Chapter 11: Natural Resources

A. INTRODUCTION

The *City Environmental Quality Review (CEQR) Technical Manual* (2001) defines natural resources as "plant and animal species and any area capable of providing habitat for plant and animal species or capable of functioning to support ecological systems and maintain the city's environmental balance." The purpose of this chapter is to evaluate the potential impacts of the proposed project on natural resources in New York City.

The development site is a fully developed, urban site occupying the western half of the block bounded by Seventh Avenue on the west, West 33rd Street on the north, Sixth Avenue on the east, and West 32nd Street on the south. The 22-story brick-and-masonry-clad Hotel Pennsylvania currently occupies the development site.

As discussed in this chapter, the proposed project (either scenario) would not be expected to result in any significant adverse impacts to natural resources, specifically impacts relating to bird populations and stormwater runoff.

B. METHODOLOGY

STUDY AREA

For natural resources, the study area is restricted to the development site and the immediately adjacent area due to the highly developed nature of the surrounding land uses.

ASSESSMENT OF EXISTING AND NO ACTION CONDITIONS

The methodology outlined in the *CEQR Technical Manual* was used to characterize existing conditions and assess potential impacts to natural resources located throughout the natural resources study area. The existing conditions of floodplains, surface water, groundwater, wetlands, terrestrial resources, and significant, sensitive, or designated resources within the development site were considered on the basis of the following databases, reports, maps and other sources:

- Ecological Communities of New York State (Reschke [1990], Edinger et al. [2002]);
- United States Geological Survey (USGS)—topographic quadrangle map for the Central Park and Weehawken quadrangles;
- New York State Department of Environmental Conservation (NYSDEC): Breeding Bird Atlas, Tidal Wetlands Maps, Herp Atlas Project;
- United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) map for the USGS Central Park and Weehawken topographic quadrangles; and
- Existing information identified in literature and obtained from governmental and nongovernmental agencies.

Conditions within the development site in the future without the proposed project (the "No Action" condition) for the 2014 analysis year were assessed by:

- Considering existing natural resources within the development site and the Lower Hudson River and assessing potential effects on these resources in 2014, and projected sanitary and stormwater flow rates and volumes from the development site to the Hudson River, in light of the implementation of the New York City Environmental Protection (NYCDEP) Amended Drainage Plan sewershed west of the development site.

ASSESSMENT OF IMPACTS ON NATURAL RESOURCES

Potential impacts on natural resources from the proposed project were assessed by evaluating:

- The existing natural resources and water quality within and in the vicinity of the development site;
- Potential impacts to bird populations that would occur as a result of the proposed project; and
- Potential impacts to water quality as a result of stormwater and sanitary sewage analysis noted in Chapter 13, "Infrastructure," and from potential architectural design elements (i.e., green roof design and landscaping). The analysis provides a qualitative discussion of the stormwater flows from the development site into the combined sewer system and reductions in the stormwater flows during precipitation events into the combined sewer system.

C. EXISTING CONDITIONS

The development site is a fully-developed and active commercial site in one of the busiest locations in New York City. Building heights in the vicinity of the development site range from small two-, three-, and four-story tenement-style masonry and brick buildings, to glass-clad or masonry commercial buildings typically from 12 to 19 stories, to large-scale buildings such as One Penn Plaza (57 stories, 750 feet) and the Nelson Tower (45 stories, 560 feet).

FLORA AND FAUNA

VEGETATION

No street trees or natural habitat is present at the development site. Vegetated areas in the vicinity of the development site are minimal, and include a cluster of ornamental trees at Penn Station (to the west of the development site), a small copse of street trees at Herald Square (northeast of the development site), and an area with street trees surrounding buildings at Chelsea Park (southwest of the development site).

