Chapter 12

12.1 INTRODUCTION

This chapter examines the potential for the No Action and Build Alternative to impact natural resources, once the proposed Project is operational. Impacts to natural resources during construction (within the limits of disturbance required for access, staging and construction) is discussed in Chapter 17, "Construction Effects". Natural resources include mapped or field confirmed regulated watercourses and their associated freshwater and tidal wetlands. They also include floodplains, riparian zones, the coastal zone and water quality considerations, as well as federal and state documented endemic and migratory fish, avian, terrestrial and threatened and endangered species, and the supporting habitats in which they are dependent on and have been documented to coexist. These are largely federally administered through the U.S. Fish and Wildlife Service (USFWS), the State-NJDEP National Heritage Program (NHP), and National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS).

Identified natural resources in and near the proposed Project area are described below, followed by an assessment of the potential impacts from the No Action and the Build Alternative, and the measures that will be employed to avoid, minimize, or mitigate required impacts. Regulatory agency correspondence (federal and state) related to the natural resource assessments are included in Appendix D.

12.2 REGULATORY CONTEXT

Under the Build Alternative, proposed regulated actions such as clearing of vegetation, filling or grading activities in the natural resources described above, or established regulatory buffers would require compliance with applicable federal, state, and local legislation that is intended to protect and regulate actions in natural resources. The applicable federal laws, New Jersey state laws, and local regulations are described below.

FEDERAL

Executive Order 11990 (Protection of Wetlands)

In accordance with Executive Order 11990, "Protection of Wetlands," and the DOT Order 5660.1a, "Preservation of the Nation's Wetlands," federal agencies must minimize negative impacts to wetland environments and preserve and enhance existing wetland areas when proposing to develop within or adjacent to a wetland area. Specifically, federal agencies must avoid undertaking or providing assistance for new construction in wetlands unless there is no practical alternative to such construction and the proposed action includes all practicable measures to minimize harm to the wetlands.

Clean Water Act (33 U.S.C. § 1251 to 1387 [1972])

Activities proposed within watercourses or adjoining landward areas that could discharge to waters are governed by the Clean Water Act (CWA). The CWA was amended in 1972 to monitor pollution control programs country-wide, and ensure no harmful materials are discharged into waters of the United States without proper pre-treatment mechanisms in place, and federal and state authorization. The EPA, which is authorized to enact the CWA, works with its federal, state and tribal regulatory partners to monitor and ensure compliance with clean water laws and regulations in order to protect human health and the environment. Additionally, the Act's National Pollutant Discharge Elimination System (NPDES) program regulates point sources that discharge pollutants into waters of the United States.

Pollutions and Harbors Act of 1899

The Pollutions and Harbors Act of 1899 prohibits the dumping of refuse into navigable waters or the creation of any navigational obstruction, and it regulates the construction of wharves, piers, jetties, bulkheads, and similar structures in ports, rivers, canals, or other areas used for navigation. It provides useful supplemental jurisdiction for addressing certain kinds of water pollution, and especially for dredge and fill activities. As with the CWA, discharges of refuse or fill material or construction activities in waterways, require a permit.

Coastal Zone Management Act of 1972 (16 U.S.C. § 1451 to 1465 [1972])

The Coastal Zone Management Act of 1972 promotes the development and growth of coastal areas in the best interest of the public while preserving the coastal environments to the best extent practicable. US Army Corp of Engineers (USACE) permits issued in New Jersey must obtain a Coastal Zone Consistency Determination that evaluates a project's consistency with New Jersey's Coastal Zone Management program.

Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 to 1883 [1976])

Magnuson-Stevens Fishery Conservation and Management Act, first enacted in 1976 (and amended by P.L. 109-479), protects and preserves marine fisheries from overfishing and overpopulation, and maintains a balance between fishery growth and economic and social benefits and sustainability. Specifically, protected areas are identified as Essential Fish Habitat (EFH), which are bodies of water essential to fish reproduction, maturity, foraging and migratory needs. The NMFS comments on activities proposed by federal agencies that may adversely impact aquatic resources designated as EFH.

Endangered Species Act of 1973 (16 U.S.C. § 1531 to 1544 [1973])

The Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531-1544, 87 Stat. 884 [1973]) prohibits the disruption, harm or taking of an endangered species without a permit. Additionally, endangered species have designated critical habitats associated with their habitat needs, including breeding, foraging and maturity growth, within which the ESA also prohibits any negative impact that destroys or adversely modifies designated critical habitat, established by species record sightings or protective buffers.

Fish and Wildlife Coordination Act (P.L. 850624; 16 U.S.C. § 661 667D [1958])

The Fish and Wildlife Coordination Act, enacted March 10, 1934, authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. This Act also directs the Bureau of Fisheries to use impounded waters for fish-culture stations and migratory-bird resting and nesting areas and requires consultation with the Bureau of Fisheries prior to the construction of any new dams to provide for fish migration. In addition, this Act authorizes the preparation of plans to protect wildlife resources, the completion of wildlife surveys on public lands, and the acceptance by the federal agencies of funds or lands for related purposes provided that land donations received the consent of the state in which they are located.

Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703-712 [1918])

The Migratory Bird Treaty Act of 1918 (MBTA) makes it illegal to hunt, take, capture, pursue, or sell birds listed without a waiver from the USFWS. There are currently over 800 birds on the list, including bald eagle (*Haliaeetus leucocephalus*), black-capped chickadee (*Parus atricapillus*), northern cardinal, (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), and other song birds, game birds, and raptors. The MBTA also grants the Secretary of the Interior with the authority to establish hunting seasons for migratory game birds on the list.

Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668(c) [1962])

The Bald and Golden Eagle Protection Act (BGEPA) protects two species of eagle. The Bald Eagle Protection Act of 1940 was amended to include the golden eagle (*Aquila chrysaetos*) in 1962. The Act prohibits the "taking" of bald eagles, which includes parts, nests, and eggs, as well as molesting or disturbing the birds. The BGEPA also grants the Secretary of the Interior with the authority to issue permits for scientific takings, as well as relocations of nests for safety concerns and conflicts with certain activities.

Executive Order 11988 (Floodplain Management)

Federal Executive Order 11988 "Floodplain Management," as amended, directs federal agencies to "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains." The DOT Order 5650.2 "Floodplain Management and Protection" contains policies and procedures for implementing Executive Order 11988. The FEMA has procedures under 44 C.F.R. § 9 "Floodplain Management and Protection of Wetlands," which are administered at a state level under Title 7 of N.J.A.C. § 13 "Flood Hazard Area (FHA) Control Act Rules". These policies require an analysis to identify and quantify impacts on natural and beneficial floodplain values, and the subsequent preservation or restoration of the natural floodplain and its beneficial values as affected by a project. Under DOT Order 5650.2, an impact is characterized as a significant encroachment if it would involve: a considerable probability of loss of human life; likely future damage associated with the encroachment that could be

substantial in cost or extent, including interruption of service on or loss of a vital transportation facility; or a notable adverse impact on natural and beneficial floodplain values.

STATE OF NEW JERSEY

NJDEP Tidelands Act (Title 12 New Jersey Statutes Annotated (12 N.J.S.A. § 3-1 [2016])

Tidelands are lands now or formerly flowed by the mean high tide of a natural waterway. The state asserts an ownership interest in all tidelands not previously sold via riparian grants. The Tidelands Resource Council is the public body responsible for the stewardship of the state's riparian lands. The council determines whether applications for the lease, license, or grant of riparian lands are in the public interest, and whether the state may have a future use for such lands. The council oversees tideland areas, and provides permissions to use these lands, which could be provided through a Tidelands License or Lease, or sold through a Riparian Grant at fair market value.

Waterfront Development Act (12 N.J.S.A. § 5-3 [2016] and 7 N.J.A.C. § 7 and § 7E [2019])

NJDEP's Waterfront Development Act is the state subset of this Coastal Zone Management Act of 1972 and regulates any development along waters and associated landward waterfront of any navigable water by ensuring the development maintains the balance of public recreational use and a healthy coastal environment. The NJDEP may, by appropriate action in any court, prevent the encroachment or trespass upon the waterfront of any of the navigable waters of the state or bounding thereon, or upon the riparian lands of the state, and compel the removal of any such encroachment or trespass, and restrain, prevent and remove any construction, erection or accretion injurious to the flow of any such waters, which may be detrimental to the proper navigation thereof and the maintenance and improvement of commerce thereon.

Flood Hazard Area Control Act (58 N.J.S.A. § 16A-50 ET SEQ. [2018] and 7 N.J.A.C. § 13 [2018])

At the state level, activities in the flood hazard area are regulated under the NJDEP FHA Rules and require formal permit authorization. Additionally, the NJDEP FHA Rules regulate activities within a riparian zone, which is defined by the rules as the land and vegetation within each regulated water, as well as the land and vegetation within a certain distance of a regulated water. Activities in riparian zones, such as grading, the placement of fill, the cutting or clearing of vegetation, and the creation of impervious surface, are subject to NJDEP regulation.

Freshwater Wetlands Protection Act (13 N.J.S.A. § 9B-1 ET SEQ. [2016] and 7 N.J.A.C. § 7A [2018])

Unlike many other states, regulation of freshwater wetlands and open waters in the state of New Jersey is under the jurisdiction of the NJDEP, and not the USACE (the Meadowlands being the only exception). The NJDEP's Freshwater Protection Act Rules are based on the federal Clean Water Act and Rivers and Harbors Act, and regulate any activities within freshwater wetlands and state open waters, and if required, compensatory mitigation for any proposed actions within these regulated areas.

LOCAL

New Jersey Sports and Exposition Authority (NJSEA)

The Meadowlands District contains a significant land and water habitat complex currently managed by the NJSEA. One of the NJSEA's goals is to preserve or enhance the more than 8,400 acres of wetlands and open water in the Meadowlands District. Wetlands within the Meadowlands District are under jurisdiction of the USACE rather than NJDEP, as defined under the Freshwater Protection Act Rules 7 N.J.A.C. § 7A-1.3 [2018] – Delegable Waters.

Hudson, Essex, Passaic Soil Conservation Districts

Empowered to conserve and manage soil and water resources in cooperation with the State Soil Conservation Committee, the Hudson, Essex, Passaic Soil Conservation District addresses stormwater, soil erosion and sedimentation issues that result from land disturbance activities (primarily construction). District certification of plans for qualifying projects is a prerequisite to local construction permits. The mission of the State Soil Conservation Committee is to provide leadership in the planning and implementation of natural resource management programs for the agricultural and development communities and the general public through a locally based delivery system in coordination with local, state, and federal partners.

