rocky substrate adjacent to the heavily eroded shoreline. There were minimal amounts of sand and mud. The project sponsor has obtained approvals to replace the bulkhead along the northern portion of the Project Site. As a temporary measure, a timber bulkhead has been placed on this portion of the Project Site to absorb some of the wave energy causing the erosion. The bulkhead along the southern portion of the Site is effectively collapsed. NYPA has applied for permits to replace this bulkhead at its existing location.

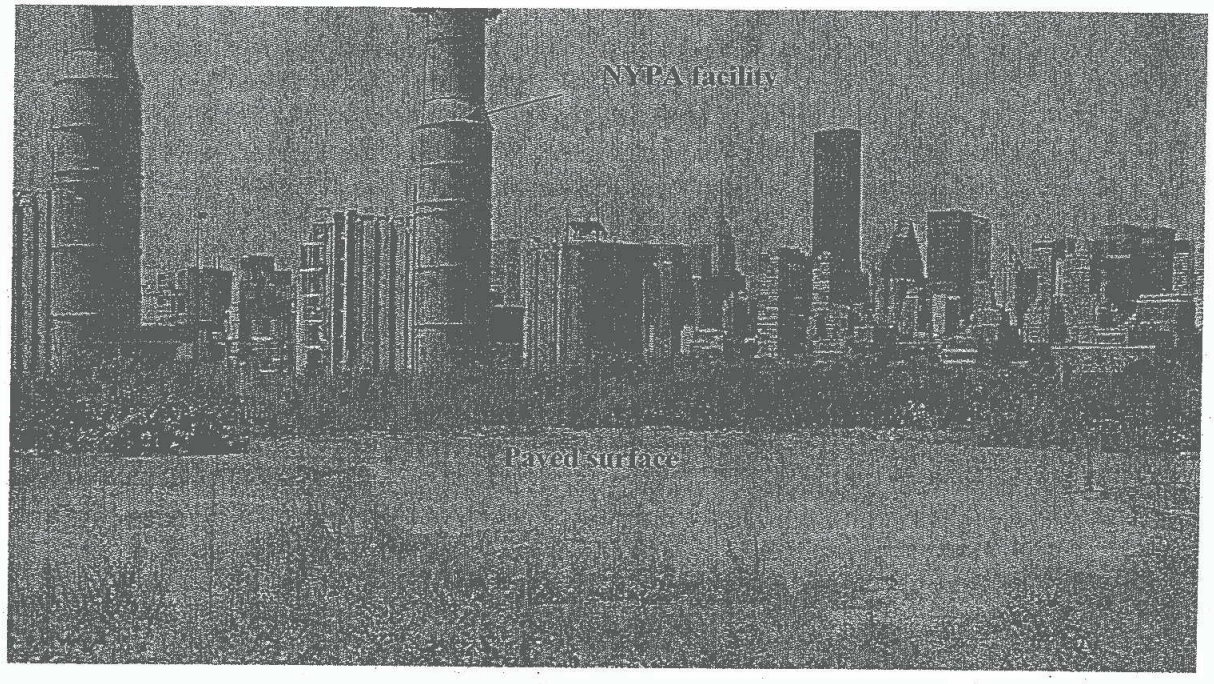


Figure 16-1:
Southwest view of Northern Upland Zone from East River

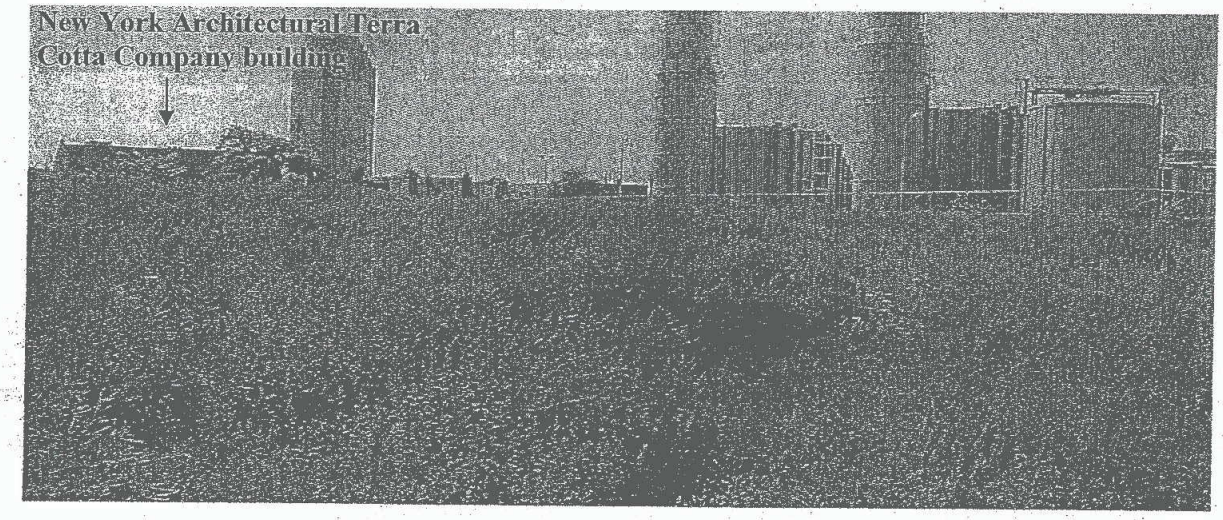


Figure 16-2:
Southeast view of Northern Upland Zone from East River

The mapped but unopened segment of 43rd Avenue at the southern boundary of the Project Site is currently used by the DSNY for the open storage of rock salt, which is applied to roadways as deicing material during winter storm events in Queens Community Districts Numbers 1 and 2 (see Figure 20-1). The maximum capacity of the storage pile is approximately 10,000 tons of rock salt and covers approximately 30,000 square feet of land. The facility is left uncovered throughout the year. In addition, runoff from the salt pile is not collected or treated. Instead, it is either directed to the City sewer system or drains off-site as groundwater or overland flow, eventually reaching the East River. Runoff from salt storage piles includes chloride, a contaminant which is not subject to any significant natural removal mechanism upon entering a water body. As a consequence, the salt pile is a potential source of surface and groundwater contamination.

1. Terrestrial Ecology

As described above, the Project Site can be characterized as having three distinct zones distinguished by their differing natural conditions: 1) a southern upland zone, 2) a northern upland zone, and 3) an intertidal, or shoreline, zone along the western edge of the Project Site.

The southern upland zone is occupied by an NYPA facility. The adjoining ground surface is covered with crushed stone and concrete. Maintenance of this portion of the Project Site by NYPA suppresses the growth of vegetation. A field investigation indicated that no important habitat or ecological communities have become established on this portion of the Project Site.

The surface of the northern upland zone is partially paved, portions of which are in disrepair. Unpaved areas and areas with broken pavement have allowed pioneer species to establish themselves on the Project Site. Highly disturbed urban fill is found throughout this zone; there is virtually no trace of native soils. The invasive/pioneer (weedy) plant species observed throughout this zone are indicative of these disturbed conditions.

Field investigations indicate that the vegetation found throughout the Project Site consists primarily of a herbaceous layer dominated by invasive, pioneer species (weeds). A few staghorn sumac and Tree-of-Heaven saplings, and one mature Tree-of-Heaven (adjacent to the New York Architectural Terra Cotta building) are located on the eastern portion of the Project Site, with golden rod, ragweed, and upland grasses dominating the areas to the west (Figure 16-2).

