Environmental Impact Statement

In-Water Waterfront Development Permit Application

October 12, 2023

Queensboro Renewable Express Benthic and Sediment Sampling

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1.0 Introduction

Queensboro Development, LLC, ("Queensboro" or "the Applicant") a wholly owned indirect subsidiary of Rise Light & Power, LLC, is submitting an In-Water Waterfront Development Individual Permit Application to the New Jersey Department of Environmental Protection ("NJDEP") for authorization to conduct benthic and sediment sampling activities in waters of the State of New Jersey ("waters of the State") to characterize marine sediments. The purpose of the benthic and sediment sampling is to support design and permitting of the Queensboro Renewable Express, a ±400 kilovolt submarine cable facility, designed to deliver approximately 2.62 gigawatts of wind energy generated in Bureau of Ocean Energy Management ("BOEM") Lease Area(s) located in the federal waters of the Outer Continental Shelf into NYISO Zone J at the site of the Ravenswood Generating Facility in Long Island City, New York .

TRC prepared this Environmental Impact Statement in accordance with N.J.A.C. 7:7-23.6(b) to describe: A. the proposed development or activity; B. the characteristics of the site and the surrounding region; C. the location of all proposed regulated activities, potential impacts from the construction process, and, as applicable the operation of the development after completion; and D. Any anticipated impacts of the proposed activity or project, including any monitoring or reporting methods that will be used.

Included in this report is a description of the proposed benthic and sediment sampling protocols, characteristics of the site and surrounding region, and the location and potential impacts of the regulated activities, and applicability of the relevant Coastal Zone Management rules. USGS quad maps, tax maps, and county road maps including the Sampling Areas are provided in Figures 2, 3, and 4. Site Plans are included in this submittal as Attachment A. The following have been submitted electronically through the NJDEP Online submission system:

- Property Owner Certification Form
- Public Notice Form
- Application Fee
- Color photographs and photo location map
- Maps as noted above
- NJ Natural Heritage Program Letter

Submittal of calculations and analyses are not required, as the proposed benthic and sediment sampling is not a major development as defined by N.J.A.C. 7:8-1.2. Additionally, a mitigation proposal is not required, as the proposed sampling does not require mitigation. Similarly, additional submittals (conservation restriction, tidelands license application, traffic impact study, etc.) are not applicable to the proposed benthic and sediment sampling.

2.0 The Proposed Activity

Queensboro Development is submitting an In-Water Waterfront Development Individual Permit Application to the New Jersey Department of Environmental Protection (NJDEP) for authorization to conduct benthic and sediment sampling activities in New Jersey State waters to characterize marine sediments. The purpose of the benthic and sediment sampling is to support design and

permitting of the Queensboro Renewable Express, a ±400 kilovolt submarine cable facility, designed to deliver approximately 2.62 gigawatts of wind energy generated in Bureau of Ocean Energy Management (BOEM) Lease Area(s) located in the federal waters of the Outer Continental Shelf into NYISO Zone J at the site of the Ravenswood Generating Facility in New York City.

3.0 Characteristics of the Area in Which the Sampling Will Take Place and the Surrounding Region

This section provides a description of the physical setting and sediment and water quality characteristics within the proposed Sampling Areas in waters of the State. The proposed activities within waters of the State will take place in Upper New York Bay offshore of Jersey City and Bayonne in Hudson County and in Lower New York Bay and the Atlantic Ocean offshore of Middletown and Atlantic Highlands in Monmouth County.

The northern of the two Sampling Areas is located entirely within Upper New York Bay. Upper New York Bay lies between The Narrows and The Battery. The main passage through the bay is Anchorage Channel, a 2,000-foot wide Federal Navigation Channel ("FNP") with an Authorized Channel Depth of -45 feet MLLW. Other FNP channels within New York State jurisdictional boundaries include Bay Ridge Channel, Buttermilk Channel, and the Red Hook Channel, with Authorized Channel Depths between -35 and -45 feet at MLLW. FNP anchorages are located between the various FNP channels in Upper New York Bay.

The southern Sampling Area is located partially in Lower New York Bay and partially in the Atlantic Ocean, which encompasses the area seaward of Sandy Hook into the federal waters of the Outer Continental Shelf. Lower New York Bay extends from Sandy Hook westward to the Raritan River and north to The Narrows. The primary channel used to navigate this area is the Ambrose Channel FNP, which later joins the Anchorage Channel FNP leading through the Upper Bay to The Battery. Other FNPs include Sandy Hook, Chapel Hill, and Swash Channels. These channels range in depth from -45 feet MLLW to deep water. FNP anchorages are located to the east and west of Ambrose Channel FNP, with the Gravesend Anchorage FNP on the east side of the Lower Bay being the most likely to be used by large vessels.

3.1 Water Depth

Charted seabed elevations in the Sampling Areas are approximately 30 to 50 feet relative to NAVD88 (33 to 53 feet relative to MLLW) in the Upper Bay and 20 to 30 feet NAVD88 (23 to 33 feet relative to MLLW) in the Lower Bay. Deeper water depths are found in well-defined channels and shallower water depths are found near the shorelines and in shoal areas.

3.2 Hydrodynamics

The hydrodynamics in the Sampling Areas are mostly driven by tides, tidal currents, and estuarine circulation. Other factors that play a smaller role are wind-driven currents and freshets (freshwater flow) from the Hudson River.

The tides in the Sampling Areas are semi-diurnal (i.e., two tidal cycles per day). These tides are primarily affected by freshets, winds, and droughts. Freshets occur during the spring when tidal oscillations diminish, and times of high and low waters are delayed. National Oceanic and

Atmospheric Administration ("NOAA") tide station 8518750 is located at The Battery where the mean range of tide from mean high water ("MHW") to MLW is 4.53 feet. Tide station 8531680 is located at Sandy Hook, New Jersey where the mean range of tide is 4.7 ft.

NOAA has numerous tidal current prediction stations in the New York Harbor area. Data from these stations was used to estimate the average maximum predicted flood and ebb current velocities for 2020 (NOAA 2022). Towards the center of the Upper New York Bay, at Red Hook, the average flood and ebb currents are estimated to be 1.3 and 2.3 knots, respectively. In Lower New York Bay near Sandy Hook, the average flood and ebb currents are 1.0 to 1.5 knots and 1.2 to 1.7 knots, respectively.

3.3 Water Quality

New York Harbor represents the primary throughway of maritime shipping and petroleum distribution for the area. True to its use as an industrial port, and the immediate proximity to major metropolitan areas, sediment quality is degraded in many areas by industrial pollutants. Point and nonpoint sources, such as combined sewer overflows, industrial use of waterways, and urban stormwater runoff loads nutrients, sediment, and contaminants to the region's waters. Common contaminants of concern in the Sampling Areas include heavy metals, pesticides, polycyclic aromatic hydrocarbons ("PAHs"), polychlorinated biphenyls ("PCBs"), and dioxins/furans. Contamination levels are most elevated in the western portion of the New York Harbor system, as well as Upper New York Bay and the East River (Douglas et al. 2005). New Jersey Surface Water Quality Standards classify Upper New York Bay (listed as Hudson River) as SE2 waters, suitable for maintenance, migration and propagation of the natural and established biota; migration of diadromous fish; maintenance of wildlife; and secondary contact recreation. Lower New York Bay and the Atlantic Ocean in New Jersey State Waters are not listed specifically, but nearby portions of Raritan Bay are classified as SE1 waters, suitable for shellfish harvesting; maintenance, migration and propagation of the natural and established biota; and primary contact recreation. (N.J.A.C. 7:9B).

3.4 Sediment Type and Transport

Ambient suspended sediment concentrations are influenced by several factors, including current velocity, direction of flow, water depth, freshwater flows, tidal cycles, and episodic storm events. Freshwater flow carries suspended sediment towards the Upper New York Bay from the watershed. Tides can resuspend deposited sediment from the Upper and Lower New York Bay.

A study published in 2016 (Coch 2016), described the geologic setting for the Sampling Areas and outlined the likely origin of sediment and distribution of sediment types in Upper New York Bay and Lower New York Bay. Geologically, the Sampling Areas are bounded by Triassic rocks in New Jersey and Staten Island, by high-grade metamorphic rocks in New York City, and Precambrian and Cambro-Ordovician rocks of the New York City Series on Long Island. Pleistocene glacial deposits overlie these rocks in inland areas. The Harbor Hill terminal moraine, which extended across what is presently The Narrows, was breached to create Upper New York Bay. The resulting valley north of the moraine was then filled with fluvial and estuarine sediments as sea level rose to present levels. The study determined that relict coarse sediment from the East River, which has historically been deposited in Upper New York Bay, is now moving north along the east side of the Hudson River due to flood dominated current conditions. Silty sediments moving south from the Lower Hudson River are moving along the west side of northern Upper

New York Bay and around the Red Hook Anchorage towards Gowanus Bay by ebb dominated current conditions. In the central and western sides of Upper New York Bay and the western side of The Narrows and Lower New York Bay, a mixture of silts from the Hudson River and sands from offshore are moving south due to ebb dominated current conditions. In Lower New York Bay, the east side of The Narrows, and east side of Upper New York Bay, ocean derived sands and gravelly sands are moving north due to a net landward nontidal drift.