12.3 AFFECTED ENVIRONMENT

The natural resources analysis for the proposed Project is discussed below.

The tidally-influenced Hackensack River is the most prominent natural feature within the proposed Project area, whereas the Project area is bounded by the Passaic and Hudson Rivers. The Hackensack River is approximately 45 miles long, and its fresh headwater contributions converge with tidal inputs received from Newark Bay and the Atlantic Ocean, resulting in a brackish mix at the Meadowlands wetland preservation area. Waters from the Hackensack ultimately discharge into Newark Bay (a sub-estuary of New York Harbor) when the tide recedes. The Hackensack watershed includes parts of the New Jersey suburban area west of the lower Hudson River, which it roughly parallels, separated from New York City by the New Jersey Palisades geologic ridge.

12.3.1 Watercourses / Water Quality/ Sole Source Aquifer

Watercourses / Water Quality

The Project area is located to the east of the Passaic River, is bisected by the Hackensack River, and is located to the west of the Hudson River, as shown on Figures 12-1 through 12-6. As defined in the NJDEP Surface Water Quality Standards (SWQS) under 7 N.J.A.C. § 9B-1.4 [2016], freshwater(s) are, "...all non-tidal and tidal waters generally having a salinity, due to natural sources, of less than or equal to 3.5 parts per thousand and mean high tide," and non-trout waters are, "...fresh waters that have not been designated as trout production or trout maintenance. These waters are generally not suitable for trout



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because of their physical, chemical or biological characteristics, but are suitable for a wide variety of other fish species."

As discussed in 7 N.J.A.C. § 9B-1.12 [2016] (d and f), designated uses for SE1, SE2, and SE3 waters are qualified as follows:

(d) In all SE1 (Hackensack River) waters the designated uses are:

- 1. Shellfish harvesting;
- 2. Maintenance, migration and propagation of the natural and established biota;
- 3. Primary contact recreation; and
- 4. Any other reasonable uses.

(e) In all SE2 (Hudson River) waters the designated uses are:

- 1. Maintenance, migration and propagation of the natural and established biota;
- 2. Migration of diadromous fish;
- 3. Maintenance of wildlife;
- 4. Secondary contact recreation; and
- 5. Any other reasonable uses.

(f) In all SE3 (Passaic River) waters the designated uses are:

- 1. Secondary contact recreation;
- 2. Maintenance and migration of fish populations;
- 3. Migration of diadromous fish;
- 4. Maintenance of wildlife; and
- 5. Any other reasonable uses.

The Passaic River is located west of Amtrak's existing Substation No. 41 and is classified as a saline estuary, or SE3, whose designated uses are listed above and in 7 N.J.A.C. § 9B-1.12(f) [2016]. The anticipated Main Facility electrical yard connection point between Preferred Alternative Project Component A and the electrical lines of Preferred Alternative Project Components C, D, and E is located less than 500 feet to the south of the Hackensack River, which is directly adjacent to the northern boundary of Preferred Alternative Project Component A (Figure 12-1). The Hackensack River is also classified as a saline estuary, or SE1, by the NJDEP SWQS. Preferred Alternative Project Components E and F are located over 100 feet to the west of the Hudson River, which is classified by the NJDEP SWQS as freshwater non-trout (FW-

NT/SE2). The closest water course to Preferred Alternative Project Component G is the Hudson River, which falls within the study area in several areas along the HBLR corridor within Weehawken, Union City, Hoboken, and Jersey City.

As of 2016, the Hackensack River in the proposed Project area was in non-attainment of SWQS for New Jersey Waters for aquatic life (general) and for fish consumption (NJDEP 2016). This means that relevant pollutant levels exceeded the NJDEP SWQS for these uses. Waters near the Koppers Koke Site are in full attainment for industrial water supply. According to NJDEP, insufficient data exist to designate attainment status for the Hackensack River near the proposed Project area for primary and secondary contact recreation, drinking water supply, or agricultural water supply (NJDEP 2016). Regionally within the Meadowlands District there has been documentation of degraded water quality and exposure to endemic and transient (fish, crustaceans and macro-invertebrate) species, as noted in the study "Fish of the Hackensack Meadowlands (V. 3.0)," dated January 2005, which indicates the following contaminants were identified: heavy metals (arsenic, copper, zinc, lead, chromium, and mercury) and organic contaminants (PCBs, dioxins, furans, and pesticides).

Proceeding downstream as waters join with Newark Bay and the New York Harbor Estuary, these waters and tributaries have had a long history of industrialization along their shores, which continues to affect water quality as pollutants residing mostly in the sediments are dissolved and redistributed. In a tidally mixed water body, water exchange with the Atlantic Ocean tends to dilute waterborne contaminants, but the historically degraded sediments continue to provide new contaminants that affect water quality. Thus, the water quality of the system is coupled tightly to the quality of sediments but can also be affected by other sources (e.g., industrial discharges).

Sole Source Aquifer

There are no USEPA designated sole source aquifers (SSA) in the project area. USEPA defines sole source as: 1. The aquifer supplies at least 50 percent of the drinking water for its service area. 2. There are no reasonably available alternative drinking water sources should the aquifer become contaminated. The build alternative is completely within an undesignated SSA boundary- Hudson County with no SSA. Furthermore, based on previous remedial investigations conducted and reports summarizing the environmental database search prepared by Environmental Data Resources (EDR) of Shelton, Connecticut (EDR 2015, 2017, 2018a and 2018b) and further discussed in Chapter 14, "Contaminated Materials," depth to groundwater within the areas of Preferred Alternative Project Components A, B, C, D and the western portion of Preferred Alternative Project Component E, groundwater is present at approximately 9 feet below ground surface (ft bgs). The depth to groundwater varies between 10 to 15 ft bgs throughout the eastern portion of Preferred Alternative Project Component E, and all of Preferred Alternative Project Component F and G. Groundwater and management of construction activities near groundwater are further discussed in Chapters 13 and 17, respectively.

12.3.2 Floodplains, Riparian Zones, and Coastal Zone

Floodplains

The current FEMA FIRMs identify the majority of the study area to be within the tidally influenced 100year floodplain associated with the Passaic River, Hackensack River and Hudson River, with the Base Food Elevation (BFE) ranging from +9 to +16 feet North American Vertical Datum of 1988 (NAVD88), within Zones AE and VE (see Figures 12-7 through 12-12). Areas mapped by FEMA as Zone AE are subject to inundation by the one-percent-annual-chance flood coastal surge event determined by detailed methods. Areas mapped as Zone VE are subject to the same inundation by the one-percent-annual-chance flood coastal surge event but are also subject to hazardous wave conditions.

Preferred Alternative Project Components A, B, C, and D are located within the 100-year floodplain of the Passaic and Hackensack Rivers with BFEs of +9 and +10 feet (NAVD88), Zone AE (Figure 12-7 and 12-8) with minor portions being mapped outside the floodplain, to the east of the Main Facility. Preferred Alternative Project Component E is primarily outside of the floodplain, with the exception of where the electrical line route crosses the Hackensack River (BFE of +10 feet NAVD88, Zone AE), and to the east, where the electrical lines will connect with the Henderson Street Substation in Hoboken Yard (BFEs of +10 and +11 feet NAVD88, Zone AE) (see figures 12-7, 12-8 and 12-9). Preferred Alternative Project Component F, the emergency generators at HBLR Headquarters, is in Zone AE with BFE of +11 feet. Preferred Alternative Project Component G is primarily within the floodplain of the Hudson River (Figures 12-11 and 12-12), and is located within Zone AE, with BFEs of +10, +11, and +12 feet (NAVD88).

Riparian Zones

Riparian zones are land areas adjacent to streams/water bodies that provide a protective buffer, filtration of surface runoff that flows into streams, serve as a functional habitat and wildlife corridor, and are vital for maintaining water quality and a stream's capacity to support aquatic life. The width of the riparian zone associated with a specific stream is determined by the NJDEP FHA Rules (7 N.J.A.C. § 13-4 [2018]), based on the stream's NJDEP SWQS classification and associated known species utilization/habitat information surrounding the stream, and are either 50, 150 or 300 feet wide, as outlined by the NJDEP FHA Rules.

All Project Components are located over 300 feet away from the Passaic River, and therefore, are not located within the Passaic River's riparian zone. The closest is Project Component D, which is more than 600 feet away. The riparian zone associated with the Hackensack River is 50 feet (Figures 12-1 and 12-2). The northern boundary of Preferred Alternative Project Component A is located within the 50-foot riparian zone, which at this location is partially vegetated with invasive/non-native plant species common to disturbed areas. The remaining portion of the riparian zone at this location is comprised of processed dredge material (PDM) fill from previous property-wide remedial fill activities. Preferred Alternative Project Components B, C, and D are not located within a riparian zone associated with the Hackensack River. Project Component E will intersect the 50-foot riparian zone of the Hackensack River where the electrical line route is proposed to cross the Hackensack River, via one of three methods: an aerial crossing



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on new monopoles 50 feet north of the Lower Hack Bridge (preferred option), through a submarine cable laid along the river bottom, or directionally drilled¹⁵ underneath the river bed. Nevertheless, it is noted that at this location, the riparian zone is primarily developed by the existing Morris & Essex Line and associated rail right-of-way.

The riparian zone associated with the Hudson River is also 50 feet (Figures 12-3 and 12-5). Preferred Alternative Project Component G is the closest to this highly developed riparian zone. However, no vegetation is located where the proposed electrical lines and new utility poles are anticipated to be installed and operated within the existing HBLR right-of-way. Preferred Alternative Project Components E and F do not intersect the Hudson River's 50-foot riparian zone.