Based on field observations and consultation with the United States Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program, no special status species or habitats are known to be associated with the upland zones of the Project Site.

The shoreline zone consists of a steeply sloped, partially eroded and debris-strewn beach face. A survey of the area indicated that this zone is not of great ecological value, as indicated by the few organisms (mostly mudworms) that were collected during a field survey.

2. Water Resources

Water resources include surface waters and underlying groundwater aquifers.

a) Surface Waters

Surface water resources on the Project Site are limited to the encroachment of the East River into the site east of the bulkhead. The East River, which defines the western boundary of the Project Site, is a tidal strait connecting the Hudson River and New York Bay with the western end of Long Island

Sound. It has minimal direct freshwater input, and reflects the salinity of the larger estuaries it connects (i.e., Upper New York Bay and Long Island Sound).

The bulkhead along the western edge of the Project Site is deteriorating and, as a consequence, will no longer continue to protect the Project Site from erosion due to the effects of East River currents, tidal fluctuations and storms (Figures 16-3 and 16-4). A temporary bulkhead has been placed along the northern portion of the Site to prevent erosion from occurring before a new permanent bulkhead is constructed pursuant to existing permits. The bulkhead along the southern portion of the Site has effectively collapsed, and the shoreline has begun to erode. Prior to the collapse of the bulkhead, East River water depths adjacent to the Project Site ranged between 10 feet in the north and 18 feet in the south. The eroded shoreline is considered to be the edge of a tidal wetland area regulated by the NYSDEC. Immediately to the east of the shoreline on the southern portion of the site lies associated "Adjacent Area," a wetland buffer zone that is also within NYSDEC regulatory jurisdiction. The Adjacent Area extends landward of the wetland area until the shore reaches a topographic elevation of 10 feet above mean sea level.

The Federal Water Pollution Control Act of 1972 (Clean Water Act) established the basic framework for improvement and protection of the nation's navigable waters. The Clean Water Act required states to develop plans to establish "beneficial use goals" for each water body in their jurisdictions, and to identify water quality standards to provide for these uses and to ensure that there is no degradation of water quality from existing conditions.

In response to these requirements, New York State designated the portion of the East River in the vicinity of the Project Site as "Class I" waters for which best usage is defined (6 NYCRR 701.13) as "secondary contact recreation and fishing, with waters suitable for fish propagation and survival." Water quality criteria established for this class of waters are listed in Table 16-1.

TABLE 16-1: EAST RIVER WATER QUALITY

Parameter	Water Quality Standard for Class I Waters	Results of 2003 Survey	
		Surface Waters	Bottom Waters
pH	<0.1 pH unit beyond the normal range[1]		
Dissolved Oxygen	>4.0 mg/L	7.03/4.34	6.98/4.28
Total Coliforms	10,000/100 ml[2]	1355	1244
Fecal Coliforms	2,000/100 ml	305	52
Cadmium	7.77 g/L	0.085	—
Total Phosphorous	Mg/l	0.162	
Copper	2.97 g/L	2.63	—

Source: Station E 15, 2003 Harbor Survey, NYCDEP.