Figure 5, below, shows the sediment-dispersal system in Upper New York Bay, Lower New York Bay, and the portion of the Atlantic Ocean within the Sampling Areas, as inferred by Coch (2016).

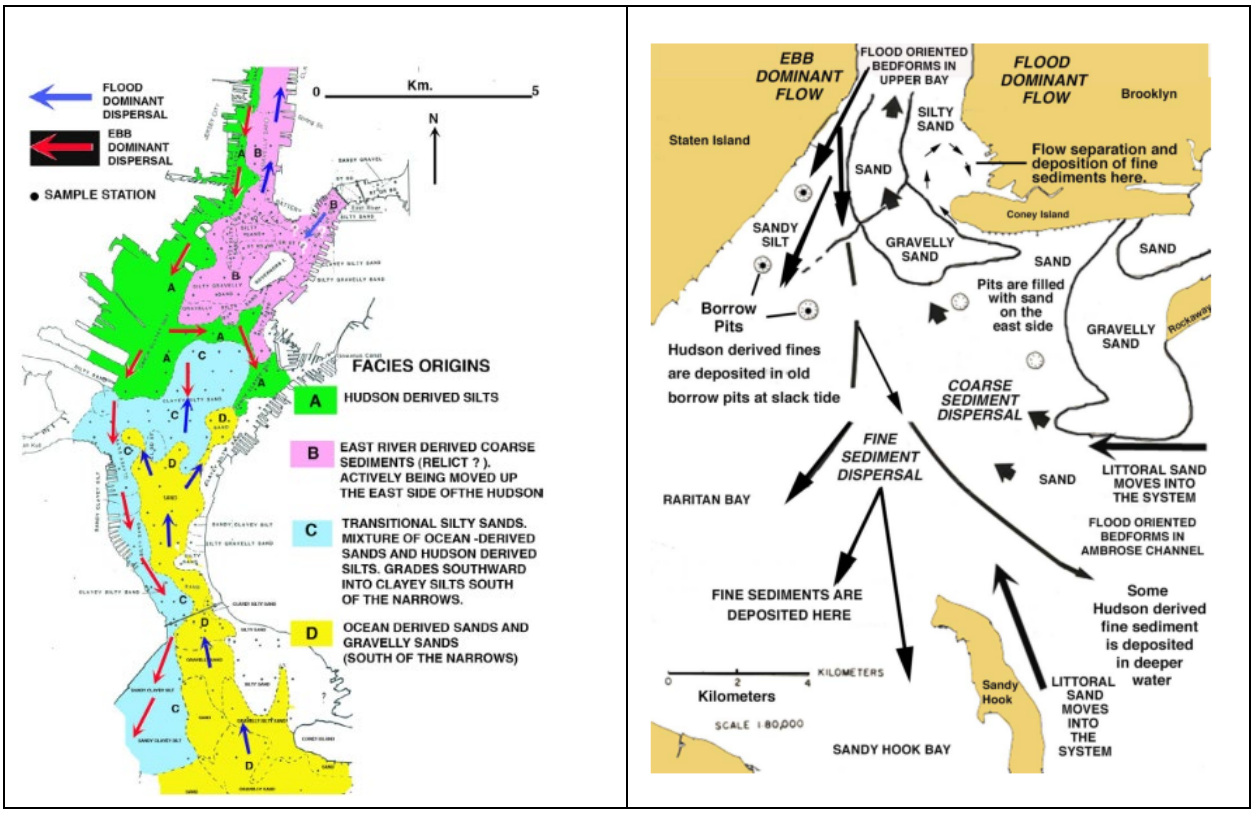


Figure 5. Inferred Sediment-Dispersal Systems in Upper New York Bay and Lower New York Bay (Coch 2016)

3.5 Seafloor Hazards

A variety of natural and anthropogenic seabed features are likely to be present in the Sampling Areas and may affect the proposed benthic and sediment sampling. Natural hazards may include ridges, channels, mobile seabed forms (e.g., sand waves), boulders, and exposed bedrock or hard bottom substrate. Anthropogenic hazards include wrecks, buried or bottom-laid infrastructure (cables and pipelines), artificial reefs, and other debris.

3.6 Threatened and Endangered Species and Habitats

On August 31, 2023, a New Jersey Natural Heritage Program ("NJNHP") database search request was submitted for the Sampling Areas. The result of the NJNHP review, received on September 23, 2023, indicates that the Sampling Areas are located either in potential habitat for or near previously recorded occurrences of several state and federally listed endangered or threatened species (see Appendix A for copies of correspondence with the NJNHP). The species identified by the NJNHP are listed in Table 3.1, with New Jersey Landscape Project maps shown in Figure 6.

Table 3.1. Endangered and Threatened Species with Identified Habitats in the Marine Sampling Areas

Wildlife Category	Common Name	Scientific Name	Federal Status*	State Status*	Habitat Presence within the Sampling Area	
					Lower New York Bay and Atlantic Ocean	Upper New York Bay
Birds	Black skimmer	*Rynchops niger*	-	E	•	
	Black-crowned night-heron	*Nycticorax nycticorax*	-	T	•	•
	Least tern	*Sternula antillarum*	-	E	•	
	Roseate tern	*Sterna dougallii*	E	E	•	
	Osprey	*Pandion haliaetus*	-	T	•	
	Peregrine falcon	*Falco peregrinus*	-	E		•
Whales	Fin whale	*Balaenoptera physalus*	E	E	•	
	Humpback whale	*Megaptera novaeangliae*	-	E	•	
	North Atlantic right whale	*Eubalaena glacialis*	E	E	•	
Fish	Atlantic sturgeon	*Acipenser oxyrinchus*	E	E		•
	Shortnose sturgeon	*Acipenser brevirostrum*	E	E		•

*E: Endangered, T: Threatened, -: not listed

An Endangered or Threatened Wildlife Species Habitat Impact Assessment for the activities covered by this Environmental Impact Statement is provided in Appendix B. The Assessment includes life history characteristics and habitat usage information for the species listed above.

4.0 Location of the Proposed Sampling

The Applicant proposes to conduct benthic and sediment sampling within waters of the State to characterize marine sediments to support design and permitting of the Queensboro Renewable Express. The benthic and sediment sampling investigations will be conducted in two distinct areas in waters of the State, each referred to as a "Sampling Area" (Figure 1):

1. Lower New York Bay and Atlantic Ocean Sampling Area – Ten benthic grab samples, ten sediment vibracore samples, and five geothermal vibracore samples will be collected in an approximately 6.0-mile-long, 360-acre area located in Lower New York Bay and the Atlantic Ocean offshore of Middletown and Atlantic Highlands in Monmouth County. The Applicant has not previously conducted sampling in the Sampling Area in support of design and permitting of the Queensboro Renewable Express.
2. Upper New York Bay Sampling Area – Three sediment vibracore samples and one geothermal vibracore sample will be collected within an approximately 3.6-mile-long, 132-acre area located in Upper New York Bay offshore of Bayonne and Jersey City in Hudson County. The Applicant previously conducted surveys in this Sampling Area in 2021 and 2022 in support of design and permitting of the Queensboro Renewable Express. The NJDEP authorized these surveys under Permit-by-Rule No. 20 (N.J.A.C. 7:7-4.20) and an approved Sediment Sampling and Analysis Plan ("SSAP", NJDEP File No.: 0000-21-0013.1 DRG210001). The proposed benthic and sediment sampling activities in this Sampling Area are supplementary to the previous survey campaign.

The benthic grab samples and vibracore samples will be conducted at targeted locations within the Sampling Areas. Sample locations may be adjusted slightly within the Sampling Areas to avoid seabed features identified during geophysical survey activities; therefore, Queensboro is requesting approval to collect sediment samples within the Sampling Areas depicted in Figure 1, rather than at specific locations. Prior to commencement of sampling activities, geophysical survey data will be reviewed, and sample locations will be cleared by a Qualified Marine Archaeologist ("QMA") to avoid impacts to potential submerged historic or archaeological resources. Each location will also be cleared through New Jersey One Call.