WILDLIFE

It is presumed that mainly urban-adapted wildlife species would be encountered within the development site during most of the year, such as rock pigeon, house finch, house sparrow, Norway rat, and other common species. During the spring and fall seasons, it would be expected that seasonal migrants (including birds, bats, and insects such as butterflies and moths) would pass through the vicinity of the development site during northbound or southbound transit. Due to its coastal location and other geographic features, New York City is situated within the Atlantic Flyway. The city is an important migration corridor and stopover site for neotropical

migrant songbirds (i.e., migratory bird species that breed in North America and winter in the Caribbean, Mexico, and Central/South America) in the New York Bight watershed. Surveys of migrating birds in open spaces in the New York City metropolitan area have revealed a high abundance and diversity of such birds (Elbin 2008). However, the present lack of suitable natural habitat makes it unlikely that any wildlife would remain in the vicinity of the development site for any extended period of time.

Migratory species, particularly birds, are susceptible to mortality due to collisions with windows. In addition, several state-listed species, such as the peregrine falcon, are known to breed and forage in highly urban areas.

STORMWATER AND SANITARY SEWAGE

STORMWATER

Stormwater runoff is generated by rainwater that collects on the surfaces of land or built structures. The volume of runoff generated by these surfaces varies depending on the type of land cover, which in the present case is largely impervious (surfaces such as roads and buildings that impede percolation and generate greater runoff). The development site is currently covered with roof tops, which have a runoff coefficient of 1.0. Stormwater flows at the development site are estimated based on NYCDEP Design Guidelines which uses the Rational Formula for calculating runoff. Based on calculations from Chapter 13, "Infrastructure," runoff is approximately 10.7 cubic feet per second and composed of roof runoff from existing buildings, which currently drain into the combined sewer.

SANITARY SEWAGE

As noted in Chapter 13, "Infrastructure," the development site is located within the approximately 6,030-acre service area of the North River Water Pollution Control Plant (WPCP), which discharges treated wastewater or "effluent" into the Hudson River. The North River WPCP provides secondary treatment and discharges effluent to the Hudson River. The effluent from this WPCP is regulated by a State Pollutant Discharge Elimination System (SPDES) permit issued by NYSDEC. The North River WPCP is permitted to treat a flow of 170 million gallons per day (mgd). The primary treatment capacity of the WPCP is twice the design dry weather flow, or 340 mgd. This allows the plant to treat a certain volume of combined sanitary and storm flows during wet weather events. The average flow rate at the plant for the latest 12 months of available NYCDEP records is 126 mgd (see Table 13-1). Consequently, the North River WPCP currently receives flow at approximately 74 percent of its permitted 170 mgd dry weather capacity.

The combined sewer in Seventh Avenue is four feet by six feet. No problems with this sewer line have been reported. As discussed above, about 390,388 gallons per day (gpd), or 0.23 percent of the total sanitary sewage flow to the North River WPCP, comes from the Hotel Pennsylvania located on the development site.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the No Action condition, the development site will be developed with a 1.6 million gross-square-foot as-of-right building (the "No Action building") containing commercial office use. This building will have a podium rising to a height of 85 feet and an office tower approximately 581 feet tall. Like in existing conditions, the development site will continue to be fully developed.

As part of the Hudson Yards Project, NYCDEP is preparing an Amended Drainage Plan for the Hudson Yards rezoning area, which does not include the development site.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

BIRD IMPACTS

In the future with the proposed project, the development site would be developed with either the Single-Tenant Office Scenario or the Multi-Tenant Office Scenario. Both scenarios would be tall and of a similar architectural design, therefore, the opportunity for bird collisions with windows would be similar in both scenarios and the discussion of potential bird impacts below applies to both scenarios.

Tall buildings and other structures are known to present strike hazards for many birds, especially those migrating along major routes such as the Atlantic Flyway. New York City is a major migratory route and stopover site along the Atlantic Flyway for neotropical migrant songbirds (i.e., migratory bird species that breed in North America and winter in the Caribbean, Mexico, and Central/South America) and shorebirds in the New York Bight watershed. Surveys of migrating birds in open spaces in the New York City metropolitan area have revealed a high abundance and diversity of such birds (Elbin 2008). The rate of migratory movement through an urban area can be remarkable; over the course of a few hours during spring migration, over 50 million birds were detected passing over the southern U.S. during peak movement (Evan Ogden 1996).