1 Normal pH range is 6-9.

2 Monthly geometric mean of not less than five samples within a 30-day period.

The New York City Department of Environmental Protection (NYCDEP) surveys water quality during the summer months at stations throughout the New York Harbor. Water quality survey stations are located both north and south of the Project Site and provide an estimate of East River water quality adjacent to the Project Site. As shown on Table 16-1, data collected at these stations indicate that East River water quality in the vicinity of the Project Site meets the criteria for Class I waters.

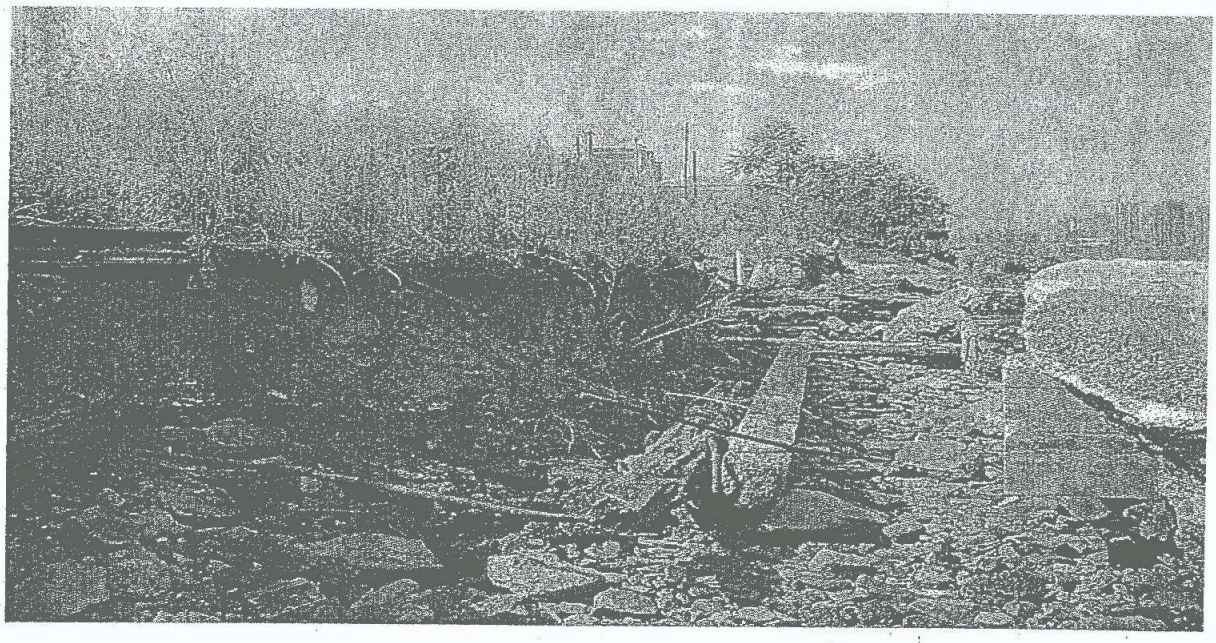


Figure 16-3:
Eroding Shoreline Along Western Edge of Project Site

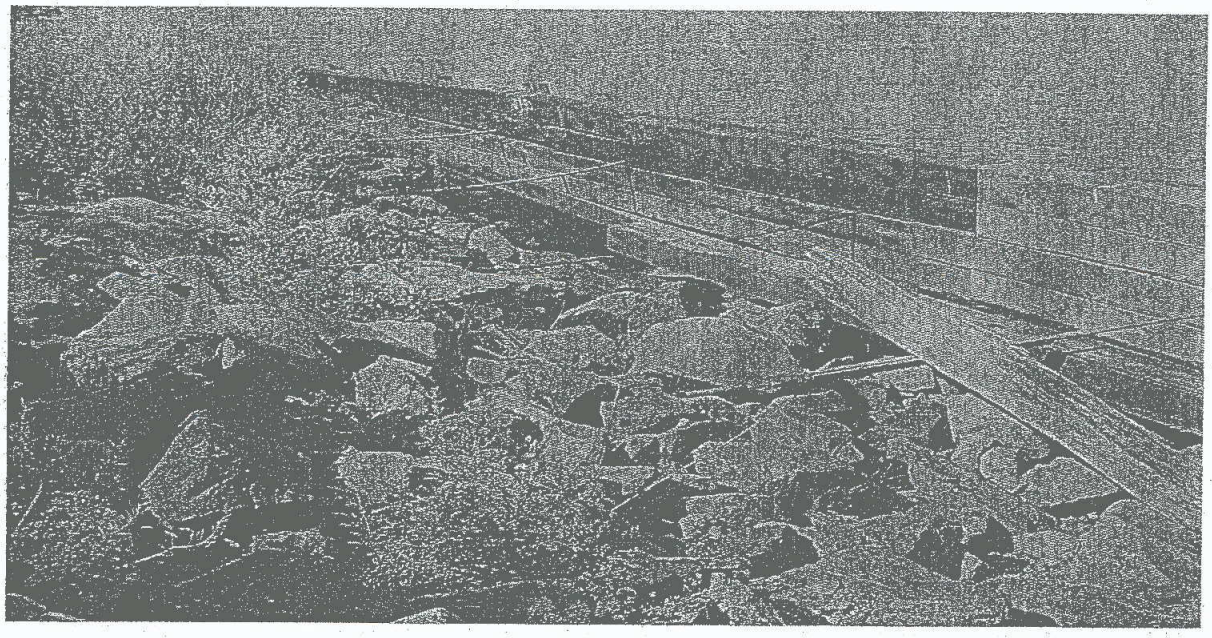


Figure 16-4:
Existing Bulkhead Along Western Edge of Project Site

Water quality measurements taken adjacent to the Project Site in February 2005 followed expected seasonal trends. Temperature values ranged from 3.4 to 3.7°C and dissolved oxygen ranged from 9.64 to 10.04 mg/L. Salinity values were those common to brackish waters ranging from 21.2 to 21.8 parts per thousand (ppt). Surface light transmission was always less than 1 meter, ranging from 0.6 to 0.8 m.

Currently, stormwater mostly percolates through the site or flows overland to the East River. A portion of storm drainage flows east to Vernon Boulevard, where it is captured by the City combined drainage system and directed to the Bowery Bay Water Pollution Control Plant (WPCP). Water percolating through the uncovered DSNY salt pile located in the mapped but unopened segment of 43rd Avenue drains untreated into the East River immediately south of the Project Site. The nearest storm drain to the Project Site is a 7 foot by 8 inch outfall located within the bed of 43rd Avenue which also functions to convey combined sewer overflows (CSOs) to the East River.

b) Groundwater

Although not used as a drinking water supply, the aquifers underlying Brooklyn and Queens are designated as "Sole Source" aquifers by the federal government pursuant to Section 1424(e) of the Safe Drinking Water Act. Water table elevation under the Project Site ranges between zero and four feet above mean sea level, at or near the elevation of the East River. Groundwater generally flows through surficial deposits toward the East River. There are no known groundwater supply wells on or near the Project Site.

The quality of groundwater under the Project Site has been heavily influenced by past use of the Project Site and nearby industrial areas (see Chapter 17, "Hazardous Materials"). Former uses of the Project Site are known to have resulted in spills of petroleum products. Prior environmental site studies undertaken in anticipation of development of the Project Site by NYPA identified areas of contamination and needed site remediation measures.

3. Wildlife