Coastal Zone

Waterfront Development

As outlined in the NJDEP's Coastal Zone Management Rules (7 N.J.A.C. § 7-2.4 [2019]), the Upland WFD Zone (waterfront regulated areas landward of the mean high-water line up to a maximum of 500 feet, or at the first paved parallel public road, railroad or surveyable property line) does not exist within the Meadowlands District Boundaries (Figures 12-1 through 12-6). However, the In-Water WFD Zone does exist, areas waterward from the mean high tide line. Any activities proposed within this area are required to be reviewed by the NJDEP under a Waterfront Development Permit application, demonstrating compliance with the NJDEP's Coastal Zone Management Rules at 7 N.J.A.C. § 7 [2019]. The only portion of the Project that will impact the In-Water WFD Zone are the stormwater improvements-proposed outfalls required under Preferred Alternative Project Component A and the submarine cable for Project Component E (if this non-preferred alternative is selected).

For areas outside of the Meadowlands District Boundary, the Upland WFD Zone ceases after either 500 feet landward of the mean high water (MHW) line, or at the first paved parallel public road, railroad or surveyable property line (Figures 12-1 through 12-6). Any activities proposed within this area are required to be reviewed by the NJDEP under a Waterfront Development Permit application, demonstrating compliance with the NJDEP's Coastal Zone Management Rules at 7 N.J.A.C. § 7 [2019].

Tidelands Areas

In addition to the WFD Zone, the NJDEP also regulates Tidelands areas. Tidelands are currently, or formerly flowed areas that are owned by the state of New Jersey. Since Tidelands are public lands, written permission must be obtained from the state, and a fee is required to use these lands. Common uses of tidelands include docks, mooring piles, bulkheads and other fill materials. Some tidelands may be

¹⁵ Directional drilling is a process that allows for trenchless construction across an area—a borehole is drilled under the area and a prefabricated segment of pipe is installed through the borehole, thereby avoiding direct disturbance to the surface. It is commonly used to cross underneath sensitive or difficult to construct areas such as those with slope stability issues, roads, wetlands, and water bodies.

conveyed by payment of a yearly license fee or one standard grant fee in the form of a Tidelands Grant while others may only be rented through either a Tidelands License or Lease.

Preferred Alternative Project Components A, E, F, and G intersect Tidelands areas (Figures 12-1, 12-3 through 12-6). Preferred Alternative Project Components A, E, F and G have been issued Tidelands Grants, authorizing some work within the Tidelands area, as indicated in Table 12-1 (see Appendix D, "Agency Correspondence"). This step of assuring "Tidelands ownership," is addressed under further advanced design via regulatory Land Use permit submission and project review with the NJDEP Bureau of Tidelands. The NJDEP Bureau of Tidelands issues short-term Tidelands Interim Licenses to adhere to project construction timeframes but are only valid for a limited amount of years, as well as Tidelands Grants, which are permanent but have multi-year technical review and authorization time frame.

Tak	ble	12-1	

NJDEP Bureau of Tidelands Instruments by Project Component

Project Component	Tidelands Present or Absent	NJDEP Tidelands Instrument Issued / Instrument Required?	
		Grant – November 7, 1990, Hudson County Improvement Authority, Kearny Block 287 Lot 61.03	
Preferred Alternative Project Component A	Present	Grant – December 1, 1936, Koppers Company, Kearny Block 287 Lot 62	
		Grant – Seaboard By-Product by Coke Company, December 16, 1929, Kearny Block 287 Lot 62.01	
Preferred Alternative Project Component B	Absent	-	
Preferred Alternative Project Component C	Absent	-	
Preferred Alternative Project Component D	Absent	-	
Preferred Alternative Project Component E	Present	Grant – June 17, 2008, Millennium Towers, LLC, Jersey City Block 6002 Lot 7	
		Grant – January 21, 1924 Morris and Essex R.R. Company, Jersey City Block 7402 Lot 19	
Preferred Alternative Project Component F	Present	Grant - March 1992, Rudolph Ball, INC, Jersey City Block 21503 Lots 2, 35, 41, 42, 44	
Preferred Alternative	Present	Grant - July 10, 1886, Delaware and Hudson Canal Company, Weehawken, Block 34.03 Lot 6	
		Grant - September 20, 1879, The Delaware and Hudson Canal Company, Weehawken, Block 36.04, Lots 2, 2.01 and 2.02	
		Grant - March 30, 1836, United Railroad and Canal Companies Jersey City, Block 7303, Lots 5.4, 6, 9, 10, 11 and 12	
Project Component G		Grant - November 12, 1874, Central Railroad of New Jersey, Jersey City, Block 15801 Lots 7, 14 and 81	
		Grant - November 12, 1874, Central Railroad of New Jersey, Jersey City, Block 15901 Lot 14 and 16	
		Grant - April 14, 1888, Morris and Essex R. R. Company, lersev City, Block 7301 Lots 1 and 5	
		Grant - March 30, 1868, United Railroad and Canal	
		Companies, Jersey City, Block 11603 Lots 28, 31, 32, 40, and 45-48	

12.3.3 Tidal and Freshwater Wetlands

Amongst various functions and values, wetland resources have the potential or are documented to provide specific benefits to wildlife, human life and property. Wetlands can act as a first defense natural buffer between inland areas and adjacent waterbodies from flooding and storm surges, but also provide water quality filtration and Total Suspended Solid (TSS) removal, in addition to supplying evident habitat

and life stage functions for multiple species. Wetlands also act as a natural soil stabilization agent during storm events, protecting shorelines from harsh storm flows and dynamic wave action. To perform this function, wetlands adjacent to major rivers, lakes or coastal oceans must be large in size, and uninterrupted by development. Wetlands of a fragmented nature, or disjointed from larger wetland systems, do not perform this function adequately, as they are limited by their water or flood storage capacity and ability to adequately filter particulates during precipitation events.

Assessment and field verification of wetland resources, type and geographic location within the proposed Project area are generally summarized below and are presented in the Wetland Delineation Report (see Appendix E, "Wetland Delineation Report"). The wetland analysis as discussed in this report was based on review of previous confirmed wetland delineations-Jurisdictional Determinations (JD), state and federal publicly available wetland mapping websites, 2016 and 2017 field wetland delineation efforts, and photo documentation of areas with characteristic wetland or upland vegetation for active NJ TRANSIT rail corridors where accessibility was limited. It is noted that the Project area predominately utilizes an existing ballasts-developed rail corridor and therefore is mostly devoid of wetlands resources. Any deviations from the main rail corridor and identified resources are presented below.

Preferred Alternative Project Components A, B, C, D, and a portion of E are located within the Meadowlands District-NJSEA boundary (Figures 12-1 to 12-3), which encompasses former landfill areas, redeveloped areas and an approximate 8,400 acre wetland preservation area with tidal and freshwater wetland areas, monitored by the NJSEA, which consists of multiple wetland complexes spread throughout 14 municipalities and includes restored wetland areas to the north, and closer designated resources such as the Riverbend Wetland Preserve, the Kearny Brackish Marsh and Cedar Creek Marsh (North and South).

Preferred Alternative Project Components A (Main Facility) and B (Six-acre Parcel)

On April 21st, July 2nd and September 16th, 2016, wetland scientists on behalf of NJ TRANSIT completed field investigations of the Main Facility (Preferred Alternative Project Component A) and the six-acre parcel (Preferred Alternative Project Component B). This included a walk-through of the properties and delineating remnant wetlands along the south edge of Preferred Alternative Project Component A and the southwestern portion of Preferred Alternative Project Component B. The field investigation and delineation tasks were completed pursuant to the USACE's Wetland Delineation Manual of 1987, which requires the evaluation of onsite hydrology, vegetation and soil characteristics present at the time of delineation, to accurately determine the location and limits of wetlands.

Two fragmented wetland areas, totaling 3.53 acres of inland freshwater wetlands in proximity of Preferred Alternative Project Components A and B were field-verified as shown on Figure 12-1, and in Appendix E, "Wetland Delineation Report." These are primarily remnant stormwater drainage ditches that are hydrologically connected to adjacent wetlands via stormwater conveyance features and are comprised of dense non-native common reed.

The southwestern wetland near Preferred Alternative Project Component A is a vegetated area with standing water, located between the existing Morris & Essex Line tracks and the onsite PDM fill material. A portion of this area was mapped by NJDEP (Figure 12-1) to contain inland freshwater wetlands. Wetland

scientists delineated 3.27 acres of wetland resources along the south edge of Preferred Alternative Project Component A. During field investigation activities, a silt fence was observed at the toe of slope, demarking that those areas were being protected from filling actions onsite.

Preferred Alternative Project Component B is located to the southeast of Preferred Alternative Project Component A, across the Morris & Essex Line and adjacent to Fish House Road. As within Preferred Alternative Project Component A, Preferred Alternative Project Component B was elevated from original grade using PDM fill material. Although historic aerials do not show wetlands to be present onsite prior to the placement of fill, wetland characteristics have developed within underlying drainage areas. Wetland scientists delineated 0.26 acres of fragmented wetland environment within Preferred Alternative Project Component B as shown on Figure 12-1.

The field-verified freshwater wetlands near Preferred Alternative Project Components A and B have a low resource value, as they are disturbed, fragmented resources, located within a Brownfields redeveloped area. They adjoin a developed rail corridor and are hydrologically isolated from the Hackensack River and any other wetland or water feature. The wetland areas are vegetated by invasive monocultures of common reed, and do not significantly contribute to wildlife function, mobilization or provide suitable habitat for foraging, shelter, or breeding of avian or terrestrial species.

Although these features are remnant and provide limited wildlife value, these onsite wetlands generally serve limited function as a natural protective barrier for inland areas against floodwaters, provide flood storage capacity, and provide a natural filtration medium that intercepts surface runoff and drainage waters prior to discharging to the adjoining Hackensack River or infiltrating into groundwater. These wetlands help limit erosion and deposition into receiving waters from soil migration and potential water quality impacts. Specifically, the field-verified wetland area where the Main Facility is proposed serves as a stormwater collection area, which connects with the Hackensack River via groundwater infiltration or conveying stormwater pipes. As these field-verified wetland areas are considered isolated from the surrounding Meadowlands wetland complex to the north, the area's natural capacity to hold and filter runoff sediments and debris that could enter the Hackensack River is limited.

Preferred Alternative Project Components C and D

A segment of Preferred Alternative Project Components C and D connect with Preferred Alternative Project Component A and will cross the delineated freshwater wetlands, previously discussed. Field verification of wetlands also confirmed that the remaining improvements associated with Preferred Alternative Project Component C are located within the existing Morris & Essex Line right-of-way and do not traverse wetland resources.