The construction of a tall building, such as the one proposed for the development site, has the potential to adversely affect migratory bird species. In the U.S., estimates of bird mortality due to building window strikes has been estimated as the cause of 97 million to 976 million bird deaths per year or more (Klem 1990, USFWS 2002, Hager et al. 2008). Estimates of bird mortality at any given building depend largely on building design, height, and the probability of detecting a strike. For instance, New York City Audubon's Project Safe Flight examined bird strikes at a building southwest of the project site from March to June 2005 (Elbin 2008). During that season, observers detected approximately 76 bird strikes on the southern side of the Morgan Mail Facility, a 6- to 10-story facility and annex located at West 28th to West 30th Streets and Ninth to Tenth Avenues; most of the bird strikes were fatal. However, the survey was not comprehensive and it is likely that a larger number of birds struck the building during the migratory period. Nevertheless, this number may be used as a conservative estimate of the number of birds that are struck and killed against a single, relatively low building during spring migration. When the cumulative effect of bird mortality due to window collision is considered for each existing building with the potential for bird strikes, it becomes clear that window collisions are an important source of bird mortality and could be a major contributor to overall declines of U.S. bird populations. Therefore, any measures that have been shown to reduce window strike-related mortality on existing or new construction are important to consider.

Bird species that have been recorded as window strike casualties in the New York City area include both breeding and migratory species, and have been recorded during both day and night periods (Seewagen 2008). Based on available literature, it has been established that bird collisions occur (1) during nighttime, as many bird species passing through the City during spring and fall are nocturnal migrants (Evans Ogden 1996); and (2) during daylight hours, particularly in the zone closest to the base of a structure (i.e., approximately the first 40 feet or within the first seven floors, NYC Audubon (2008)).

Height, material (particularly curtain wall material), illumination, and distance to natural landscaping are all factors of building design involved in bird collisions with built structures, which may lead to either bird injury or mortality. For nighttime collisions, building height and illumination appear to be the most important factors. For daylight collisions, building and landscape design are important factors. Highly reflective surfaces, such as glass curtain walls, are known to play an important role in bird collisions (Klem 2006).

External and internal illumination of buildings has also been shown to result in an increased potential for bird mortality (FLAP 2009). Pertinent features of lighting design include luminance (brightness of a light's surface), illumination (lighting a feature near the source of a light), and the quality or physical composition of the light. Light pollution, the condition of periodically or chronically increased light conditions in an area, has known impacts on wildlife orientation or disorientation (i.e., birds attracted to a light source). For instance, upward-directed nighttime lighting of a structure could disorient migrating birds and cause collisions.

Avian nighttime collisions with buildings and towers are believed to be more common than daytime collisions. Most species of migratory birds use the stars to navigate at night, and brightly illuminated buildings and broadcast towers can attract birds, particularly when poor weather conditions cause birds to fly at lower altitudes. Migration altitudes vary depending on species, location, geographic features, season, time of day, and weather (Evans Ogden 1996). Approximately 75 percent of neotropical migratory birds fly at altitudes between 500 and 6,000 feet during migration (Gill 1990; Able 1999). Shorebirds generally migrate at altitudes of between 1,000 and 13,000 feet. Building height, nighttime lighting, and the reflective nature of the glass façades would affect the potential for the proposed buildings to result in collisions by birds migrating at night (Evans Ogden 1996).

For daytime collisions, landscaping design and the design of the lower building stories would affect the potential for the proposed buildings to result in daytime bird strikes. Locating landscaping within 1 to 33 feet of the building, use of reflective glass, and the presence of highly visible indoor plants behind clear glass have been found to affect the potential for buildings to result in daytime bird strikes (Klem 1990).