As indicated under Section14.B.1 Terrestrial Ecology of this chapter, based on field observations and coordination with USFWS and NYSDEC, there are no special status species or habitats known to be associated with the upland portion of the Project Site. Most wildlife species along the East River are aquatic organisms and migratory species of birds.

a) Benthos

The benthic invertebrate assemblages within the East River are typical of those found in a temperate urban estuary. They live within and on the sediment surface, including hard substrates such as pilings, rocks, and debris. Benthic organisms that live on top of the sediment or other surface substrate are "epifauna." Organisms that live within the sediment are "infauna." Substrate type, including sediment grain size, primarily determines the type of benthic community present, along with current, salinity, dissolved oxygen, and wave energy.

In general, this region of the East River is characterized by a rocky bottom and strong tidal currents that cause scouring and create a stressed environment. This is corroborated by studies conducted in the vicinity in 1999, 2004 and 2005.

A survey undertaken in February 2005 indicated that the western edge of the Project Site was nearly devoid of benthic life. Sampling occurred along three transects parallel to the shoreline. The inner transect was characterized by large pieces of rocky substrate and timber with a minimal amount of

sand and mud. The northernmost station along the inner transect contained a small amount of mud and mud worm tubes characteristic of the genus *Polydora* which is commonly found in this region. The middle transect was characterized by rocks, gravel and mud. The southernmost station along this transect contained more "black" mud than the other sites. Two clam worms of the genus *Nereis* were found in the mud and gravel at this station. The northernmost station along this transect contained *Polydora* mud worm tubes. The outer transect was characterized by rocks, gravel, timber and a small amount of mud. Barnacles of the genus *Balanus* were found growing on the rocks at one of the stations along the middle transect. In general, the benthic collections were devoid of life, with the exception of two clam worms, barnacles and a few mud worm tubes.

b) Fish

The East River contains a diverse population of finfish. Fish distribution within the East River is affected by structural habitat, salinity, temperatures, and dissolved oxygen levels. Lower-salinity regions contain a higher number of estuarine species, the most abundant being white perch (*Morone americana*) (Woodhead, 1991). Table 16-2 provides a listing of typical fish species present within the East River adjacent to the Project Site, updated based on field investigations and surveys undertaken in 2004. This is the most recent data currently available for this portion of the River.