Cedar Creek Marsh South is located at the western terminus of the electric line route near Amtrak's existing Substation No. 41 (see Figure 12-2). Cedar Creek Marsh has been historically bisected through the construction of roadways and railroads which function as hydrologic barriers and physically restrict movement of the waters from the nearby wetland areas and the tidal Hackensack River. This area, however, is still hydrologically connected to the Hackensack River via engineered pipes to adjoining isolated wetlands, but tidal inputs are restricted by raised elevations and installed tide gates to the west,

south and east. Cedar Creek Marsh South is also hydrologically maintained to minimize flooding to rail infrastructure by an existing pump station. This isolation and the established active rail corridors that surround it reduce the function and value of the resource to endemic wildlife due to the flow restrictions that prevent aquatic species ingress and egress relative to the large, hydrologically-connected, tidally-influenced nursery areas of the wetlands of the Meadowlands District. The National Wetlands Inventory (NWI) identifies Cedar Creek Marsh South as estuarine wetlands, with the majority of the area classified as estuarine deep-water habitat, with the easternmost portion identified as estuarine, intertidal, emergent *Phragmites*-dominated marsh. Currently, Cedar Creek Marsh South is primarily an open water resource, with shrub and emergent vegetation limited to the minor landmasses within the marsh and along the perimeter.

Amtrak's existing Substation No. 41 is located within Cedar Creek Marsh South and is connected to multiple utility lines crossing the water body. Additionally, multiple utility towers have been placed within the marsh to energize Amtrak's Substation No. 41 and portions of the Northeast Corridor. Preferred Alternative Project Component D will involve construction of a concrete platform on piers covering up to 1.7 acres of open water and marsh for the new Kearny Substation platform (which the USACE treats as a "fill" taking) and for the installation of a maximum 220-foot-high monopole in Cedar Creek Marsh South (see Figure 12-2).

Wetlands/waters of Cedar Creek Marsh South have a very limited vegetative edge to provide filtration benefits to the receiving Cedar Creek Marsh South and function more as a storage "detention pond" for waters and settlement of soils. This storage capacity serves to protect adjoining inland areas by retaining rain or momentary surge waters and provides minimal habitat function or benefits to limit erosional inputs to adjoining areas. In 2009, a Wetland Delineation Report was prepared for the Portal Bridge Capacity Enhancement Project for NJ TRANSIT, which included a review of wetlands/waters in Cedar Creek Marsh South. The report was then submitted to the USACE and wetland/water limits were confirmed via a USACE JD (File No. NAN-2009-012220W CA). As wetland/water resources in Cedar Creek Marsh South were already jurisdictionally confirmed by the USACE, and no development change has occurred to change the extent of wetland resources, and the fact that it is a highly active rail corridor, it was determined that no field analysis or further review would be required to define wetland/waters in Cedar Creek Marsh South.

Preferred Alternative Project Components E and F

A segment of Preferred Alternative Project Component E connects with Preferred Alternative Project Component A and will cross the delineated freshwater wetlands that were previously discussed. Preferred Alternative Project Component E will also cross the Hackensack River, which is classified as waters of the United States by CWA Definitions (40 C.F.R. § 230.3 [1972]), as it is subject to the ebb and flow of the tide, activities proposed in the Hackensack River will be subject to dual jurisdiction of the USACE and NJDEP. Activities proposed in inland freshwater wetlands within the Meadowlands District will fall under jurisdiction of the USACE only.

No shoreline wetland areas were identified along the Hackensack River at this location, as the shores are primarily comprised of developed asphalt and gravel lined areas. Based on review of NJDEP Submerged

Aquatic Vegetation (SAV) maps there are no recorded detailed maps for this area of the state or the Hackensack River. The NJDEP does not identify freshwater wetlands at this location, and the NWI Wetland Mapper does not identify wetlands along the banks of the Hackensack River at this location (see Figure 12-3). Additionally, during the 2016 field delineation, no wetland resources were observed at the location of the Hackensack crossing area, both directly adjacent to the Hackensack River, or upland of the River. Field observations did not confirm the presence of SAV establishment in waters. Impacts to the shoreline of the Hackensack River will be avoided by utilizing new monopoles installed approximately 50 feet north of the Lower Hack Bridge, or through directional drilling if the selected installation option for the Hackensack River crossing is a submarine cable along the river bed or drilled beneath the river bottom.

NJDEP Land Use/ Land Cover and review of the USFWS NWI Wetlands Mapper data layers do not identify wetland areas within the portion of the proposed electrical line routes east of the Hackensack River to the Henderson Street Substation (Preferred Alternative Project Component E) (Figures 12-3 to 12-5). Additionally, there are no wetlands identified at Preferred Alternative Project Component F for the emergency generators (nanogrid) at HBLR Headquarters.

Preferred Alternative Project Component G

A field investigation was conducted along Preferred Alternative Project Component G in 2017 by wetlands scientists, which visually confirmed the presence of wetlands adjacent to the HBLR Line at the Liberty State Park Station, located between Communipaw Avenue, the existing HBLR right-of-way, and the existing New Jersey Turnpike overpass. At this location, the HBLR is bound by a concrete retaining wall, separating the rail from the adjacent wetland and upland area. As the wetlands are under NJDEP jurisdiction, it was determined that the observed wetlands are of intermediate resource value. The wetlands meet the required criteria for an intermediate resource wetland (i.e., they do not classify for ordinary or exceptional resource values because they are not isolated wetland and not smaller than 5,000 square feet). Additionally, the wetland does not discharge into a FW1 or FW2 trout production NJDEP SWQS classified stream. (7 N.J.A.C. § 7A-2.4 [2018]).

As such, the wetlands have a 50-foot transition area, measured landwards of the perimeter of wetlands. Along Preferred Alternative Project Component G the transition area is an altered/developed non-functional transition area.

12.3.4 Vegetation

The Hackensack River, with its freshwater headwater contributions from northern reaches of the watershed and twice daily tidal fluctuations from the south, provides hydrologic support to freshwater and tidal wetland areas. Only specific types of vegetation (hydrophytic – adapted to grow in prolonged saturated conditions) can thrive in a wetland environment, as water levels fluctuate depending on season, weather and tidal conditions. Vegetation within the tidal wetlands identified in the study area includes saltmarsh cordgrass, glasswort, and spike grass; and a dominance of non-native common reed. Freshwater wetlands in the Project area have aggressive vegetative colonizers common to industrialized altered areas

such as tree of heaven (*Ailanthus altissima*), black locust (*Robinia pseudoacacia*), and eastern cottonwood (*Populus deltoides*), with dominant colonization by the non-native common reed.

Vegetation within the upland portions of the proposed Project area include species generally found in highly disturbed and heavily urbanized areas. Tree species would likely include black locust, eastern cottonwood, mulberry trees (*Morus* spp.), Norway maple (*Acer platanoides*), princess tree (*Paulownia tomentosa*), and tree of heaven; shrubs such as Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), sumacs (*Rhus* spp.); vines including English ivy (*Hedera helix*), Japanese honeysuckle (*Lonicera japonica*), Oriental bittersweet (*Celastrus orbiculatus*), and wild grape (*Vitis* spp.); and herbaceous vegetation such as chicory (*Cichorium intybus*), clovers (*Trifolium* spp.), common dandelion (*Taraxacum officinale*), common hawkweed (*Hieracium vulgatum*), Japanese knotweed (*Fallopia japonica*), mugwort (*Artemisia vulgaris*), plantains (*Plantago* spp.), pokeweed (*Phytolacca americana*), poison ivy (*Toxicodendron radicans*), and spotted knapweed (*Centaurea stoebe*).

12.3.5 Wildlife

Wildlife within Preferred Alternative Project Components A, B, C, D and portions of E west of the Hackensack River generally includes localized species tolerant of highly disturbed and heavily urbanized/fragmented areas, and transient species that migrate via larger linked corridors such as the adjoining waters or larger contiguous wetland areas to the north. Additionally, the portion of Preferred Alternative Project Component E east of the Hackensack River, and Preferred Alternative Project Components F and G are within highly developed cities and townships, and species in these areas are anticipated to be highly tolerant to an urban environment, or passerine species.

The larger populations of transient species consist of avian species that utilize the Atlantic Flyway, which stretches from the Arctic Circle down the Atlantic coast and Appalachian Mountains and into the Caribbean. This flyway includes the tidal/brackish areas north of the Project area, where more contiguous, non-fragmented habitats of the Meadowlands District provide access to food and shelter and facilitate species colonization and congregation for mating.

Bird species expected to utilize the disturbed areas of Preferred Alternative Project Components A, B, C, D and portions of E west of the Hackensack River and immediate surrounding areas include, but are not limited to: Canada goose (*Branta canadensis*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaida macroura*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), common grackle (*Quiscalus quiscula*), brown-headed cowbird (*Molothrus ater*), song sparrow (*Melospiza melodia*), cerulean warbler (*Dendroica cerulea*), wood thrush (*Hylocichla mustelina*), purple sandpiper (*Calidris maritima*), saltmarsh sparrow (*Ammodramus caudacutus*), and fox sparrow (*Passerella iliaca*). A bald eagle nest was documented by NJDEP, Division of Fish and Wildlife, approximately 3.5 miles southwest of the Main Facility site (Preferred Alternative Project Component A) in 2016 (NJDEP 2016). Most of these species are covered by the MBTA. Water areas within the study area are expected to provide habitat for numerous bird and wading species including gulls and terns, shorebirds, wading birds, and waterfowl, and foraging resources for raptors-birds of prey such as hawks, falcons, and eagles, as indicated on Figures 12-13 through 12-18.



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The following mammal species could be expected to utilize Preferred Alternative Project Components A, B, C, D and portions of E west of the Hackensack River and immediate surrounding area: eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), groundhog (*Marmota monax*), Norway rat (*Rattus norvegicus*), muskrat (*Ondatra zibethicus*), white-tailed deer (*Odocoileus virginianus*), and white-footed mouse (*Peromyscus leucopus*).