The proposed building would be one of the tallest buildings present in the study area. This structure may result in a strike hazard for migratory birds, and may have the potential to result in increased collisions of migrating birds over those realized under the existing and No Action conditions. However, the proposed building height is comparable to buildings elsewhere in Manhattan. While the proposed building height may result in the losses of some birds due to bird collisions, these losses would not be expected to result in significant adverse impacts to bird populations migrating through New York City.

However, measures to reduce potential impacts to birds from striking the surface of the buildings during the daytime and at night during spring and fall migratory periods would be considered. The final building design and management plan would address many issues associated with bird mortality, including coordination of bird safety with delighting (the "Lights Out NYC" program), passive cooling, creating smaller zones in lighting layouts, and other measures, such as encouraging building tenants to use light colored solar blinds. It would abide by several "bird-safe" building principles, including making glass more visible to birds, minimizing the reflection of vegetation or sky in glass façades, and controlling lighting, especially at night during migration periods. In addition, it is contemplated that rooftop obstacles to birds' flight could also be minimized (i.e., avoiding guy wires, lighted roof top antennas, etc.).

Various "bird-safe" building guidelines (see NYC Audubon 2008) note that lower levels of buildings (i.e., first 40 feet or first seven floors above grade) are key areas for the use of "bird-safe" building techniques. Measures that may reduce bird losses due to daytime building collisions include the following:

- Minimize the use of reflective surfaces on lower levels in close proximity to landscaped areas;
- Maximize a façade's "visual noise," or the readily visible differentiations of material, texture, color, opacity, or other features that help to fragment glass reflections and reduce overall transparency—make the building a readily recognizable obstacle;
- Minimize the reflection of existing vegetation on building facades;
- Locate new vegetated landscaping far enough from glazed building facades to eliminate reflection of the plants on the façade. For example, a curtain wall exterior (generally believed to cause the highest bird mortality) that employs fritted glass panes rather than highly reflective glass may add sufficient visual noise as to be detected by birds as a solid object.

As currently contemplated, the external building design for the Single-Tenant Office Scenario would have a fully glazed curtain wall shaded by a framework of vertical metal bars; the Multi-Tenant Office Scenario would have lapped, angled glass units. The bars and angled glass would provide "visual noise" and reduction in direct reflectivity which may allow for reduced bird mortality. In addition, a more moderately reflective glass may be considered for both designs.

Grade-level landscaping design would be minimal on the development site due to the presence of passageways or subway platforms directly underneath the sidewalks at the Seventh Avenue, Sixth Avenue, and 33rd Street frontages. This existing infrastructure may make installing tree pits on those frontages infeasible. New York City regulations require that a planting strip for street trees be "provided adjacent to and along the entire length of the required curb…within the required planting strip, one tree of at least three inches in caliper shall be planted for every 25 feet of length of such planting strip." The proposed project would involve planting trees where feasible along the frontage of the zoning lot where tree pits may be placed, and otherwise comply with the requirements of the New York City Department of Parks and Recreation. As any vegetation placed in front of a highly reflective surface (lower windows) may increase the opportunity for bird collisions, effort would be made to place any street trees away from highly reflective surfaces (i.e., large grade-level windows, etc.).

As currently contemplated, green roofs are planned as an amenity for the tenants at the top level of the podium for both scenarios. As this would place vegetation on the podium in proximity to the remainder of the building, consideration would be made to place vegetation in a manner to reduce reflection in tower surfaces.

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

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

As currently contemplated, the proposed building (either scenario) would not incorporate significant architectural lighting on the upper floors or significant exterior upward directed lighting. It is anticipated that measures would be taken to minimize light trespassing both at the building's interior and at night. Rooftop lighting for federal aviation standards will be minimum intensity pulsating strobe rather than continuous flood lighting. The only plans for exterior illumination as currently contemplated are for the entries and storefronts at the street level.

However, if external lighting were incorporated, the project sponsors could participate in the "Lights Out NYC" program and, during spring and fall migration periods, turn off any exterior decorative lighting on upper floors of the buildings over 40 stories tall from midnight (earlier on foggy or rainy nights) to daylight and encourage tenants of upper floors to turn off lights or close blinds by midnight.