TABLE 16-2: TYPICAL FISH SPECIES FOUND IN THE EAST RIVER

Common Name	Scientific Name	Common Name	Scientific Name
Alewife	*Alosa pseudoharengus*	Northern searobin	*Prionotus carolinus*
American eel	*Anquilla rostrata*	Pollock	*Pollachius virens*
American shad	*Alosa sapidissima*	Porgy	*Stenotomus chrysops*
Atlantic silverside	*Menidia menidia*	Red hake	*Urophycis chuss*
Bay anchovy	*Anchoa mitchilli*	Rock sea bass	*Centropristis striata*
Blueback herring	*Alosa aestivalis*	Sea horse	*Hippocampus erectus*
Bluefish	*Pomatomus saltatrix*	Silver hake	*Merluccius bilinearis*
Blue runner	*Caranx crysos*	Spotted hake	*Urophycis regia*
Butterfish	*Peprilus triacanthus*	Striped bass	*Morone saxatilis*
Cunner	*Tautogolabrus adspersus*	Striped searobin	*Prionotus evolans*
Fourbeard rockling	*Enchelyopus cimbrius*	Threespine stickleback	*Gasterosteus aculeatus*
Fourspot flounder	*Paralichthys oblongus*	Atlantic tomcod	*Microgadus tomcod*
Grubby	*Myoxocephalus aenaeus*	Weakfish	*Cynoscion regalis*
Gulf flounder	*Paralichthys albigutta*	White hake	*Urophycis tenuis*
Lookdown	*Selene vomer*	White perch	*Morone americana*
Menhaden	*Brevoortia tyrannus*	Windowpane flounder	*Scophthalmus auosus*
Moonfish	*Selene setapinnis*	Winter flounder	*Pseudopleuronectes americanus*
Northern pipefish	*Syngnathus fusus*	Yellowtale flounder	*Limanda ferruginea*
Northern puffer	*Sphoeroides maculatus*	Northern searobin	*Prionotus carolinus*

Source: Riverwalk Environmental Impact Statement: 1989
EEA. Sampling Program. 2004

Two surveys were recently completed in this portion of the East River, each indicating low numbers of fish and invertebrates near the Project Site.

A year-long fisheries and epibenthic survey was conducted in the West Channel of the East river in front of the UN complex in order to characterize annual species composition, habitat type, and potential impacts from project-related activities. The survey began in February 2004 and continued through January 2005. Results of the survey indicated that fish abundances and densities were low. A total of 29 finfish taxa were collected in the Project Area during the annual survey, including:

Atlantic butterfish (*Peprilus triacanthus*), winter flounder (*Pseudopleuronectes americanus*), windowpane (*Scophthalmus aquosus*), black sea bass (*Centropristes striata*) and summer flounder (*Paraclichthys dentatus*). Three commercial/recreational species were collected: Atlantic silverside (*Menidia menidia*), Atlantic tomcod (*Microgadus tomcod*) and cunner (*Tautogolabrus adspersus*). The monthly collections of all eggs, larvae, juveniles, and adults were generally low during February, March, April, August, and September. A late spring, early summer peak was observed in egg and larvae collections, however; fish densities were still relatively low.

The NYSDOT conducted an environmental survey (1999) in both the East and West Channels of the East River, between East 55th and East 63rd Streets, just north of the Project Site. The study was brief and sample sizes were small, but the marine habitat in this study site resembles that adjacent to the Project Site and was generally described as unproductive. No fish and only four blue crabs were collected in the West Channel. Only six fish and a few crabs and shrimp were collected in the East Channel.

c) Amphibians and Reptiles

Herpetiles are generally less common in estuarine waters than in freshwater systems. As such, amphibians and reptiles are generally uncommon within the estuarine waters of the East River. Potential occurrences include the estuarine northern diamondback terrapin (*Maclemys t. terrapin*) and four species of threatened or endangered marine turtles, which typically occur as transients through the East River, including the loggerhead *(Caretta caretta)*; green *(Chelonia mydas)*; leatherback *(Dermochelys coriacea)*; and Kemp's Ridley (*Lepidochelys kempi*). The northern diamondback terrapin feeds and nests in salt marshes and adjacent uplands in the general New York Harbor area. This type of habitat is not present on or adjacent to the Project Site.

d) Mammals

Mammals that may exist along the shores of the East River include the white-footed mouse (*Peromyscus leucopus*), muskrat (*Ondatra zibenthica*), meadow mole (*Talipae* spp.), Norway rat (*Rattus norvegicus*), and short-tailed shrew. A majority of these mammals use the waters of the New York Bight and occasionally migrate into the New York Harbor, but are not commonly observed in the East River.

e) Avian Species

Aquatic birds commonly observed on the East River include geese, swans, and surface-feeding ducks such as Mallards (Anas platyrhynchos), Black Ducks (*Anas rubripes*), and Wood Ducks *(Aix sponsa)*. Also observed are diving ducks such as Scaups (*Aythya marila*), Canvasbacks (*Aythya valisineria*), Buffleheads *(Bucephala albeola)*, and Mergansers (*Mergur merganser americanus*). Barn Swallows *(Hirundo rustica)* have been observed breeding under the piers and bridges along the East River. The primary use of the New York Harbor occurs during fall migration, when some waterfowl species migrate south along the Hudson River and along the Atlantic Coast. Bird species depend on the food resources of New York Harbor. Common shorebirds within the New York Harbor include Killdeer *(Charadrius vociferous)*, Spotted Sandpiper *(Actitis macularia)*, Least Sandpipers (*Calidris minutilla*), Greater Yellowlegs (*Tringa melanoleuca*), Snowy Egret *(Egretta thula)*, Least Bittern *(Ixobrychus exilis)*, Green Heron *(Butorides virescens)*, and Great Blue Heron *(Ardea herodias)*. However, shorebirds are not commonly observed foraging near or within the Project Site, due to the proximity of better habitat present within the lower New York Harbor.