5.0 Benthic and Sediment Sampling Methods

The investigation will be conducted in accordance with the NJDEP "The Management and Regulation of Dredging Activities and Dredged Material Disposal in New Jersey's Tidal Waters," October 1997 ("Dredging Technical Manual") and the SSAP that describes protocols to be employed during the benthic and sediment sampling activities, which was submitted to the NJDEP Office of Dredging and Sediment Technology on May 26, 2023. The SSAP remains under review by NJDEP.

5.1 Benthic Sampling

The benthic sampling protocol includes collecting benthic habitat samples at 10 locations in waters of the State, which will be analyzed to provide an assessment of the macroinvertebrate community in this area. This sampling will include the collection of surface sediment samples using a benthic grab sampling device. The benthic sampling protocol is designed to meet National Marine Fisheries Service ("NMFS") published requirements in effect at the time of sampling.

5.2 Vibracore for Sediment and Geothermal Sampling

Vibracores for sediment sampling will be collected from 13 locations in waters of the State of New Jersey. The spacing and location of cores will be determined based on a review of existing information, previously acquired survey data specific to the proposed cable corridor, and BOEM "Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585". Sediment core sampling collection procedures will be consistent with the 2022 NJDEP Field Sampling Procedures Manual, as detailed in the SSAP currently under review.

At six of the 13 sampling locations, an additional vibracore will be collected for geothermal analysis. At these locations, a second vibracore sample will be collected adjacent to the primary vibracore sample. The second sample will be kept intact for geothermal testing.

The target vibracore penetration depth will be approximately 15 to 20 feet below the sediment-water interface. The planned penetration depths for the vibracores are based on potential cable installation depths of 15 feet below the authorized federal channel depths when within a federally maintained navigation channel and 10 feet below present bottom outside the federal channel. Over dredge sampling as specified in Chapter III, Section D(2)b. of the NJDEP Dredging Technical Manual, will not be performed in areas of proposed jet-plow installation of any future project because deeper sediments will not be exposed as a result of installation activities. Core penetrations may be completed deeper than proposed cable burial depths to evaluate cable installation feasibility and to account for future United States Army Corps of Engineers (USACE) channel deepening projects.

Vibracores will be obtained from a vessel equipped with a pneumatic vibracoring system capable of collecting standard 3.5-inch inner diameter cores (4-inch outer diameter) up to 20 feet deep below the sediment-water interface. The sediment cores will be collected to the target penetration depth or until refusal is encountered. Should refusal occur prior to reaching the target depth, the coring device will be recovered, serviced, and re-deployed at an offset station proximal to but outside the area disturbed by the first attempt for a second attempt to reach the target depth. The core with greater penetration/recovery will be maintained for sub-sampling. A second sampling attempt will be made if sediment recovery from a core that achieves target depth is less than 80% of penetration. No more than two cores will be collected at any location for chemical and physical sampling.

Cores will be processed and logged either at a designated upland facility or on the coring vessel. Details on the bulk physical and chemical sampling and testing to be performed on the vibracore samples are presented in the SSAP that was submitted to NJDEP on May 26, 2023.

6.0 Potential Impacts of the Proposed Sampling

6.1 Summary of Disturbance from Regulated Activities

Sampling activities are expected to cause minor and localized temporary impacts in the Sampling Areas. Collection of vibracores and benthic grab samples will result in total temporary disturbance of up to 0.025 acres of subtidal sediments (up to 0.02 acres in the Lower New York Bay and Atlantic Ocean Sampling Area and up to 0.005 acres in the Upper New York Bay Sampling Area, Table 6.1).

Table 6.1. Estimated Maximum Disturbance Areas Due to Benthic and Sediment Sampling Activities

Sample Type	Estimated Disturbance Per Sample (Square Feet)	Lower New York Bay and Atlantic Ocean Sampling Area			Upper New York Bay Sampling Area		
		No. Sample Locations	Square Feet	Acres	No. Sample Locations	Square Feet	Acres
Benthic Grabs	4	10	80	0.002	0	0	0
Vibracores	27	15	810	0.019	4	216	0.005
Total			**890**	**0.020**		**216**	**0.005**
Notes: Calculation of maximum disturbance area conservatively assumes two attempts per sample.							

The benthic grab sampler will result in a bottom impact of approximately 4 square feet for each grab deployed. A maximum of two attempts will occur for collection of each of the benthic grabs. The total estimated bottom impact from benthic grabs is between approximately 40 square feet (0.001 acres), assuming one attempt for all 10 grabs, and 80 square feet (0.002 acres), assuming two attempts for all 10 grabs.

Vibracore sample collection will result in a seabed impact of approximately 27 square feet for each sample collection attempt, including impacts from the vibracore stand and approximately 0.09 square feet of impacts for each 4-inch outer diameter vibracore. The total estimated seabed impact from vibracoring would be approximately 513 square feet (0.012 acres), assuming one attempt for all 19 vibracores samples, to 1,026 square feet (0.024 acres), assuming two attempts for all 19 vibracores samples.

6.2 Potential Impacts from Disturbance

Non-motile benthic organisms located with the footprint of sampling activities may suffer injury or mortality in the short term. Sensitive benthic habitats (hard bottom areas or submerged aquatic vegetation) are not present within the Sampling Areas. Therefore, impacts to benthic communities will be negligible. Disturbed soft sediment habitats within the Sampling Areas will be rapidly recolonized by benthic organisms from surrounding unimpacted areas.

Areas where sediment will be removed during sampling activities will be very limited in size (vibracore samples are four inches in diameter, benthic grab sizes vary but will be less than 2 feet square). Holes left following collection of these samples will rapidly fill in due to natural sediment repositioning and deposition as a result of tidal currents, passage of vessels, and episodic storm events.

Sediment disturbance due to sampling activities may result in negligible localized and temporary increases in suspended sediments from sampling tool contact with the bottom. Sediments disturbed due to benthic and sediment sampling activities will rapidly settle out of the water column and will have negligible to no impacts on water quality.

The benthic and sediment sampling will generate noise associated with sampling equipment deployment and vessel operation. Both Lower New York Bay and Upper New York Bay are heavily

trafficked by a wide range of vessels. Equipment noise associated with the benthic and sediment sampling activities will be negligible when compared to other vessel traffic in the area.

See Section 5 ("Regulatory Compliance Statements") for discussion of how the benthic and sediment sampling will comply with applicable regulations.

6.2.1 Potential Impacts to Threatened and Endangered Species and Habitats

The proposed benthic and sediment sampling will not negatively affect populations or habitats of the endangered or threatened wildlife species identified in Table 3.1 due to the selected location, brief duration, and winter timing of the benthic and sediment sampling. The activities may result in negligible, temporary, and very localized changes in water quality, benthic habitats, and noise levels. Impacts to individuals of listed species are expected to be negligible, and the mitigation measures listed below will be employed to further reduce the risk of impacts.

- Protected Species Observers ("PSOs") will be present on benthic and sediment sampling vessels. The role of the PSOs will be to record and report sightings of marine mammals and to ensure that mitigation measures required by NMFS under the Incidental Harassment Authorization[1] for the benthic and sediment sampling activities are implemented. These mitigation measures are expected to include vessel speed restrictions and the establishment of exclusion zones of 500 meters for North Atlantic Right Whales and 100 meters for any other protected marine species.
- Vessel operators and crews shall maintain a vigilant watch for sturgeon, and slow down or stop the vessel to avoid striking an observed sturgeon.
- Vibracore and benthic grab equipment will be lowered through the water column in a controlled manner and paused briefly before contacting the seabed to provide time for any aquatic species that may be below the equipment to move.

See the Endangered or Threatened Wildlife Species Habitat Impact Assessment for the activities covered by this EIS, provided in Appendix B, for more information.

7.0 Regulatory Compliance Statements

7.1 Introduction and Summary of Applicable Coastal Zone Rules

This Compliance Statement evaluates the applicability of the Coastal Zone Management rules at N.J.A.C. 7:7, as amended on October 5, 2021, to the benthic and sediment sampling activities in support of this In-Water Waterfront Development Individual Permit Application. Table 7.1 lists the Coastal Zone Management rules and identifies those that are applicable to the benthic and sediment sampling activities.

[1] NMFS issued an Incidental Harassment Authorization for Attentive Energy One marine site characterization surveys on June 20, 2023. Attentive Energy One is being developed by Attentive Energy, a joint venture between Rise Light & Power, LLC and TotalEnergies, a Host BOEM Lease Area leaseholder. Accordingly, Queensboro's benthic and sediment sampling activities will adhere to the requirements outlined in the Incidental Harassment Authorization.