While no federal- or state-listed rare, special concern, threatened or endangered species are known to be present at the development site, peregrine falcons (*Falco peregrinus*, NY State Endangered) are known to breed and forage in several buildings in Manhattan (i.e., 55 Water Street in Lower Manhattan). No peregrine falcons are known to breed in the vicinity of the development site. If they did establish a nest at or directly adjacent to the development site, there is a chance that adult or juvenile peregrine falcons could be injured or killed by perching on active construction equipment, such as cranes. In the event that peregrine falcons establish a nest at or directly adjacent to the development site, mitigating measures would be taken to avoid mortality during construction.

Additional coordination would be conducted with NYSDEC, the New York Natural Heritage Program (NYNHP), and NYCDEP prior to the anticipated start of construction if peregrine falcon nesting activity is noted at or directly adjacent to the development site. Measures to minimize potential adverse impacts to peregrine falcons would be developed in coordination with NYSDEC and NYCDEP. These measures would focus on minimizing potential impacts to nesting, foraging or roosting activity by adult falcons and offspring in the vicinity of proposed construction. Potential measures could include bird control devices on the tops of cranes or other tall construction equipment to prevent young falcons from landing on such equipment and becoming entangled or otherwise injured.

STORMWATER AND SANITARY SEWAGE IMPACTS

STORMWATER

With the proposed project, stormwater would continue to enter the combined sewer system at a similar rate as under existing conditions, since the development site is not included in the Amended Drainage Plan for the Hudson Yards project. However, the project sponsor is currently contemplating the inclusion of green roof technology above the project's podium base, potentially to include plantings. In addition, other stormwater management measures, such as on-site detention, would be incorporated into the design of the project with the purpose of reducing peak flow into the sewer system during storm events. The project sponsors would obtain a sewer connection permit from NYCDEP before the proposed project is connected to the city's sewerage. At that time, NYCDEP would determine how much stormwater would have to be detained on-site. The detention would reduce the volume of stormwater entering the combined system during precipitation events.

Overall, the proposed project would not have a significant adverse impact on CSO events or water quality in the Hudson River, and would not be expected to impact aquatic habitats.

SANITARY SEWAGE

As discussed in detail in Chapter 13, "Infrastructure," neither scenario would result in significant adverse impacts from the incremental increase in sanitary sewage generation. Both the incremental and the total sanitary sewage flows from the proposed project would be less than the estimated sanitary flows from the existing Hotel Pennsylvania. The proposed project would not adversely affect the treatment efficiencies of the North River WPCP or cause the plant to not properly treat wastewater prior to discharge to the Hudson River. The proposed project would not cause significant adverse impacts on the sanitary sewer system, or result in an adverse impact to aquatic habitats.

F. CONCLUSIONS

BIRD IMPACTS

The potential losses of birds due to daytime and nighttime collisions with buildings during the fall and spring migratory periods would not be expected to result in significant adverse impacts to migratory bird populations. The final building design (either scenario) would abide by several "bird-safe" building principles, including making glass more visible to birds; minimizing the reflection of vegetation or sky in glass façades; and controlling lighting, especially at night during migration periods. In addition, it is contemplated that rooftop obstacles to birds' flight could also be minimized (i.e., avoiding guy wires, lighted roof top antennas, etc.).

STORMWATER AND SANITARY SEWAGE IMPACTS

The proposed project would not cause significant adverse impacts on the sanitary sewer or stormwater systems. As noted in Chapter 13, "Infrastructure," with the proposed project, the inclusion of green roof technology and stormwater management measures would reduce the peak flow into the sewer system during storm events. The project sponsors would obtain a sewer connection permit from NYCDEP before the proposed project is connected to the city's sewerage. At that time, NYCDEP would determine how much stormwater would have to be detained on-site. The detention would reduce the volume of stormwater entering the combined system during precipitation events. Additionally, the proposed project would not adversely affect the treatment efficiencies of the North River WPCP or cause the plant to not properly treat wastewater prior to discharge to the Hudson River.

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