In addition, New York City is within an important migration corridor (Atlantic flyway) and provides stopover habitat for Neotropical migrant songbirds in the New York Bight watershed (migratory bird

species that nest in North America north of the U.S.–Mexico border, the Caribbean, and the Neotropical region south of the continental U.S. during the winter). A large number of migratory birds are funneled through the City by the coastline orientation as well as other geographic features. Common species (exclusive of pigeons and mourning doves) present within the Project area include house wren (*Troglodytes aedon*), yellow warbler (*Dendroica petechia*), song sparrow (*Melospiza melodia*), American robin (*Turdus migratorius*), gray catbird (*Dumatella carollinensis*), black-throated blue warbler (*Dendroica caerulescens*), oven bird (*Seiurus aurocapillus*), white-throated sparrow (*Zonotrichia albicollis*), dark-eyed junco (*Junco hyemalis*), black-and-white warbler (*Mniotilta varia*), common yellowthroat (*Geothlypis trichas*), and blackpoll warbler (*Dendroica striata*). These species are not commonly observed near or within the Project Site, due to the proximity of more suitable habitat present elsewhere in the New York City metropolitan area.

4. Floodplain

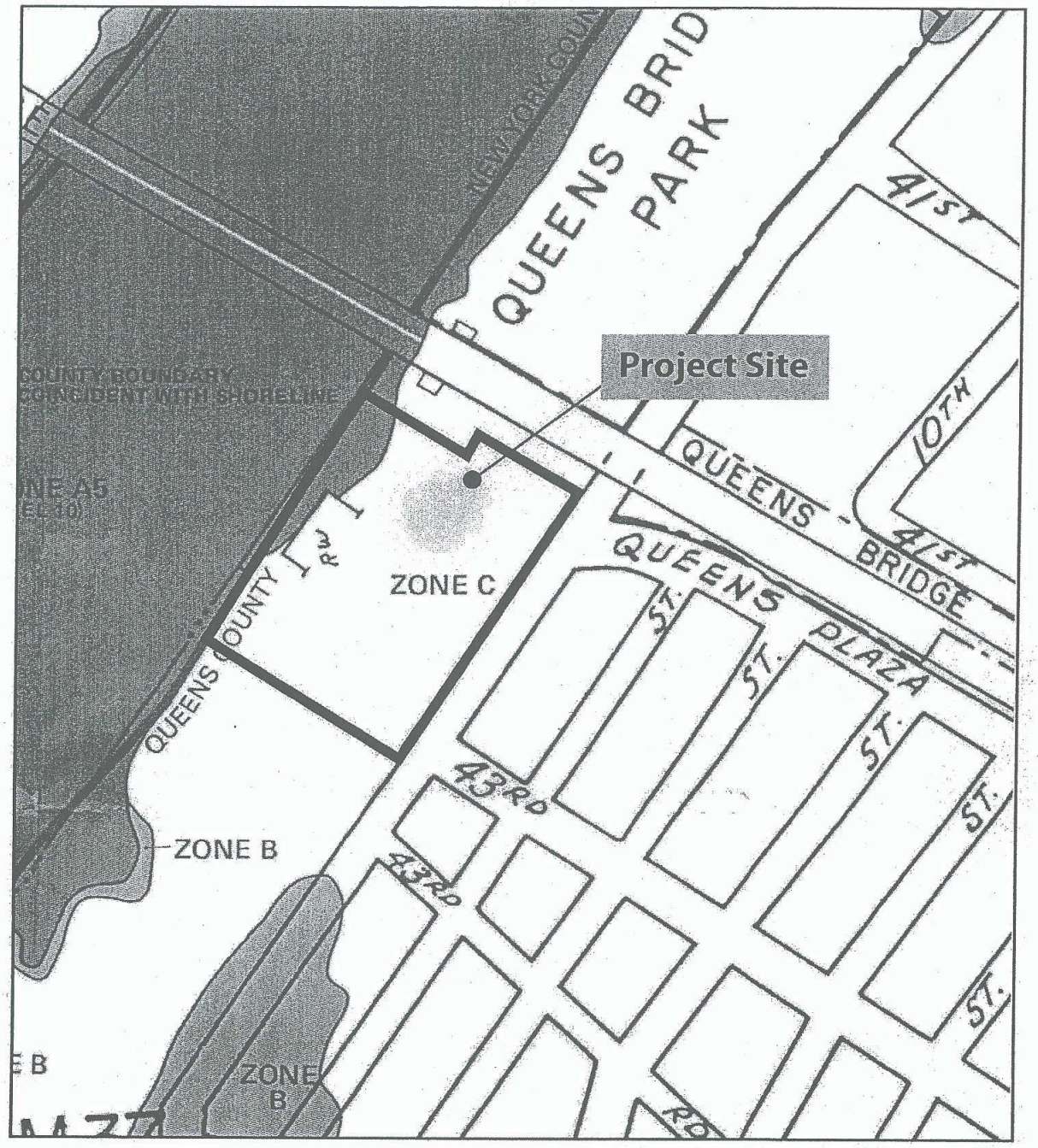
As identified in flood insurance studies, the New York Harbor is primarily affected by tidal or coastal flooding. Coastal flooding is caused by storm driven tidal surges inundating low-lying areas. As indicated on the FEMA Flood Insurance Rate Maps for the City of New York (Panel 40 of 131), it has been estimated that the 100-year base flood in the vicinity of the Project Site shoreline is at an elevation of 10 feet National Geodetic Vertical Datum of 1929 (NGVD). A 100-year flood has a one-in-one hundred probability of occurring in any given year. The extent of the Project Site within the 100-year base flood area, also known as the Special Flood Hazard Area, is depicted in Figure 16-5. The upland remainder of the Project Site lies within Zone C, which is outside the Special Flood Hazard Area, and according to FEMA, is an area of minimal flooding hazard.