The Hackensack River and its associated tributaries, wetlands and transitional edges form an estuarine system that supports a diverse biota including crustaceans, mollusks, oligochaetes, planktons, polychaetes, protozoa, reptiles such as turtles, and mammals. In addition, the estuary is expected to support numerous species of finfish, ranging from diadromous spawners and marine migrants to juveniles, which depend upon the protected habitats within the estuary during critical life stages. Additionally, according to the NMFS EFH Mapper, the portions of the Hackensack and Hudson Rivers located within the Project area are mapped as EFH for all life stages (adult, juvenile and larvae) of summer flounder (*Paralichthys dentatus*) and Atlantic herring (*Clupea harengus*) (NOAA 2018). Various avian tropical migratory and raptor species utilize this area as part of a larger bird migration corridor, better known as the Atlantic Flywaybird migration route, it is used for foraging, mating and nesting habitat. The Atlantic Flyway encompasses some of the hemisphere's most productive ecosystems, including forests, beaches, and coastal wetland and provides a route for birds from South America, Caribbean up to the eastern Arctic islands and the coast of Greenland.

12.3.6 Threatened and Endangered Species Habitat

Threatened and endangered species rely on their respective environments to survive. Upon review of the NJDEP Landscape Habitat digital data, which was further confirmed through a NJDEP NHP review letter dated January 10, 2018 (see Appendix D), eight state-listed threatened or endangered species are located within one mile of the proposed Project area, and two state-listed threatened or endangered species are located onsite (see Figures 12-13 through 12-18 and Table 12-2). The NHP does not specify where the species are exactly located and identified no terrestrial or marine species in their review.

As the Hackensack and Hudson Rivers are a primary migratory pathway and provides abundant resting, foraging and breeding habitat for aquatic species, the river is also a viable resting, nesting and foraging resource for terrestrial and avian species in the area. However, these listed avian species also require canopy trees and vegetative cover for nesting locations. The only exception is the Northern Harrier which nest in the drier areas of high marsh that are dominated by salt hay (*Spartina patens*), marsh elder (*Iva frutescens*), or reed grass (*Phragmites communis*). Preferred Alternative Project Components A, B, E, F, and G all lack substantial functional canopy tree cover, established vegetated, or wildlife corridor habitat. Areas that have marsh elder (*Iva frutescens*), or common reed grass (*Phragmites australis*) are primarily located within highly developed urban areas or abut the rail transportation corridor. Vegetation, as discussed, is limited to fragmented landscaped areas dominated by understory vegetation common to developed/altered areas. Preferred Alternative Project Components C and D have interspersed established canopy tree and understory vegetation. This vegetation, however, is comprised of non-native vegetation that provides limited food resources or supporting benefits for wildlife.

Table 12-2Threatened and Endangered Species On-Site orwithin One Mile of the Project Area

Within One Mile of the Project Area					
Species	Federal/ State Designation	Habitat			
Atlantic Sturgeon	Federal and State Endangered	Migration Corridor/Adult Sighting/Juvenile Sighting			
Bald Eagle	Federal and State Endangered	Foraging			
Bobolink	Federal Not Listed	Breeding Sighting			
	State Endangered				
Black-crowned Night-heron	Federal Not Listed	Foraging			
	State Threatened				
Cattle Egret	Federal Not Listed	Foraging			
	State Threatened				
Northern Harrier	Federal: Migratory Nongame Bird of Management Concern, State Endangered	Breeding Sighting			
Sedge Wren	Federal: Migratory Nongame Bird of Management	Foraging			
	Concern, State Endangered				
Yellow-crowned Night-heron	Federal Not Listed	Foraging			
	State Threatened				
Pied-billed Grebe	Pied-billed Grebe Federal Not Listed				
	State Endangered				
Savannah Sparrow	Savannah Sparrow Federal Not Listed				
	State Threatened				
Shortnose Sturgeon	Federal and State	Migration Corridor/Adult			
	Endangered	Sighting			
Within the Project Area					
Species	State Designation	Habitat			
Osprey	Federal Not Listed	Foraging / Nest			
	State Threatened				
Peregrine Falcon Federal Not Listed		Urban Nest			
	State Endangered				
Bald Eagle	Federal and State Endangered	Foraging			

The ESA directs all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of Section 7 of the ESA, called "Interagency Cooperation," which is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. The USFWS Information for Planning and Conservation (IPaC) system was consulted for the presence of federally-listed species (i.e., threatened or endangered) and critical habitat within the study area. The formal IPaC report, dated December 19, 2017 and March 29, 2017 (see Appendix D), does not identify the presence of habitat for any terrestrial or marine federally-listed threatened, endangered, proposed, or candidate species, or identify any critical habitat within the study area. The report identified 38 bird species protected by the MBTA and the BGEPA within the study area. These species can potentially utilize the proposed Project area as habitat during their migration periods but are not anticipated to be negatively impacted by the Project's proposed activities.

Marine threatened or endangered species of significance include Atlantic sturgeon (*Acipenser* oxyrhynchus oxyrhynchus), shortnose sturgeon (*Acipenser brevirostrum*), summer founder, winter flounder (*Pleuronectes americanus*), and Atlantic herring. These species rely upon the Passaic, Hackensack and Hudson River corridors primarily for migratory passage. As their access up and downstream are vital to the life cycles of each of the aquatic species, any disturbances to the waters of these waterbodies could pose detrimental to the species if not properly considered or mitigated for with use of best management practices (BMP's). Common mitigation actions include the use of floating turbidity booms, silt curtains, haybales, and silt fence and construction timing restrictions relative to the species' migratory and breeding seasons.

Avian threatened or endangered species of significance include the Bobolink, Osprey, Peregrine falcon and Bald eagle. With exception to the Bobolink, each of these avian species are fish-eating raptors that nest and forage along major river systems and coastal areas. Three of the four species prefer to nest in large, mature canopy trees, although Ospreys and Peregrine falcons have both adapted to changing landscapes due to urban development. The Bobolink as a grain and seed forager will congregate open meadows and marshes, but prefers low intensity agricultural fields located beyond the project area for nesting/breeding activities. In the proposed Project area, Peregrine falcons tend to nest on bridge structures and tall buildings. Currently, no nest is present on the Lower Hack Bridge, and the remaining proposed Project area is devoid of any tall, mature canopy trees commonly preferred for nesting activities. To date field observations and NJDEP information has not identified records of nesting sites for these species within the project area. Being proximal to aquatic areas, however, it is expected that these species could occasionally forage in the project area.

12.4 PROBABLE IMPACTS OF THE PROJECT ALTERNATIVES

12.4.1 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed, and NJ TRANSIT and Amtrak would continue to be served by the existing commercial grid. Under the No Action Alternative, other planned and programmed transportation improvements for which commitment and financing have

been identified would take place by 2021. These include projects in NJ TRANSIT's Resilience Program, Amtrak initiatives that will affect operations on the Northeast Corridor, and HCIA plans for warehousing development on portions of the Koppers Koke property.

In the absence of the proposed Project, Amtrak has plans to completely replace and rebuild Substation No. 41. Two existing lattice towers in Cedar Creek Marsh South will be replaced with a monopole. Therefore, up to 1.7 acres of Cedar Creek Marsh South will be impacted with or without the proposed Project. Amtrak is currently proceeding with reconstruction of certain elements of Substation No. 42, located east of the project area at the entrance to the North River Tunnels in Weehawken, NJ, including the installation of a new Control House. With or without the proposed Project, NJ TRANSIT intends to acquire the 20-acre parcel (Preferred Alternative Project Component A) on the Koppers Koke property as well as the adjacent six-acre parcel (Preferred Alternative Project Component B). As explained in Chapter 2, this acquisition is moving forward as part of a property settlement agreement between NJ TRANSIT and HCIA. Therefore, in the absence of the proposed Project, it is likely these portions of the Koppers Koke Site would be used for ancillary railroad purposes (storage, parking, etc.).

The No Action Alternative would not result in any direct or indirect impacts to natural resources within the proposed Project area except for impacts to wetlands/waters for the installation of the new Kearny Substation to replace Amtrak's exiting Substation No. 41 in Cedar Creek Marsh South. The benefits of wetland restoration (through compensatory mitigation) as discussed in Section 12.4.2 that results in purchase of wetland credits to support the ecological restoration of up to five acres of high value functional wetlands would not be realized under the No Action Alternative.

12.4.2 Build Alternative

Potential impacts to natural resources under the Build Alternative for the proposed Project are discussed below. As described in Chapter 2, "Project Alternatives," three design options were evaluated for the electrical lines, as follows: 1) all electrical lines installed overhead on monopoles; 2) all electrical lines installed underground in duct banks; and 3) a combination of using overhead (monopoles) and underground (duct banks) options as well as attachment to existing infrastructure. The third design option was selected as the preferred based on various site-specific factors, such as access, site constraints, localized geology, areas of known contamination and documentation/survey of existing utilities (both overhead and underground). Construction impacts to existing utilities may result in interruptions to public utilities and/or transportation service delays and therefore, the project is being designed to avoid these interruptions. Construction impacts are described in Chapter 17, "Construction Effects."

Watercourses / Water Quality / Sole Source Aquifer

Since the Hackensack River is not a reservoir and all reservoirs within the Hackensack River Basin are located upstream of the Project area, and there are no USEPA sole source aquifers within the Project area, no significant adverse impacts would result to the public's potable water supply under this option. Additionally, although the proposed monopoles require foundations to be drilled at most 95 feet in depth to bedrock, double/multi-cased piles will be used to ensure groundwater contamination migration does not occur. Please refer to Chapter 17, "Construction Methods and Effect," for detail on methods to be utilized for foundation pile driving and installation.

An environmental sampling program may include investigation to identify and properly manage potentially contaminated/hazardous materials along the electrical lines (Preferred Alternative Project Components C, D, E, G, and the electrical lines for Preferred Alternative Project Component F within HBLR Headquarters property) performed in accordance with the NJDEP *Field Sampling Procedure Manual*, last updated April 11, 2011 (NJDEP 2011a). These activities would comply with the Site Remediation Reform Act (SRRA, 58 N.J.S.A. § 10C-1 et seq. [2013]), the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS, 7 N.J.A.C. § 26C [2009]), the NJDEP Technical Requirements for Site Remediation (TRSR, 7 N.J.A.C. § 26E [2012]), May 2012, and other applicable NJDEP technical guidance documents.

Additionally, sanitary wastewater generated by the Main Facility will be discharged directly into the local sewer system and stormwater will be discharged into the Hackensack River, following pretreatment for suspended solids and settlement in the detention basin, as discussed in Chapter 15, "Utilities."