Table 7.1 Coastal Zone Management Rules Applicability

N.J.A.C. 7:7 COASTAL ZONE MANAGEMENT RULES Date last amended: October 5, 2021	APPLICABILITY
Subchapter 1. General Provisions	-
Subchapter 2. Applicability and Activities for Which a Permit is Required	
7:7-2.1 When a permit is required	**See Compliance**
7:7-2.2 CAFRA	N/A
7:7-2.3 Coastal Wetlands	N/A
7:7-2.4 Waterfront development	**See Compliance**
7:7-2.5 Obtaining an applicability determination	N/A
Subchapter 3. General Provisions for Permits-by-rule, General Permits-by-certification and General Permits	-
Subchapter 4. Permits-by-rule	N/A
Subchapter 5. General Permits-by-certification	N/A
Subchapter 6. General Permits	N/A
Subchapter 7. Long Branch Redevelopment Zone Permit	N/A
Subchapter 8. Individual Permits	
7:7-8.1 Requirements to obtain an individual permit	**See Compliance**
7:7-8.2 Duration of an individual permit	-
7:7-8.3 Conditions applicable to an individual permit	**See Compliance**
Subchapter 9. Special Areas	
7:7-9.1 Purpose and scope	-
7:7-9.2 Shellfish habitat	**See Compliance**
7:7-9.3 Surf clam areas	**See Compliance**
7:7-9.4 Prime fishing areas	**See Compliance**
7:7-9.5 Finfish migratory pathways	**See Compliance**
7:7-9.6 Submerged vegetation habitat	**See Compliance**
7:7-9.7 Navigation channels	**See Compliance**
7:7-9.8 Canals	N/A
7:7-9.9 Inlets	N/A
7:7-9.10 Marina moorings	N/A
7:7-9.11 Ports	N/A
7:7-9.12 Submerged infrastructure routes	**See Compliance**
7:7-9.13 Shipwreck and artificial reef habitats	**See Compliance**
7:7-9.14 Wet borrow pits	N/A
7:7-9.15 Intertidal and subtidal shallows	N/A
7:7-9.16 Dunes	N/A

Table 7.1 Coastal Zone Management Rules Applicability

N.J.A.C. 7:7 COASTAL ZONE MANAGEMENT RULES Date last amended: October 5, 2021	APPLICABILITY
7:7-9.17 Overwash areas	N/A
7:7-9.18 Coastal high hazard areas	N/A
7:7-9.19 Erosion hazard areas	N/A
7:7-9.20 Barrier island corridor	N/A
7:7-9.21 Bay islands	N/A
7:7-9.22 Beaches	N/A
7:7-9.23 Filled water's edge	N/A
7:7-9.24 Existing lagoon edges	N/A
7:7-9.25 Flood hazard areas	N/A
7:7-9.26 Riparian zones	N/A
7:7-9.27 Wetlands	N/A
7:7-9.28 Wetlands buffers	N/A
7:7-9.29 Coastal bluffs	N/A
7:7-9.30 Intermittent stream corridors	N/A
7:7-9.31 Farmland conservation areas	N/A
7:7-9.32 Steep slopes	N/A
7:7-9.33 Dry borrow pits	N/A
7:7-9.34 Historic and archaeological resources	**See Compliance**
7:7-9.35 Specimen trees	N/A
7:7-9.36 Endangered or threatened wildlife or plant species habitats	**See Compliance**
7:7-9.37 Critical wildlife habitats	**See Compliance**
7:7-9.38 Public open space	N/A
7:7-9.39 Special hazard areas	N/A
7:7-9.40 Excluded Federal lands	N/A
7:7-9.41 Special urban areas	**See Compliance**
7:7-9.42 Pinelands National Reserve and Pinelands Protection Area	N/A
7:7-9.43 Meadowlands District	N/A
7:7-9.44 Wild and scenic river corridors	N/A
7:7-9.45 Geodetic control reference marks	N/A
7:7-9.46 Hudson River waterfront area	N/A
7:7-9.47 Atlantic City	N/A
7:7-9.48 Lands and waters subject to public trust rights	**See Compliance**
Subchapter 10. Standards for Beach and Dune Activities	N/A

Table 7.1 Coastal Zone Management Rules Applicability

N.J.A.C. 7:7 COASTAL ZONE MANAGEMENT RULES Date last amended: October 5, 2021	APPLICABILITY
Subchapter 11. Standards for Conducting and Reporting the Results of an Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessment and/or Endangered or Threatened Wildlife Species Habitat Evaluation	
7:7-11.1 Purpose and scope	-
7:7-11.2 Standards for conducting endangered or threatened wildlife or plant species habitat impact assessments	**See Compliance**
7:7-11.3 Standards for conducting endangered or threatened wildlife species habitat evaluations	N/A
7:7-11.4 Standards for reporting the results of impact assessments and habitat evaluations	**See Compliance**
Subchapter 12. General Water Areas	
7:7-12.1 Purpose and scope	-
7:7-12.2 Shellfish aquaculture	N/A
7:7-12.3 Boat ramps	N/A
7:7-12.4 Docks and piers for cargo and commercial fisheries	N/A
7:7-12.5 Recreational docks and piers	N/A
7:7-12.6 Maintenance dredging	N/A
7:7-12.7 New dredging	N/A
7:7-12.8 Environmental dredging	N/A
7:7-12.9 Dredged material disposal	N/A
7:7-12.10 Solid waste or sludge dumping	N/A
7:7-12.11 Filling	**See Compliance**
7:7-12.12 Mooring	N/A
7:7-12.13 Sand and gravel mining	N/A
7:7-12.14 Bridges	N/A
7:7-12.15 Submerged pipelines	N/A
7:7-12.16 Overhead transmission lines	N/A
7:7-12.17 Dams and impoundments	N/A
7:7-12.18 Outfalls and intakes	N/A
7:7-12.19 Realignment of water areas	N/A
7:7-12.20 Vertical wake or wave attenuation structures	N/A
7:7-12.21 Submerged cables	N/A
7:7-12.22 Artificial reefs	N/A
7:7-12.23 Living shorelines	N/A

Table 7.1 Coastal Zone Management Rules Applicability

N.J.A.C. 7:7 COASTAL ZONE MANAGEMENT RULES Date last amended: October 5, 2021	APPLICABILITY
7:7-12.24 Miscellaneous uses	**See Compliance**
Subchapter 13. Requirements for Impervious Cover and Vegetative Cover for General Land Areas and Certain Special Areas	N/A
Subchapter 14. General Location Rules	-
7:7-14.1 Rule on location of linear development	**See Compliance**
7:7-14.2 Basic location rule	N/A
7:7-14.3 Secondary impacts	N/A
Subchapter 15. Use Rules	
7:7-15.1 Purpose and scope	-
7:7-15.2 Housing	N/A
7:7-15.3 Resort/recreational	N/A
7:7-15.4 Energy facility	N/A
7:7-15.5 Transportation	N/A
7:7-15.6 Public facility	N/A
7:7-15.7 Industry	N/A
7:7-15.8 Mining	N/A
7:7-15.9 Port	N/A
7:7-15.10 Commercial facility	N/A
7:7-15.11 Coastal engineering	N/A
7:7-15.12 Dredged material placement on land	N/A
7:7-15.13 National defense facilities	N/A
7:7-15.14 High-rise structures	N/A
Subchapter 16. Resource Rules	
7:7-16.1 Purpose and scope	-
7:7-16.2 Marine fish and fisheries	**See Compliance**
7:7-16.3 Water quality	**See Compliance**
7:7-16.4 Surface water use	N/A
7:7-16.5 Groundwater use	N/A
7:7-16.6 Stormwater management	N/A
7:7-16.7 Vegetation	N/A
7:7-16.8 Air quality	**See Compliance**
7:7-16.9 Public access	**See Compliance**
7:7-16.10 Scenic resources and design	N/A
7:7-16.11 Buffers and compatibility of uses	N/A
7:7-16.12 Traffic	N/A