5. Coastal Resources

The Project Site lies within New York City's Coastal Zone administered by the New York State Department of State (NYSDOS) under the Coastal Zone Management Program (CZMP). This program addresses critical coastal planning issues, including waterfront development, harbor management, and habitat restoration. The CZMP for New York City is administered by the City's Local Waterfront Revitalization Program (LWRP), which requires a review of 10 policies to determine a project's consistency with the LWRP. This is addressed in Chapter 20, "Waterfront Revitalization Program."

C. FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION

In the future without the Proposed Action, the NYPA plant located on the southern portion of the Project Site would be relocated. A continuous bulkhead along the western edge of the site corresponding to the historic bulkhead location would be complete. Filling behind the new bulkhead would re-establish portions of the upland that have been eroded since the failure of the bulkhead. If receipt of the necessary permits for the reconstruction of the bulkhead along the southern portion of the Project Site is delayed, or NYPA does not undertake this work, reconstruction of the bulkhead along the southern portion of the site may not be complete by the project build year. In that case, the existing conditions described above would prevail on the southern portion of the site, but a new permanent bulkhead would exist along the northern portion.



Source: Federal Emergency Management Agency, 1983

Figure 16-5: Floodplains

The DSNY salt pile would remain in its current location within the mapped but unopened segment of 43rd Avenue. Runoff from the salt pile, which includes chloride, would remain a potential on-site source of surface and groundwater contamination. There would be no other modifications to the Project Site; it would remain substantially undeveloped and in its current state.

1. Terrestrial Ecology

Upon relocation of the NYPA facility from the southern portion of the Project Site, most of the ground surface would likely remain covered with crushed stone and concrete. If maintenance to suppress vegetation at the Project Site is not continued after relocation of the NYPA facility, pioneer and invasive species would likely establish themselves in unpaved areas of the Project Site. No critical habitat or ecological communities would be expected to develop on the Project Site.

2. Water Resources

The reconstruction of the bulkhead that would occur without the Proposed Action would stabilize the shoreline. Although the placement of fill behind the bulkhead would displace the East River to the extent it has encroached on the site, as indicated in the benthic and fish surveys discussed above, this area is not valuable habitat and contains few living organisms. The establishment of the bulkhead would create new habitat for encrusting epifauna to colonize.

Due to the absence of new development on the Project Site in the future without the Proposed Action, on-site drainage patterns would remain substantially in their current form, although there would be some change to run-off patterns due to the relocation of the NYPA facility. The salt pile would remain in its current location, and would continue to affect water quality in the vicinity of the site. Water quality and aquatic life would be expected to remain similar to existing conditions, and, consequently, no changes to East River water quality or aquatic life would be expected. No changes to the practices used by the DSNY to store salt on-site are expected to occur, and this facility would still influence water quality.

The construction of new shoreline protection structures along the western edge of the Project Site would likely reduce the rate and extent of erosion and sedimentation of on-site soils into the East River. However, East River water quality and ecological conditions would be expected to be substantially unchanged from current conditions. It is likely that the vertical bulkhead would provide opportunities for intertidal organisms to attach to hard surfaces.

3. Wildlife

It is not anticipated that there would be any changes to wildlife either on-site or within the adjacent East River, since there would be no changes to East River water quality or vegetation on the Project Site under Future Conditions without the Proposed Action.

D. FUTURE CONDITIONS WITH THE PROPOSED ACTION

Conditions on the Project Site would change substantially in the Future Conditions with the Proposed Action as a consequence of the proposed on-site development. The DSNY salt pile would be relocated to an alternative location, and, as noted above, it is anticipated that the bulkhead would be replaced as an independent action from the Proposed Action. To account for the possibility that NYPA may not receive the necessary permits for or undertake the reconstruction of the southern bulkhead prior to the build year, the analysis of Future Conditions with the Proposed Action includes

an assessment of the effects of reestablishment of the bulkhead along the southern portion of the Project Site. A generic assessment of the impacts of relocating the DSNY salt pile is provided in Chapter 22, "Generic Analysis of Impacts from Salt Pile Relocation."