Preferred Alternative Project Component A includes the installation of an extensive NJDEP Stormwater Management Rules (7 N.J.A.C. § 8) compliant detention and drainage system throughout the Main Facility. Although approximately half of the existing retention basin would be filled, the new stormwater management system would include a new detention basin, and the construction of two new stormwater outfalls. One will be installed along the western boundary of the Main Facility, discharging into the Hackensack River, to the northwest of the Main Facility. It will drain the roadway west of the electrical yard. The other will be installed near the eastern end of the Main Facility and will drain the detention basin under the solar panel facility when the rainfall amount exceeds the capacity of the basin via the overflow weir.

The drainage system for the majority of the Main Facility would lead to a dual stormwater pre-treatment structure that would process surface runoff and precipitation particulates to remove 80% TSS prior to discharge into the detention basin. These outfalls will require excavation of contaminated materials, which had since been capped with the PDM fill currently onsite. Additionally, the outfall discharge points will require the existing bulkhead to be punctured, with discharges directly into the Hackensack River, which is designated as EFH for the summer flounder and Atlantic herring. As such, the outfall will require a USACE Section 10/404 permit and NJDEP Stormwater review. An NJDEP Division of Water Quality Pollution and Discharge Elimination Systems (NJPDES) permit will be required for the discharge of water directly into the Hackensack River channel.

The Project would not discharge any coolant water into the Hackensack River at any time during operation. Additionally, no water used to for coolant purposes will be supplied by the Hackensack River. Rather, coolant water will be supplied by the municipal water supply and will be discharged back into the municipal waste water sewer system. As such, the Hackensack River would not have any thermal effects due to coolant water discharges. The only water to be discharged into the Hackensack River would be precipitation and surface water runoff collected via roof drains and the drainage system throughout the majority of the Main Facility. The NJDEP Stormwater Management compliant stormwater design for the Main Facility (quantity) and pre-treatment measures (quality) are further discussed in Chapters 2 and 15.

During construction, turbidity barriers and silt fences will be installed and maintained, preventing sediment migration downstream. The proposed stormwater design incorporates collection of roof-run off, surface runoff and directs flows to two pre-treatment devices prior to discharging to the detention basin which would allow for additional settlement of fine particulates. The detention basin is designed to accommodate a 100-year storm event and will release overflow of pre-treated waters via the proposed outfalls to the Hackensack River. The proposed tide gate at its discharge point will serve as a control device to limit any back flow from tidal waters of the Hackensack River in to the stormwater system. No adverse effects to the EFH of summer flounder or Atlantic herring or the water quality of the Hackensack River are anticipated with the installation of the proposed outfalls and stormwater collection system. The proposed stormwater plan has been designed to performance standards for stormwater management measures required by rules pursuant to the Flood Hazard Area Control Act, 58 N.J.S.A. § 16A-50 et seq.; the Coastal Area Facility Review Act, 13 N.J.S.A. § 19-1 et seq.; the Wetlands Act of 1970, 13 N.J.S.A. § 9A-1 et seq.; the Waterfront Development Law, 12 N.J.S.A. § 5-3; and the Freshwater Wetlands Protection Act, 13 N.J.S.A. § 9B-1 et seq. Additionally, the stormwater collection, detention and discharge system has been design to comply with the NJPDES and Treatment Works Approval (TWA) programs.

The preferred option for routing the electrical line for Preferred Alternative Project Component E would cross the Hackensack River via two new monopoles located on either bank of the river 50 feet north of the Lower Hack Bridge. This would have no impacts on watercourses or water quality. However, the two alternatives for Project Component E to cross the Hackensack River, include a submarine cable that would be installed either on the river bed of the Hackensack River, or directionally drilled at a depth to ensure the river bed is not altered. Directional drilling under the Hackensack River is the least intrusive of these two methods, and would be utilized for approximately 664 linear feet of submarine cable installation. This would result in no impacts to the water bottom. For the submarine cable alternative, the water bottom of the Hackensack River upon which the cable could be laid is identified as EFH for summer flounder and Atlantic herring. The cable could impact a small portion of EFH by displacing a minor amount of water bottom habitat after construction, but would not restrict passage or migratory movement for any species of marine life or significantly reduce the amount of EHF available for summer flounder or Atlantic herring. No adverse impacts to fisheries or water quality of the Hackensack River would be expected to result from implementation of any of these alternatives.

In Cedar Creek Marsh South, the installation and operation of the new Kearny Substation and new monopole would permanently impact a small area of water bottoms (up to 1.7 acres) through displacement or shading, as well as displace any fishes and aquatic organisms to other portions of the

open water areas of Cedar Creek Marsh South. However, as described above, since the area of Cedar Creek Marsh South to be used for Preferred Alternative Project Component D is hydrologically restricted from the Hackensack River due to active tide gates, the habitat value is low relative to other more connected portions of Cedar Creek Marsh. According to the NOAA NMFS (correspondence received August 4, 2016, see Appendix D) and the online NOAA EFH Mapper, Cedar Creek Marsh South includes no EFH, no Habitat Areas of Particular Concern, and no EFH Areas Protected from Fishing as the area is hydrologically restricted from the Hackensack River due to existing tide gates.

The proposed Project would not be expected to significantly impact water quality or disturb fish migration, foraging, breeding or designated EFH, as it will be designed in accordance with 7 N.J.A.C. § 8 [2016] Stormwater Management and use BMPs and adhere to the applicable in-water timing restrictions common to these migratory waters. Based on a October 25, 2018 email correspondence with Karen Greene, Mid-Atlantic Field Offices Supervisor, NOAA-NMFS, "There is no seasonal in-water work limits for summer flounder... we have not had any targeted recommendations for that species in the Hackensack River." Generally, other regional aquatic species that can be given consideration for moratoriums or seasonal restrictions are anadromous fishes from March 1 to June 30 and Winter flounder from January 1 to May 31. As required, project construction will adhere to regulatory guidelines, seasonal restrictions and utilize BMPs to minimize and avoid any adverse impacts to aquatic species or water quality.

Preferred Alternative Project Components A, B, C, D, F and G will not impact any stream channels or their associated water quality.

Floodplain and Coastal Zone

Structures, fill, and vegetation that are situated on land that lies below the flood plain area design flood elevation (DFE) are described as being "in" or "within" the floodplain area. There are two types of floodplain areas:

- Tidal flood plain areas, in which the flood plain DFE is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal FHA may be contributed to or influenced by stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources (precipitation, stormwater, surface runoff); and
- 2. Fluvial flood plain areas, in which the flood plain DFE is governed by precipitation, stormwater, and surface runoff. Flooding in a fluvial FHA may be contributed to or influenced by elevated water levels generated by the tidal rise and fall of the Atlantic Ocean, but the depth of flooding generated by stormwater runoff is greater than flooding from the Atlantic Ocean.

All Project Components that have associated floodplains, as shown on Figures 12-7 through 12-12, are located in a tidally influenced floodplain where the floodwaters are influenced by storm events and are regulated by daily raising and lowering of the tide. The Hackensack River is connected to Newark Bay and the Atlantic Ocean, and the Hudson River is directly connected to the Atlantic Ocean, which is considered to be a receiving basin with infinite water storage capacity.

HCIA has prepared approximately 126 acres of the Koppers Koke property for development by significantly elevating the site above the DFE criteria to comply with New Jersey's Uniform Construction Code (UCC) and other relevant requirements (5 N.J.A.C. § 23 [2018]). NJ TRANSIT's DFE for the Main Facility is +12.0 feet relative to the NAVD88. This consists of using the Federal Emergency Management Agency (FEMA) BFE of +8.0 feet NAVD88 and adding 2.5 feet to adjust for relative sea level change (SLC) expected over the 50-year Project life at this preferred location. The Sea Level Rise (SLR) calculation was obtained from the NOAA online SLC calculator using the NOAA Intermediate-High scenario, which projects an increase in sea level of 2.5 feet over the next 100 years. To this value a minimum of +1.0 foot is required by the FTA for construction in the coastal zone (Emergency Relief Program, Interim Final Rule) was added, as well as an additional +0.5-foot factor of safety that acknowledges the criticality and cost of the state's railroad infrastructure, for a final DFE of +12 feet NAVD88. The current elevations of the Koppers Koke property are greater than +25 feet NAVD88, so the site complies with these design criteria

As indicated in Figure 12-6, in Preferred Alternative Project Component A only improvements of the inland wetland areas will require fill actions within a mapped floodplain. Although Preferred Alternative Project Component A is identified to be in a mapped floodplain, post 2008 remedial actions have raised the remainder of the enveloped area to elevations above the 100-year floodplain. Ultimately the Main Facility will be developed at an elevation above the 500-year floodplain in order to comply with the NJ TRANSIT DFE. As indicated in Figures 12-7 through 12-12, segments of Project Components B, C, D, E, F, and G are located within regulated floodplains with FEMA defined BFEs.

Cedar Creek Marsh South is approximately 29 acres in size and is 0.35% of the overall 8,400 acres of wetland/water found in the Meadowlands District and managed by the NJSEA. Construction of the new Kearny Substation proposed under Preferred Alternative Project Component D will impact 5.9% of the area of Cedar Creek Marsh South, and 0.02% of the area of the Meadowlands that is available for floodplain uses. Tidal floodplains are unrestricted in nature, governed by oceanic tidal ebb and flow. Displaced waters from small filled areas are absorbed by the ocean (unrestricted), in contrast to filling areas within a freshwater pond or lake that has limited storage capacity. Because the proposed work would take place in a tidally influenced floodplain, constructing the Preferred Alternative Project Component D, which would impact up to 1.7 acres for the new Kearny Substation foundation on piers and the installation of a new monopole would not cause significant floodplain impacts or loss of flood storage capacity. The new Kearny Substation will be constructed at an elevation above the 500-year floodplain. The proposed development within Cedar Creek Marsh South would require a NJDEP FHA Individual Permit and FHA Verification.

Additionally, Project Component E is not anticipated to negatively impact the floodplain or floodway of the Hackensack River. For the preferred design option, the electrical lines would be installed on new monopoles 50 feet north of the Lower Hack Bridge, which would not impact any floodplain function. If this option is not possible, it could be alternately installed across the Hackensack River as either a submarine cable or directionally drilled under the river bottom or using a combined method. No reduction in river flood storage capacity or floodplains would occur for either of these alternatives. As required project design and permit applications will be prepared to meet the performance standards for stormwater management measures required by rules pursuant to the Flood Hazard Area Control Act, 58

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N.J.S.A. § 16A-50 et seq.; the Coastal Area Facility Review Act, 13 N.J.S.A. § 19-1 et seq.; the Wetlands Act of 1970, 13 N.J.S.A. § 9A-1 et seq.; the Waterfront Development Law, 12 N.J.S.A. § 5-3; and the Freshwater Wetlands Protection Act, 13 N.J.S.A. § 9B-1 et seq.