Table 7.1 Coastal Zone Management Rules Applicability

N.J.A.C. 7:7 COASTAL ZONE MANAGEMENT RULES Date last amended: October 5, 2021	APPLICABILITY
7:7-16.13 Subsurface sewage disposal systems	N/A
7:7-16.14 Solid and hazardous waste	N/A
Subchapter 17. Mitigation	**N/A**
Subchapter 18. Conservation Restrictions	**N/A**
Subchapter 19. Relaxation of Procedures; Reconsideration of Application of Rules	-
Subchapter 20. Provisional Permits	**N/A**
Subchapter 21. Emergency Authorizations	**N/A**
Subchapter 22. Pre-application Conferences	-
Subchapter 23. Application Requirements	-
Subchapter 24. Requirements for an Applicant to Provide Public Notice of an Application	-
Subchapter 25. Application Fees	-
Subchapter 26. Application Review	-
Subchapter 27. Permit Conditions; Modification, Transfer, Suspension, and Termination of Authorizations and Permits	-
7:7-27.1 Purpose and scope	-
7:7-27.2 Conditions that apply to all coastal permits	**See Compliance**
7:7-27.3 Extension of an authorization under a general permit or of a waterfront development individual permit for activities waterward of the mean high water line	-
7:7-27.4 Transfer of an emergency authorization, an authorization made under a general permit or an individual permit	-
7:7-27.5 Modification of an authorization under a general permit or an individual permit	-
7:7-27.6 Application for a modification	-
7:7-27.7 Suspension of an authorization under a general permit, an individual permit, or an emergency authorization	-
7:7-27.8 Termination of an authorization under a general permit, individual permit, or an emergency authorization	-

N/A: Not Applicable
-: No Response Necessary

7.2 Compliance Statement

7.2.1 Subchapter 2. Applicability and Activities for Which a Permit is Required

7:7-2.1 When a Permit is Required
Relevant standards applicable to the benthic and sediment sampling activities:

(a) No person shall engage in a regulated activity subject to this chapter without a coastal permit. Initiation of a regulated activity without a coastal permit is considered a violation of this chapter and shall subject the person or persons responsible for the regulated activity to enforcement action in accordance with N.J.A.C. 7:7-29.

(b) A person undertaking any regulated activity under this chapter shall do so only in accordance with:

1. *A permit-by-rule, pursuant to N.J.A.C. 7:7-3 and 4;*
2. *An authorization under a general permit-by-certification, pursuant to N.J.A.C. 7:7-3 and 5;*
3. *An authorization under a general permit, pursuant to N.J.A.C. 7:7-3 and 6;*
4. *An individual permit, pursuant to N.J.A.C. 7:7-8; or*
5. *An emergency authorization, pursuant to N.J.A.C. 7:7-21.*

Compliance:
The Applicant previously conducted benthic and sediment sampling activities in waters of the State in 2021 and 2022. These sampling activities were completed under an approved SSAP (NJDEP Permit Number 0000-21-0013.1 LUP210001, approved June 2, 2021) and Permit-by-Rule No. 20 (N.J.A.C. 7:7-4.20). During a pre-application meeting on August 29, 2023, NJDEP informed the Applicant that the benthic and sediment sampling planned in 2023 could no longer be performed under Permit by Rule No. 20, and that Queensboro must submit an application for NJDEP approval under either General Permit No. 23 (N.J.A.C. 7:7-6.23) or under a Waterfront Development Individual Permit (N.J.A.C. 7:7-8). The benthic and sediment sampling activities do not qualify for General Permit 23 - Geotechnical Survey Borings (N.J.A.C. 7:7-6.23) because activities will occur in threatened and endangered wildlife species habitat. As a result, the Applicant is submitting an In-Water Waterfront Development Individual Permit Application for authorization to conduct the proposed benthic and sediment sampling activities. The Applicant also submitted a SSAP describing protocols to be employed during these sampling activities to the NJDEP Office of Dredging and Sediment Technology on May 26, 2023. The SSAP remains under review by NJDEP.

7:7-2.4 Waterfront Development
Relevant standards applicable to the benthic and sediment sampling activities:

(a) The waterfront area regulated under this chapter varies in width in accordance with the following:

3. In those areas of the State outside both the CAFRA area and outside of the Hackensack Meadowlands District, the regulated waterfront area shall include:

i. All tidal waterways and lands lying thereunder, up to and including the mean high waterline; and

ii. Adjacent upland areas within 100 feet of the mean high water line. For properties within 100 feet of the mean high water line that extend inland beyond 100 feet from the mean high water line, the regulated waterfront area shall extend inland to the lesser of the following distances:

(1) 500 feet from the mean high water line; or

(2) To the first paved public road, railroad, or surveyable property line that:

(A) Existed on September 26, 1980; and

(B) Generally parallels the waterway.

Compliance:
The proposed Sampling Areas in waters of the State are located entirely in subtidal areas of Lower New York Bay and the Atlantic Ocean and Upper New York Bay. Therefore, the Sampling Areas are located in a waterfront area regulated under this chapter and an In-Water Waterfront Development Permit is required by NJDEP.

7.2.2 Subchapter 8. Individual Permits

7:7-8.1 Requirement to obtain an individual permit
Relevant standards applicable to the benthic and sediment sampling activities:

A person shall obtain an individual permit under this subchapter in order to undertake any activity that does not meet the requirements of a permit-by-rule pursuant to N.J.A.C. 7:7-4, an authorization under a general permit-by-certification pursuant to N.J.A.C. 7:7-5, or an authorization under a general permit pursuant to N.J.A.C. 7:7-6.

Compliance:
While the Applicant conducted prior sampling campaigns involving benthic and sediment sampling under a permit-by-rule pursuant to N.J.A.C 7:7-4, during a pre-application meeting held on August 29, 2023, NJDEP stated its preference in this instance for either a general permit pursuant to N.J.A.C. 7:7-6 or an individual permit pursuant to N.J.A.C. 7:7-8. The benthic and sediment sampling activities do not qualify for General Permit 23 -– Geotechnical Survey Borings (N.J.A.C. 7:7-6.23) because activities will occur in threatened and endangered wildlife species habitat. Therefore, the Applicant is submitting this In-Water Waterfront Development Individual Permit for authorization to conduct benthic and sediment sampling activities to characterize marine sediments.

7:7-8.3 Conditions applicable to an individual permit
***Relevant standards applicable to the benthic and sediment sampling activities**:*

(a) A person conducting regulated activities pursuant to an individual permit shall comply with:

1. The conditions set forth in the individual permit itself; and

2. The conditions that apply to all permits at N.J.A.C. 7:7-27.2.

(b) In addition to the conditions that apply to every individual permit at N.J.A.C. 7:7-27.2, the Department shall establish conditions in a specific individual permit, as required on a case-by-case basis, to ensure the authorized regulated activity meets all applicable requirements of this chapter and its enabling statutes.

Compliance:
The Applicant and its contractors will comply with the conditions set forth in the individual permit issued by NJDEP for the benthic and sediment sampling activities as well as the conditions that apply to all permits at N.J.A.C. 7:7-27.2.

7.2.3 Subchapter 9. Special Areas

7:7-9.2 Shellfish habitat
Relevant standards applicable to the benthic and sediment sampling activities:

(*e) New dredging (defined at N.J.A.C. 7:7-12.7) within shellfish habitat is prohibited, except when it is necessary to maintain the use of public launching facilities (ramps) with 25 or more trailer parking spaces or marina facilities with 25 or more dockage units, consisting of either dry dock storage or wet slips. New dredging for existing marinas or for the expansion of such facilities is conditionally acceptable provided that:*

1. The expanded portion of the marina, other than the access channel, will not be located within the shellfish habitat;
2. The marina provides on site restrooms, a marine sanitation disposal device and pumpout station; and
3. The width, depth and length of the to-be-dredged channel and boat basin are limited to the minimum dimensions needed to service the existing or expanded facilities.

(g) New dredging adjacent to shellfish habitat is discouraged in general, but may be conditionally acceptable if it can be demonstrated that the proposed dredging activities will not adversely affect shellfish habitat, population, or harvest. If the Department determines dredging to be acceptable, dredging shall be managed pursuant to N.J.A.C. 7:7-12.7 so as not to cause significant mortality of the shellfish due to increased turbidity and sedimentation, resuspension of toxic chemicals, or any other occurrence which will interfere with the natural functioning of the shellfish habitat.

Compliance:
The proposed benthic and sediment sampling does not involve dredging, defined as the removal of sediment located waterward of the spring high water line (N.J.A.C. 7:7-12.7). Therefore, standards related to new dredging, such as 7:7-9.2 are not applicable to the proposed benthic and sediment sampling; nonetheless, as an additional mitigation measure, the applicant proposes to conduct the sampling in compliance with these standards as detailed below. Sampling within Lower New York Bay and the Atlantic Ocean will occur only within areas classified as Prohibited according to the NJDEP shellfish classification maps (Figure 7). The NJDEP shellfish classification maps do not extend north into the Upper New York Bay (Figure 7). Disturbance of the seafloor will be very limited; only areas within the footprint of benthic grab samples and vibracores will be impacted. Due to the limited area of sediment disturbance, the benthic and sediment sampling activities will not adversely affect indigenous shellfish habitat, population, or harvest.

Therefore, the proposed benthic and sediment sampling activities meet the standards for shellfish habitat at N.J.A.C. 7:7-9.2.