1. Terrestrial Ecology

The buildings and paved outdoor areas of Silvercup West would cover most of the ground surface of the Project Site. This would not result in the removal of critical habitat or ecological communities since none are present on the Project Site. Therefore, no significant adverse impacts to upland wildlife species would be anticipated. Although landscaped vegetation (trees and shrubs) would be planted along the pedestrian walkways to enhance the aesthetics of the waterfront, the plantings would not result in significant habitat creation.

2. Water Resources

a) Surface Water

Site storm drainage would be discharged directly to the East River through the existing stormwater outfall in 43rd Avenue without entry into the City combined sewer system. The quality of the discharge will likely improve since it would no longer percolate through the potentially contaminated soils on the Project Site. The proposed drainage plan would reduce the burden on the combined sewers in Vernon Boulevard that currently receive a portion of the site runoff. This is consistent with City and State policies for reducing combined sewer overflows during wet weather conditions.

In the future as a result of the Proposed Action, the DSNY salt and sand storage pile would be relocated elsewhere in the DSNY service area, in accordance with DSNY siting criteria. Removal of the salt and sand pile would eliminate a source of potential surface water degradation. It is anticipated that the future salt storage site would be equipped with features that would minimize the potential off site runoff, through the use of a shed to protect salt and an impervious curbed pad for the salt lay-down area. This would represent a net benefit for water quality regardless of where the new shed would be located. Reestablishment of the bulkhead on the southern portion of the Project Site would require the placement of approximately 2,700 cy of fill between the bulkhead line and the existing adjacent 285-foot-long shoreline. This fill would displace surface waters and tidal wetland areas that have encroached into the Project Site. The surface area displacement would be approximately 2,920 sf. This action would reestablish conditions prior to the bulkhead collapse and would not result in significant adverse impacts on natural resources as discussed further below.

b) Groundwater

The Proposed Action would not use groundwater. With the improvements to site drainage under the Proposed Action, stormwater runoff from the Project Site would be directed to the 43rd Avenue stormwater outfall and discharged directly to the East River. Impermeable surfaces would reduce the infiltration of precipitation to the water table. However, this would not adversely affect a significant resource since site groundwater at the water's edge is brackish, tidally influenced, and not a source of drinking water.

c) Wetlands

The Proposed Action would be developed east of the new bulkhead and, consequently, would not have a direct impact on tidal wetlands. Indeed, after the installation of the new bulkhead is complete, immediately west of the bulkhead the lands underwater will be submerged under more than six feet of water, as they were historically. Such open water areas are not considered to have wetland properties and are not regulated as tidal wetlands. However, on the southern portion of the site, the regulated

tidal wetland "Adjacent Area" would extend inland from the shoreline to the 10-foot topographic elevation. NYSDEC permitting requirements limit the introduction of impervious surface in this Adjacent Area to no more than 20 percent of its surface area without a variance. The Esplanade component of the Proposed Action would be constructed within this Adjacent Area, and would introduce impervious surface beyond this 20 percent coverage limitation. The placement of the Esplanade within the Adjacent Area is necessary to provide enough space within the Project Site for construction of studio spaces meeting industry requirements. This impervious coverage would not affect tidal wetlands, because, as discussed above, the areas west of the bulkhead would no longer function as wetlands.

In the event that NYPA fails to reconstruct the bulkhead on the southern portion of the site, this activity would be undertaken as part of the proposed project. Reconstruction of the bulkhead along the southern portion of the Project Site would displace a narrow area regulated as tidal wetlands by NYSDEC along this portion of the Project Site, as it would require filling of a portion of the East River that has intruded onto the site due to recent shoreline erosion. The approximately 2,920 sf of wetland area that would be displaced consists of approximate equal amounts of Littoral Zone (between 1-foot and six-foot depth) and Coastal Shoal (shallower than one foot). Based on the assessment of existing conditions identified in this zone, which indicates the presence of ten benthic fauna or fish, no valuable habitat would be displaced, and there would be no significant impacts on natural resources.

3. Wildlife

As stated previously, because there would be no significant changes to the East River water quality or habitat of the Project Site under the Proposed Action, no significant adverse impacts to terrestrial or aquatic wildlife would result.

4. Floodplain

The western portion of the Project Area is situated in the 100-year floodplain. However, it is not within an area classified as a floodway. Structures planned for this area would not result in any increases in flood levels in surrounding areas or represent a significant floodplain encroachment. Most of the urbanized waterfront area along the East River is already occupied by impervious development; therefore, the Proposed Action would not significantly alter existing primary floodplain characteristics.

E. VARIATIONS

The variations that are provided for under the restrictive declaration would not affect the degree of physical disturbance that would occur at the Project Site as a result of the Proposed Action. The effect of the project on terrestrial ecology, coastal resources, wildlife, and floodplains for the project variations would therefore be identical to that depicted above. There would, however, be a slight difference between the variations and the Preferred Development Program with regard to the potential effect on water resources. Since residential use typically has a greater wastewater discharge than office use, Variations 1 and 3 are both predicted to generate an additional 67,000 gpd more wastewater than the Preferred Development Program.

Like the Preferred Development Program, none of the variations would result in sanitary flows beyond the dry weather capacity of the Bowery Bay WPCP (see Chapter 13, "Infrastructure"). The difference in impacts on water quality between Variations 1 and 3 and the Preferred Development Program is therefore negligible.