All Project Components that would require the placement of fill in the floodplain will be designed to adhere to floodplain regulations. Additionally, there would not be an increased probability for loss of human life; there would not be an increased probability for future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility; nor would there be a notable adverse impact on natural and beneficial floodplain values.

Riparian Zones

The northern boundary of Preferred Alternative Project Component A and Project Component E at the Hackensack River crossing are the only project elements that could intercept the 50-foot riparian zone associated with the Hackensack River. At Preferred Alternative Project Component A only the two stormwater outfalls will be constructed within the portions of the riparian zone; however, this portion is devoid of vegetation and consists of PDM. Therefore, no riparian mitigation for this aspect of Preferred Alternative Project Component A is required. Under Preferred Alternative Project Component E, the electrical line would be installed on new monopoles 50 feet north of the Lower Hack Bridge and would not impact the riparian zone. If this is not possible, and directional drilling or submarine cable installation is required, the entrance and end point of the directional drill for either the fully directionally drilled option or the submarine cable installation would require excavation and post-construction backfilling, temporarily impacting the already altered and developed 50-foot riparian zone and will not require mitigation since no vegetation will be cleared. Pre-construction restoration activities are anticipated to be completed in these work areas once cable installation is complete, and no permanent impacts to the riparian zone would occur as part of this Project. No elements of Preferred Alternative Project Components A, B, C, D, E, or F are expected to intercept the 50-foot riparian zones associated with the Passaic or Hudson Rivers. Preferred Alternative Project Component G would only intersect the riparian zone of the Hudson River (50-foot zone) where the HBLR line connects with Hoboken Terminal along the existing HBLR crossing bridge structure. The riparian zone in this area is highly developed by the Hoboken Terminal and Rail Yard, with no existing vegetation. While this section of the HBLR is included for analysis in this DEIS, the design of the electrical line bypasses this riparian zone. Riparian mitigation would be addressed during the permitting phase, in the unlikely event new monopoles are necessary within this riparian zone.

Coastal Zone

No impacts to the Upper WFD Zone are proposed as part of this Project, as the majority of the Project is within the Meadowlands District Boundary, and for areas outside the Meadowlands District, work is proposed over 500 feet away from the mean high tide, or within an existing rail ballast. Pursuant to the Coastal Zone Management Rules (7 N.J.A.C. § 7 [2019]), the Upper WFD Zone ceases at railroads, and as the work is proposed on an existing railroad, it is not within the Upper WFD Zone.

The proposed outfalls are the only feature of this Project that will impact the In-Water WFD Zone. However, these impacts will be temporary, as the outfall will be installed in an existing bulkhead lining the Hackensack River, and no fill in the form of riprap, or dredging will be required for installation. BMPs will be implemented throughout the outfall installation to prevent sediment migration downstream.

Tidal and Freshwater Wetlands, Vegetation and Wildlife

Project elements that will impact wetlands, vegetation or wildlife include the proposed access road to Preferred Alternative Project Component A (0.1 acres of wetlands), the natural gas pipeline extension (connecting Preferred Alternative Project Components A and B) (0.1 acres of wetlands), the installation of Preferred Alternative Project Component D in open waters of Cedar Creek Marsh South (up to 1.7 acres of open water/wetlands), and the potential need for the installation of a submarine cable along the bottom of the Hackensack River as part of Project Component E (0.1 acres of wetlands), see Figure 12-3. It should be noted that this is not the Preferred Alternative for crossing the Hackensack River (Preferred Alternative is aerial crossing) but the 0.1 acres of wetland impacts is included in this analysis. As shown on Figure 12-1, approximately 0.1 acres of field verified fragmented wetlands located along the edge of the Morris & Essex Line will be impacted where the proposed access road will be constructed and 0.1 acres of wetlands where the gas pipeline is proposed to be constructed, running directly parallel to the existing rail line.

As indicated above, for Preferred Alternative Project Component D, the new Kearny Substation would require construction of a concrete pad on piers or the placement of fill and construction of the new monopole foundation, covering an area of approximately 1.7 acres in Cedar Creek Marsh South. Cedar Creek Marsh South is vegetated with invasive species, limited to the perimeter of the water area. These invasive species are not ideal vegetation for foraging for native fauna. While the installation of the monopole will affect 0.1 acres in Cedar Creek Marsh South, existing lattice towers and foundations located in the open waters of Cedar Creek Marsh South will be removed.

As stated in Chapter 3, "Land Use, Zoning, and Public Policy," the Project area is located within the New Jersey Meadowlands District – an area of approximately 19,730 acres (32 square miles) in Bergen and Hudson Counties, of which approximately 8,400 acres (13 square miles) are wetlands, waterways, and open space (NJMC 2007). While up to 1.7 acres of wetlands and open water in Cedar Creek Marsh South required for the new Kearny Substation and the monopole would be filled and removed from availability as habitat, it would not comprise a substantial percentage of the Meadowlands wetlands and would not adversely impact the overall habitat quality of the Meadowlands marshes. Cedar Creek Marsh South is approximately 29 acres in size and is 0.35% of the overall 8,400 acres of wetland/water acres found in the Meadowlands and managed by the NJSEA. Filling actions proposed under Preferred Alternative Project Component D will impact 5.9% of waters in Cedar Creek Marsh South.

Project Component E could potentially require disturbances to waters of the United States, as regulated by the USACE, if the aerial crossing is not possible, and the submarine cable installation method is utilized. Under this method, 0.1 acres of the Hackensack River channel bed crossing from Kearny to Jersey City would be disturbed but would be expected to rapidly return to normal sedimentation. No wetlands were identified within the boundaries of Preferred Alternative Project Components C and F. Likewise, Preferred Alternative Project Component G would not result in any adverse impacts to wetlands or wildlife in the Project area, as the Project area is heavily developed, and proposed activities will take place within the developed transportation right-of-way.

As discussed in Section 12.3.3, the wetlands onsite have limited function as a natural barrier due to their fragmented nature. Also, due to the isolated nature of the wetland areas, the capacity to hold stormwater or floodwaters and to filter debris and soils is limited. As such, the proposed activities onsite, specifically the construction and operation of Preferred Alternative Project Component A, are not anticipated to significantly adversely impact the surrounding environment. Although this small portion of the Marsh will be permanently impacted, the USFWS and NJDEP listed species can temporarily rely on the larger complex during construction. The Bald eagle is known to inhabit the shores of the Hackensack River in the Project area. However, according to the 2018 NJDEP Bald Eagle Project report, only one breeding pair was identified in Kearny, and the hatchling survival was unsuccessful. As such, the area is largely uninhabited by the Bald eagle. Furthermore, 32 Bald eagles were recovered by the NJDEP in 2018. Of the 32, 6 died due to electrocution, 2 were hit by trains and 1 impacted wires.

Once construction is completed, these species may resume normal functions on this Marsh area for foraging. No nesting habitat is anticipated recorded or observed at this location, as there are no canopy trees present. During construction it is anticipated that avian species that use existing high voltage electrical wires, monopoles and towers will vacate the area once pre-construction and construction activities begin. Upon the completion of construction, the installed high voltage wires and monopoles will remain consistent with the current conditions of the site. The FTA recognizes the possibility of insignificant and discountable take of endangered birds should they choose to rest on high voltage power lines, which could result in life threatening injuries to the individual bird.

Any negative impacts will be compensated for within the upper Meadowlands District, where functional and contiguous tidally connected wetlands/habitat are located, and the compensation contributions would have greater benefit to wildlife and people. The impacts of the activities proposed within the open waters of Cedar Creek Marsh South will be partially compensated for in-kind, through the demolition of existing lattice towers and sub-structure which is anticipated to result in a "no net loss" by restoring its function as a water resource. However, the existing Amtrak Substation No. 41 pad will not be removed. No permanent impact to the marsh's functionality would occur upon completion of the proposed Project. As indicated in Chapter 17 "Construction Effects," standard cut and cover installation methods would be used to install the natural gas pipeline, and the water and sewer extensions/connections in all areas where there are no wetlands present. Directional drilling would be used to install natural gas pipelines and utility extensions/ connections where wetlands have been field delineated. As a result, the field verified wetlands in the proposed Project area would not be disturbed.

Vegetation within the proposed Project area is limited to the field-verified wetlands, which would not be disturbed as a result of the proposed Project's implementation since directional drilling would be used to install the natural gas pipeline and other site utilities. As indicated above, the wetlands in the proposed Project area are not conducive to supporting wildlife, including threatened and endangered species, or

their habitat, due to their low resource value and proximity to active rail lines. As a result, impacts to avian and terrestrial species, including bald eagle and other birds protected by the MBTA and BGEPA, would not be anticipated to result from the proposed Project's implementation.

Additionally, per consultation with the USFWS, NMFS, and NJDEP NHP, no marine threatened and endangered species other than shortnose sturgeon (see Table 12-2) are identified to be within the Project area, therefore, as the installation of the submarine cable will adhere to the applicable timing restrictions, no impacts to threatened or endangered marine species are anticipated. NOAA has also identified the portion of the Hackensack River where the submarine cable is potentially to be installed as an EFH for the summer flounder. Consultation with NOAA was initiated to determine if an EFH study is applicable for submarine cable placement, since it would displace a small portion of EFH (less than 2,000 square feet). However, if the aerial crossing is used, there will be no impacts to EFH. Also, if the submarine cable were to be installed using directional drilling methods and would lie underneath the bottom of the Hackensack channel, no permanent impacts to the river or the habitat would be anticipated. Furthermore, soil erosion and sediment control measures will be in place during construction to prevent sediment migration downstream, including turbidity booms and silt curtains. Consultation with NOAA on October 24, 2018, resulted in NOAA agreeing that the Project would not adversely impact EFH for summer flounder, and EFH for winter flounder and anadromous fishes would be avoided, provided the January through June EFH timing restriction is adhered to during construction, and soil migration downstream is minimized by using BMPs. NOAA also stated that their final determination on the need for an EFH assessment would occur during the agency review of the USACE's Section 10/404 Individual Permit. Please see Appendix F for a log of this consultation phone call.