7:7-9.3 Surf clam areas
Relevant standards applicable to the benthic and sediment sampling activities:

(b) Development which would result in the destruction, condemnation, or contamination of surf clam areas is prohibited except for the following: …

Compliance:
Benthic and sediment sampling will not result in destruction, condemnation, or contamination of surf clam areas. The sampling in Lower New York Bay and the Atlantic Ocean, northeast of Sandy Hook, will occur only in areas classified as Prohibited for shellfishing (NJDEP shellfish classification maps). The NJDEP shellfish classification maps do not extend into Upper New York Bay.

Therefore, the standards for Surf clam areas at N.J.A.C. 7:7-9.3 are not applicable to the proposed benthic and sediment sampling.

7:7-9.4 Prime fishing areas
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Prime fishing areas include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity. These areas include all coastal jetties, groins, public fishing piers or docks, and artificial reefs. Prime fishing areas also include features such as rock outcroppings, sand ridges or lumps, rough bottoms, aggregates such as cobblestones, coral, shell and tubeworms, slough areas and offshore canyons. Prime fishing areas also include areas identified in "New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay and The Shellfish Resources of Raritan Bay and Sandy Hook Bay" Figley and McCloy (1988) and those areas identified on the map titled, "New Jersey's Specific Sport Ocean Fishing Grounds." This map is available through the Coastal Management Program's website at https://www.nj.gov/dep/cmp.

(b) Standards relevant to prime fishing areas are as follows:

2. Prohibited uses include sand or gravel submarine mining which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity of these areas. Disposal of domestic or industrial wastes must meet applicable State and Federal effluent limitations and water quality standards.

Compliance:
A portion of the Sampling Area in Lower New York Bay and the Atlantic Ocean, to the northeast of Sandy Hook, is located within a prime fishing area (Figure 7). The sampling does not include sand or gravel submarine mining and is limited to the removal of small amounts of sediment for scientific study at a limited number of locations. Collection of benthic grab samples and vibracores will result in localized and temporary alterations in existing bathymetry where sampling equipment contacts the seafloor. The total estimated bottom impact from benthic grab samples and vibracores is between approximately 553 square feet (0.013 acres), assuming one attempt for all 10 grabs and 19 vibracores, and 1,106 square feet (0.025 acres), assuming two attempts for all 19 vibracores and 10 grabs. Pre-sampling conditions will be rapidly reestablished following sample collection, as natural sediment repositioning and deposition occurs as a result of tidal currents, passage of vessels, and episodic storm events.

Benthic and sediment sampling activities will have no impact on fishery productivity in prime fishing areas and therefore meet the standards at N.J.A.C. 7:7-9.4.

7:7-9.5 Finfish migratory pathways
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Finfish migratory pathways are waterways (rivers, streams, creeks, bays and inlets) which can be determined to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile anadromous fish which migrate in autumn and those listed by H.E. Zich (1977) "New Jersey Anadromous Fish Inventory" NJDEP Miscellaneous Report No. 41, and including those portions of the Hudson and Delaware Rivers within the coastal zone boundary.

1. *Species of concern include: alewife or river herring (Alosa pseudoharengus), blueback herring (Alosa aestivalis), American shad (Alosa sapidissima), striped bass (Morone saxatilis), Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus), Shortnose sturgeon (Acipenser brevirostrum) and American eel (Anguilla rostrata).*

(c) Development which lowers water quality to such an extent as to interfere with the movement of fish along finfish migratory pathways or to violate State and Delaware River Basin Commission water quality standards is prohibited.

1. Mitigating measures are required for any development which would result in: lowering dissolved oxygen levels, releasing toxic chemicals, raising ambient water temperature, impinging or suffocating fish, entrainment of fish eggs, larvae or juveniles, causing siltation, or raising turbidity levels during migration periods.

Compliance:
The proposed benthic and sediment sampling will take place in waters where some of the species listed in 7:7-9.5(a)(1) migrate. The sampling has been designed in a manner that will minimize impacts to aquatic resources, including finfish migratory pathways. The planned late fall and early winter timing of the sampling activities is expected to limit the presence of such species while the sampling is performed. Adverse impacts to finfish from benthic and sediment sampling activities are not expected. Collection of sediment samples will result in localized and temporary increases in suspended sediments due to disruption of a limited area of the seafloor. The Sampling Areas are naturally subject to high levels of suspended sediments and high turbidity (ESS 2012); therefore, species that occur in this area routinely experience highly turbid conditions.

Direct impacts to juvenile and adult finfish due to collection of benthic grabs and vibracores are not expected. These highly motile organisms are expected to vacate the very small area of impact at each sample site upon commencement of sampling activities. Any displaced finfish are expected to rapidly return to the sample site once temporary sampling disturbance ends. Benthic egg and larval stages of finfish that occur within the direct footprint of sampling activities may be vulnerable to impacts, including injury or mortality; however, the total area of disturbed sediment due to sampling activities within New Jersey waters is very limited and will not result in population level impacts. The total estimated bottom impact from vibracoring and benthic grabs is between approximately 553 square feet (0.013 acres), assuming one attempt for all 10 grabs and 19 vibracores, and 1,106 square feet (0.025 acres), assuming two attempts for all 19 vibracores and 10 grabs.

Therefore, the standards for Finfish migratory pathways at N.J.A.C. 7:7-9.5 are not applicable to the proposed benthic and sediment sampling.

7:7-9.6 Submerged vegetation habitat
Relevant standards applicable to the benthic and sediment sampling activities:

(a) A submerged vegetation habitat special area consists of water areas supporting or documented as previously supporting rooted, submerged vascular plants such as widgeon grass (Ruppia maritima), sago pondweed (Potamogeton pectinatus), horned pondweed (Zannichellia palustris), and eelgrass (Zostera marina). In New Jersey, submerged vegetation is most prevalent in the shallow portions of the Navesink, Shrewsbury, Manasquan, and Metedeconk Rivers, and in Barnegat, Manahawkin, and Little Egg Harbor Bays. Other submerged vegetation species in lesser quantities include, but are not limited to, the following: water weed (Elodea nuttalli), Eriocaulon parkeri, Liaeopsis chinesis, Naja flexilis, Nuphar variegatum, Potamogeton crispus, Potamogeton epihydrus, Potamogeton perfoliatus, Potamogeton pusillus, Scirpus subterminalis, and Vallisneria americana. Detailed maps of the distribution of the above species for New Jersey, and a method for delineation, are available from the Department in the New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report), February, 1980, conducted by Earth Satellite Corporation and also on "Eelgrass Inventory" maps prepared by the Division of Fish and Wildlife, Bureau of Shellfisheries, 1983. If the Department is presented with clear and convincing evidence that a part of its mapped habitat lacks the physical characteristics necessary for supporting or continuing to support the documented submerged vegetation species, such a site would be excluded from the habitat definition.

Compliance:
Submerged vegetation habitat maps published by NJDEP are not available for the Sampling Areas in Lower New York Bay and the Atlantic Ocean or Upper New York Bay. Water depths in the Sampling Areas range between 20 and 50 feet, which usually do not allow sufficient light to penetrate for submerged vegetation to grow. Additionally, there is no evidence of submerged aquatic vegetation in the Upper New York Bay Sampling Area based on previous surveys conducted by Queensboro.

Therefore, the standards for Submerged Vegetation Habitat at N.J.A.C. 7:7-9.6 are not applicable to the benthic and sediment sampling.

7:7-9.7 Navigation channels
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Navigation channels are tidal water areas including the Atlantic Ocean, inlets, bays, rivers and tidal guts with sufficient depth to provide safe navigation. Navigation channels include all areas between the top of the channel slopes on either side. These navigation channels are often marked with buoys or stakes. Major navigation channels are shown on NOAA/National Ocean Service Charts.

(b) Standards relevant to navigation channels are as follows:
2. Development which would result in loss of navigability is prohibited;
3. Any construction which would extend into a navigation channel is prohibited;

Compliance:

Within the Lower New York Bay and Atlantic Ocean Sampling Area, benthic and sediment sampling will occur within the charted Swash Channel, which is a naturally occurring channel rather than a man-made navigation channel (Figure 1). Collection of samples from within the Swash Channel will occur over a short time period and will not impact vessel transit or navigation in the area. The Upper New York Bay Sampling Area does not include the collection of samples in any navigation channel. Federally maintained navigation channels are mapped as Exclusion Areas on the attached Site Plans for Sampling; these areas will be excluded from the Sampling Areas. The benthic and sediment sampling vessels will be operated by qualified and certified vessel and equipment operator A Local Notice to Mariners will be filed with the U.S. Coast Guard ("USCG") and sampling operations will be closely coordinated with USCG Sector New York and the USCG Vessel Traffic Service so as to avoid or minimize impact vessel access or navigation within the Sampling Areas.

Based on the above, the benthic and sediment sampling is in compliance with the standards for Navigation channels at N.J.A.C. 7:7-9.7.

7:7-9.12 Submerged infrastructure routes
Relevant standards applicable to the benthic and sediment sampling activities:

(a) A submerged infrastructure route is the corridor in which a pipe or cable runs on or below a submerged land surface.

(b) Any activity which would increase the likelihood of infrastructure damage or breakage, or interfere with maintenance operations is prohibited.

Compliance:
As depicted on Figure 1 and the attached Site Plans for Sampling, there are five known or mapped infrastructure assets (pipes or cables) that intersect the Sampling Areas. Sampling Exclusion Areas have been established to reduce potential for encroachment on these assets and are depicted on the Site Plans for Sampling. The Applicant will not conduct any benthic grab samples or vibracores within the areas mapped as containing submerged infrastructure; these areas will be excluded from the Sampling Areas.

To further ensure that the sampling effort would not increase the likelihood of infrastructure damage or breakage, or interfere with maintenance operations of this submerged infrastructure, each sampling location will be cleared through New Jersey One Call.

By excluding mapped infrastructure areas and clearing sampling locations through New Jersey One Call, benthic and sediment sampling will not increase the likelihood of infrastructure damage or breakage or interfere with maintenance operations.
Based on the above, the benthic and sediment sampling is in compliance with the standard for Submerged Infrastructure Routes at N.J.A.C. 7:7-9.12.

7:7-9.13 Shipwreck and artificial reef habitats
Relevant standards applicable to the benthic and sediment sampling activities:

(a) The shipwreck and artificial reef habitats special area includes all permanently submerged or abandoned remains of vessels and other structures, including, but not limited to, artificial reefs, anchors, quarry rocks or lost cargo, which serve as a special marine habitat or are fragile historic and cultural resources. An artificial reef is a man-made imitation of a natural reef created by placing hard structures on the sea floor for the purpose of enhancing fish habitat and fish stock. In time, an artificial reef will attain many of the biological and ecological attributes of a natural reef. Artificial reefs do not include shore protection structures, pipelines and other structures not constructed for the sole purpose of fish habitat.

Compliance:
Known shipwrecks and obstructions in the vicinity of the Sampling Areas were compiled from the NOAA Automated Wreck and Obstruction Information System (AWOIS) and the NOAA Electronic Navigational Chart (ENC) Direct Database. These sources identified two obstructions or shipwrecks within the Sampling Areas in waters of the State. The shipwreck, recorded only in the AWOIS database, is located in the Lower New York Bay and Atlantic Ocean Sampling Area, north of Sandy Hook. The marine obstruction is located within the Upper New York Bay Sampling Area, to the northeast of the Global Marine Terminal.

Prior to commencement of sampling activities, survey data will be reviewed and sample locations will be cleared by a QMA to avoid impacts to potential submerged historic or archaeological resources.

No known artificial reef habitats were identified within the Sampling Areas. The nearest mapped artificial reefs are located outside of New York Bay, in Atlantic Ocean waters offshore of Seabright, New Jersey. Therefore, no impacts to these resources are anticipated as a result of benthic and sediment sampling activities.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Shipwreck and Artificial Reef Habitats at N.J.A.C. 7:7-9.13.

7:7-9.34 Historic and archaeological resources
Relevant standards applicable to the benthic and sediment sampling activities:

(*b) Development that detracts from, encroaches upon, damages, or destroys the value of historic and archaeological resources is discouraged.*

(d) Scientific recording and/or removal of the historic and archaeological resources or other mitigation measures must take place if the proposed development would irreversibly and/or adversely affect historic and archaeological resources. Surveys and reports to identify and evaluate historic and archaeological resources potentially eligible for the New Jersey or National Registers shall be performed by professionals who meet the National Park Service's Professional Qualifications Standards in the applicable discipline. Professional procedures and reports shall meet the applicable Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the New Jersey Historic Preservation Office's professional reporting and surveying guidelines, once these guidelines are promulgated as rules, in accordance with the

Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. A description of the qualifications and performance standards is available at the Historic Preservation Office.

Compliance:
Prior to commencement of sampling activities, survey data will be reviewed and sample locations will be cleared by a QMA to avoid impacts to potential submerged historic or archaeological resources. Therefore, sampling activities will not damage, destroy, detract from, or encroach upon historic or archaeological resources.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Historic and archaeological resources at N.J.A.C. 7:7-9.34.

7:7-9.36 Endangered or threatened wildlife or plant species habitats
Relevant standards applicable to the benthic and sediment sampling activities:

(*a) Endangered or threatened wildlife or plant species habitats are terrestrial and aquatic (marine, estuarine, or freshwater) areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife or plant identified as "endangered" or "threatened" species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing. The definition of endangered or threatened wildlife or plant species habitats includes a sufficient buffer area to ensure continued survival of the population of the species as well as areas that serve an essential role as corridors for movement of endangered or threatened wildlife. Absence of such a buffer area does not preclude an area from being endangered or threatened wildlife or plant species habitat.*

(b) Development of endangered or threatened wildlife or plant species habitat is prohibited unless it can be demonstrated, through an endangered or threatened wildlife or plant species impact assessment as described at N.J.A.C. 7:7-11, that endangered or threatened wildlife or plant species habitat would not directly or through secondary impacts on the relevant site or in the surrounding area be adversely affected.

(c) Applicants for development of sites that contain or abut areas mapped as endangered or threatened wildlife species habitat on the Landscape Maps shall either:

1. Demonstrate compliance with this rule by conducting an endangered or threatened wildlife species impact assessment in accordance with N.J.A.C. 7:7-11.2; or

2. Demonstrate that the proposed site is not endangered or threatened wildlife species habitat and this rule does not apply by conducting an endangered or threatened wildlife species habitat evaluation in accordance with N.J.A.C. 7:7-11.3

Compliance:
Review of the New Jersey Landscape Project Maps, and data provided by the New Jersey Natural Heritage Program indicates that habitats or occurrences of state and federally listed endangered or threatened wildlife occur in the vicinity of the marine Sampling Areas. To demonstrate compliance with N.J.A.C. 7:7-9.36, N.J.A.C. 7:7-11.2, and N.J.A.C. 7:7-11.4, Queensboro conducted an Endangered or Threatened Wildlife Species Habitat Impact Assessment, presented in Appendix B.

Based on the Endangered or Threatened Wildlife Species Habitat Impact Assessment, the benthic and sediment sampling is in compliance with the standard for Endangered or Threatened Wildlife or Plant Species Habitats at N.J.A.C. 7:7-9.36.

7:7-9.37 Critical wildlife habitat
***Relevant standards applicable to the benthic and sediment sampling activities**:*

(a) Critical wildlife habitats are specific areas known to serve an essential role in maintaining wildlife, particularly in wintering, breeding, and migrating.

(b) Development that would directly or through secondary impacts on the relevant site or in the surrounding region adversely affect critical wildlife habitats is discouraged, unless:

1. *Minimal feasible interference with the habitat can be demonstrated;*
2. *There is no prudent or feasible alternative location for the development; and*
3. *The proposal includes appropriate mitigation measures.*

Compliance:
As discussed in N.J.A.C. 7:7-9.36 Endangered or Threatened Wildlife or Plant Species Habitats, benthic and sediment sampling activities have the potential to be located within habitats for the following species: black skimmer (*Rynchops niger*), black-crowned night-heron (*Nycticorax nycticorax*), least tern (Sternula antillarum), Roseate tern (*Sterna dougalli*i), osprey (*Pandion haliaetus*), peregrine falcon (*Falco peregrinus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), North Atlantic right whale (*Eubalaena glacialis*), Atlantic sturgeon (*Acipenser oxyrinchus*), and shortnose sturgeon (*Acipenser brevirostrum*). Benthic and sediment sampling activities will not occur within designated Critical Habitats. NOAA has designated Critical Habitat for Atlantic sturgeon in the Hudson River (82 CFR 39160), but that designation is outside the Upper New York Bay Sampling Area to the north.

1. *Minimal feasible interference with the habitat can be demonstrated;*

The proposed benthic and sediment sampling will have minimal interference on habitats located within the Sampling Areas. Sampling activities will disturb very limited areas of sediment and will not result in any permanent impacts. Slight depressions in the sediment resulting from the collection of benthic grab samples and narrow holes in the sediment from collection of vibracores, will rapidly infill with surrounding sediments due to natural water and sediment movement, quickly restoring sampled areas to pre-sampling conditions.