12.5 SUMMARY OF SIGNIFICANT ADVERSE IMPACTS AND MITIGATION MEASURES

Watercourses / Water Quality / Sole Source Aquifer

No significant adverse impacts to the Hackensack River are anticipated due to the Project activities. The preferred option to cross the Hackensack River is to use an aerial route via two new monopoles. If a submarine cable is used, the probable impacts are dependent on the chosen installation option (i.e., river bottom or directional drilling). However, soil erosion and sediment control measures will be in place throughout the installation phase, no matter which installation option is chosen. Additionally, EFH areas identified onsite will not be impacted, as the Project will coordinate the installation phase to be outside of the NFMS timing restriction window, which is anticipated to be between January and June. Preferred Alternative Project Components A, B, C, D, F, and G will not impact any stream channels or their associated water quality. There are also no sole source aquifers located within the Project area. Additionally, foundation piles will be driven with double/multi-casing wall for protection against sediment migration to avoid groundwater contamination migration during construction, and water pumps will be used to ensure no groundwater runoff will occur while drilling. No significant adverse impacts to groundwater are anticipated due to the Project activities.

Floodplain and Coastal Zone

Pursuant to the FHA Control Act Rules (7 N.J.A.C. § 13), the proposed work in a tidally influenced floodplain will not cause significant floodplain impacts or loss of flood storage capacity. Even still, the Project will require a NJDEP FHA Individual Permit and FHA Verification, as work is proposed within the floodplains of the Hackensack, Passaic and Hudson Rivers, all of which are tidally influenced at the Project locations.

Executive Order 11988- Floodplain Management

Executive Order 11988- Floodplain Management, 42 Fed Reg 26951 (issued May 24, 1977) was issued to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains as well as avoidance of direct or indirect support of floodplain development. The proposed Project includes work within tidally influenced floodplains and must ensure compliance with local, state and federal regulations to avoid adverse impacts. Below is a summary of how the project activities meet compliance with the applicable Sections of EO 11988.

Section 1

As stated in Chapter 1, "Purpose and Need," the proposed Project by NJ TRANSIT and FTA is in direct response to Superstorm Sandy and is a public transportation resilience project that will enhance the resiliency of the electrical supply to existing NJ TRANSIT and Amtrak infrastructure that will minimize public transportation disruptions during future severe weather events. The public transportation infrastructure that would be enhanced from the proposed Project connects Manhattan with northern New Jersey across the Hudson River. During Superstorm Sandy, power outages caused by the severe weather impacted NJ TRANSIT's light rail, bus service and commuter rail, as well as ferry services in the region. As public transportation services remained disrupted for a prolonged period after the storm, with full service not being restored until 34 days after the storm. The purpose of the proposed Project is to enhance the region's public transportation resiliency for future storm events so the public safety, health and welfare is upheld.

Section 2

Further discussed in Section 12.3.2 of this Chapter, the majority of the Project area is located within the FEMA-identified tidally-influenced floodplains of the Passaic, Hackensack and Hudson Rivers, as shown on Figures 12-7 to 12-12, which varies in flood elevations from +9.0 to+16.0 feet NAVD88. The floodplain is sourced by and recedes back into the Newark Bay and ultimately the Atlantic Ocean, and has an almost infinite floodwater storage capacity. As such, the construction activities outlined in Chapter 2, "Project Alternatives," will not impact the local or regional storage capacity.

In addition to not impacting the floodplain or the surrounding region's floodwater storage capacity, in Chapter 2, "Project Alternatives," a detailed alternatives analysis was performed for the Project. While the proposed Project's transmission lines and substations are located within existing utility rights-of-way or heavily developed areas, and therefore no feasible alternatives were possible, the Main Facility site required a detailed siting analysis. Twenty-one parcels on the Kearny Peninsula were evaluated based on

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siting criteria that considered the existence of current land uses on the site and how well each site would facilitate the Build Alternative, as well as proximity to existing substations and power lines, natural gas supply lines, the site's ability to reduce the need to construct electrical lines in or above open waterways or wetlands and construction, schedule and environmental review and permitting risks. The Kearny site located in the central portion of the peninsula was selected as the preferred site because it fulfilled all

Section 3

aspects of the siting criteria.

The NEPA process, NJDEP and USACE regulatory permitting processes all include a public review and comment period, during which other local, state and federal agencies, as well as the general public may review the proposed Project activities and submit questions and/or comments. Additionally, the design will comply with the state of New Jersey's Uniform Construction Code (NJ UCC), the NJDEP's Stormwater Management Rule standards, and the NJDEP FHA Rules, ultimately complying with the National Flood Insurance Program standards to the maximum extent practicable. Further floodproofing measures will include elevating structures, transmission lines, substations and other utility buildings above the FEMA-identified BFE. Due to previous remedial activities conducted at the location of Preferred Alternative Project Components A and B, the site elevation has been elevated with processed dredge material (PDM) about the NJDEP FHA, FEMA and NJ UCC elevation requirements.

Section 4

Section 4 of the Floodplain Management EO 11988 is not applicable to the proposed Project as there will be no financial transactions to or with any private parties.

Section 5

FTA as agency has coordinated compliance with CEQ and the Water Resource Council regarding procedures in complying with this Order.

Section 6

Section 6 of EO 11988 provides definitions for specific terms set in the Executive Order. As such, there are no actions needed to be taken to ensure the Project complies with EO 11988.

Section 7

Section 7 of EO 11988 revokes EO 11296. As such, there are no actions needed to be taken to ensure the Project complies with EO 11988.

Section 8

The proposed Project is not being conducted as part of emergency work to save lives, protect property and provide public health and safety, performed pursuant to Sections 305 and 306 of the Disaster Relief Act of 1974

Section 9

The proposed Project is not covered under Section 104 (h) of the Housing and Community Development Act of 1974. The proposed Project evaluated under this EIS and subject applicant assumes the responsibilities associated with the environmental review process pursuant to the National Environmental Policy Act (NEPA) of 1969.

Riparian Zones

Project Component E is the only project element expected to temporarily impact the 50-foot riparian zone adjacent to the Hackensack River if the preferred option of aerial crossing north of the Lower Hack Bridge cannot be used. As discussed, the potential directional drilling entrance and endpoints will both require excavation within the riparian zone. No other project elements are expected to impact the 50-foot riparian zones adjacent to the Passaic, Hackensack, and Hudson Rivers.

Coastal Zone

No impacts to the Upper WFD Zone are anticipated as part of the proposed Project. However, temporary impacts to the In-Water WFD Zone are anticipated as part of the stormwater outfall installation in Preferred Alternative Project Component A. BMPs will be maintained throughout construction to minimize sediment migration downstream.

Tidal and Freshwater Wetlands, Vegetation and Wildlife

As regulated by the USACE, the wetland/waters impacts, which would be up to two acres, would require compensatory mitigation (Table 12-3), and would be addressed in accordance with federal and state wetland mitigation guidelines at a replacement ratio of 1 acre impact to 1 credit (1:1). Wetland mitigation bank credit purchase is a federal and state authorized method of compensation to achieve a "no net loss" of wetland/water resources for this watershed management area and resources to be impacted under the proposed project footprint. Federal and state authorized wetland bank credit providers exist and can service the proposed Project's watershed. If needed, riparian mitigation will also be addressed during the permitting phase and coordinated with NJDEP for the appropriate mitigation approach.

Project Component	Impact Acreage	
Preferred Alternative Project Component A	0.1 acres of wetlands	
Preferred Alternative Project Component B	0.1 acres of wetlands	
Preferred Alternative Project Component C	None	
Preferred Alternative Project Component D	1.7 acres of waters of the United States	
Project Component E*	0.1 acres of waters of the United States	
Preferred Alternative Project Component F	None	
Preferred Alternative Project Component G	None	
Total	2 acres	

Table 12-3 Wetland and Waters of the United States Impacts Summary

*Note that the Preferred Alternative for Project Component E will not impact wetlands or waters of the United States

Any temporary wetland impacts due to construction staging, and any permanent wetland disturbances and loss of ecological function, would be mitigated through the purchase of wetland mitigation bank credits. Outlined at 40 C.F.R. § 230 [2008] - Compensatory Mitigation for Losses of Aquatic Resources, mitigation via credit purchase is the preferred method for completing mitigation requirements. As the proposed activities are located in the Watershed Management Area No. 5 - Hackensack, Hudson and Pascack, and the Hydraulic Unit Code (HUC) No. 30103180, the servicing state and federally approved mitigation banks are the Kane Mitigation Bank for transportation activities within the Meadowlands District, and MRI-3 for transportation activities outside the Meadowlands District. This compensatory mitigation alternative will be coordinated with the USACE and the Interagency Review Team (IRT) that oversees wetland impacts and proposed mitigation for wetland resources located in the Meadowlands District. Mitigation credit purchase will provide a "no net loss" through the purchase of wetland credits released for sale based on the restoration and establishment of wetland functions and native wetland vegetation. Wetland credit purchase is assumed to be estimated, equivalence of 1 credit is equal to 2.4 acres of restored high value functional wetlands. Although up to two acres of low value isolated wetlands will be eliminated by the Build Alternative, through mitigation, the project will support the restoration of up to five acres of high value, functional wetlands within a contiguous tidal marsh and aquatic nursery. Based on the current wetland Mitigation Bank Inventory (MBI) ledger the Kane Mitigation Bank has 24.55 credits available, and MRI-3 Mitigation Bank has 7.89 credits available.

In addition, NJ TRANSIT will procure the necessary permits and adhere to all relevant permit conditions that apply to the protection of natural resources to mitigate the potential for significant adverse effects. These include the:

- NJPDES Permit for the discharge of water directly into the Hackensack River channel;
- NJDEP FHA Individual Permit and FHA Verification for the proposed fill and development activities within the floodplain associated with the Hackensack River;
- NJDEP Waterfront Development In-Water Individual Permit for activities located within the In-Water WFD Zone below the MHW line of the Hackensack River;
- Water Quality Certificate for the disturbances proposed within waters of the United States and wetlands; and
- USACE Section 10/404 Individual Permit for the proposed wetland and navigable water disturbances and fill activities proposed.