The benthic and sediment sampling will occur only in subtidal areas in waters of the State. No impacts to rookeries for colonial nesting birds or stopovers for migratory birds will occur. Additionally, benthic and sediment sampling activities will not occur in any ecotones or water's edge areas. These in-water sampling activities will not impact habitats for bird species, including those listed above.

Similarly, as discussed in the Endangered or Threatened Wildlife Species Habitat Impact Assessment (Appendix B), benthic and sediment sampling activities will not impact marine mammals.

Potential impacts to finfish and finfish habitat, including Atlantic and shortnose sturgeon, from benthic and sediment sampling activities, if any, will be extremely temporary and localized,

resulting from disturbance of sediments during collection of samples. Juvenile and adult finfish are highly mobile and likely to avoid benthic and sediment sampling activities. It is anticipated that species will temporarily relocate to adjacent undisturbed areas during sampling activities as a natural avoidance response. Species will then return to sampled areas once benthic and sediment sampling is complete. Any impacts will be extremely localized and temporary and will not impact habitats for these species.

Additionally, the Sampling Areas are not located in the vicinity of National Wildlife Refuges (NWR) or Wildlife Management Areas (WMA) in New Jersey and there are no National Estuarine Research Reserves (NERR) near the Sampling Areas.

2. *There is no prudent or feasible alternative location for the development; and*

The benthic and sediment sampling have been sited and designed to avoid impacts to protected critical wildlife habitats to the greatest extent practicable. The benthic and sediment sampling are necessary to support routing and preparation of an In-Water Waterfront Development Permit application for the Queensboro Renewable Express. There is no other prudent or feasible alternative location for the benthic and sediment sampling. There are no permanent impacts associated with the benthic and sediment sampling and, therefore, no impacts to critical wildlife habitats areas are anticipated.

3. *The proposal includes appropriate mitigation measures.*

To minimize the potential for impacts to endangered and threatened species and critical habitats, Queensboro will employ the measures:

- PSOs will be present on benthic and sediment sampling vessels to record and report sightings of marine mammals and ensure that measures required by NMFS under the Incidental Harassment Authorization for the benthic and sediment sampling are implemented. These measures will include vessel speed restrictions and the establishment of exclusion zones for North Atlantic Right Whales and other protected species.
- Vessel operators and crews shall maintain a vigilant watch for sturgeon, and slow down or stop the vessel to avoid striking an observed sturgeon.
- Coring equipment and the benthic grab sampler will be lowered through the water column in a controlled manner and paused briefly before contacting the seabed to provide time for any sturgeon that may be below the equipment to move.

These measures, coupled with the low-impact nature of the benthic and sediment sampling activities, will assure that critical wildlife habitats are not impacted.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Critical Wildlife Habitats at N.J.A.C. 7:7-9.37.

7:7-9.41 Special urban areas

Relevant standards applicable to the benthic and sediment sampling activities:

(a) Special urban areas are those municipalities defined in urban aid legislation (N.J.S.A. 52:27D-178) qualified to receive State aid to enable them to maintain and upgrade municipal services and offset local property taxes. Under N.J.S.A. 52:27D-178 et seq., the Department of Community

Affairs (DCA) establishes a list of qualifying municipalities each fiscal year. DCA's list of qualifying municipalities may be obtained on request from the Department's Division of Land Use Regulation at the address set forth at N.J.A.C. 7:7-1.6.

(b) Development that will help to restore the economic and social viability of special urban areas is encouraged. Development that would adversely affect the economic well being of these areas is discouraged, when an alternative which is more beneficial to the special urban areas is feasible. Development that would be of economic and social benefit and that serves the needs of local residents and neighborhoods is encouraged.

Compliance:
According to the New Jersey Department of Community Affairs website, the City of Bayonne and the City of Jersey City are eligible for the urban aid legislation (N.J.S.A. 52:27D-178), which under 7:7-9.41, makes these special urban areas. A portion of the benthic and sediment sampling will be located in subtidal waters of these two municipalities, well away from shore. The benthic and sediment sampling will not impact the existing uses nor the economic wellbeing of the city of Bayonne or the City of Jersey City.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Special Urban Areas at N.J.A.C. 7:7-9.41.

7:7-9.48 Lands and waters subject to public trust rights
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Lands and waters subject to public trust rights are tidal waterways and their shores, including both lands now or formerly below the mean high water line, and shores above the mean high water line. Tidal waterways and their shores are subject to the Public Trust Doctrine and are held in trust by the State for the benefit of all the people, allowing the public to fully enjoy these lands and waters for a variety of public uses. Public trust rights include public access which is the ability of the public to pass physically and visually to, from and along the ocean shore and other waterfronts subject to public trust rights and to use these lands and waters for activities such as navigation, fishing and recreational activities including, but not limited to, swimming, sunbathing, surfing, sport diving, bird watching, walking, and boating. Public trust rights also include the right to perpendicular and linear access.

(b) Public access to lands and waters subject to public trust rights shall be provided in accordance with the public access rule, N.J.A.C. 7:7-16.9. Development that does not comply with N.J.A.C. 7:7-16.9, Public access, is discouraged in lands and waters subject to public trust rights.

Compliance:
The waters within the Lower and Upper New York Bay are subject to public trust rights and will not be altered by the benthic and sediment sampling so as to limit, reduce, or otherwise adversely affect public access rights or uses to these trust lands and waters. Benthic and sediment sampling activities will be short in duration (days) and will not impact vessel access and navigation within the Sampling Areas. A Local Notice to Mariners will be filed with the USCG and sampling operations will be closely coordinated with USCG Sector New York and the USCG Vessel Traffic Service so as to avoid or minimize impacts to vessel access or navigation within the Sampling Areas.

Based on the above analysis, the benthic and sediment sampling is in compliance with the standard for Lands and waters subject to public trust rights at N.J.A.C. 7:7-9.48.

7.2.4 Subchapter 11. Standards for Conducting and Reporting the Results of an Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessment and/or Endangered or Threatened Wildlife Species Habitat Evaluation

Compliance:
See the Endangered or Threatened Wildlife Species Habitat Impact Assessment provided in the compliance statement for N.J.A.C. 7:7-9.36 Endangered or Threatened Wildlife or Plant Species Habitats. This application and the proposed benthic and sediment sampling are in compliance with the applicable Standards for Conducting Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessments at N.J.A.C. 7:7-11.2 and the applicable Standards for Reporting the Results of Impact Assessments and Habitat Evaluations at N.J.A.C. 7:7-11.4.

7.2.5 Subchapter 12. General Water Areas

7:7-12.11 Filling
Relevant standards applicable to the benthic and sediment sampling activities:
(a) Filling is the deposition of material including, but not limited to, sand, soil, earth, and dredged material, into water areas for the purpose of raising water bottom elevations to create land areas.

Compliance:
There will be no backfilling of the benthic and sediment sample locations or use of grout. Natural sediment repositioning and deposition will fill in the slight depressions resulting from the sampling.

Therefore, the standards for Filling at N.J.A.C. 7:7-12.11 are not applicable to the benthic and sediment sampling.

7:7-12.24 Miscellaneous uses
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Miscellaneous uses are uses of water areas not specifically defined in this section or addressed in the use rules, N.J.A.C. 7:7-15.

(b) Water dependent uses of water areas not identified in the use rules will be analyzed on a case-by-case basis to ensure that adverse impacts are minimized. Non-water dependent uses are discouraged in all water areas.

Compliance:
The benthic and sediment sampling activities described in this application are a water dependent use that is not specifically defined in Subchapter 12 General Water Areas (N.J.A.C 7:7-12) or addressed in Subchapter 12 Use Rules (N.J.A.C. 7:7-15). Therefore, the benthic and sediment sampling will be analyzed on a case-by-case basis by the Department during their review of this Application. As described above, potential impacts associated with the benthic and sediment sampling will be negligible to minor, temporary, and localized.

7.2.6 Subchapter 14. General Location Rules

7:7-14.1 Rule on location of linear development
Relevant standards applicable to the benthic and sediment sampling activities:

(a) A linear development shall comply with the specific location rules to determine the most acceptable route, to the maximum extent practicable. If part of the proposed alignment of a linear development is found to be unacceptable under the specific location rules (for example, the proposed alignment does not result in the linear development impacting the least possible area), that alignment may nonetheless be acceptable, provided the following conditions are met:

> *1. There is no prudent or feasible alternative alignment which would have less impact on sensitive areas and marine fish or fisheries, as defined at N.J.A.C. 7:7-16.2;*
>
> *2. There will be no permanent or long-term loss of unique or irreplaceable areas;*
>
> *3. Appropriate measures will be used to mitigate adverse environmental impacts to the maximum extent feasible, such as restoration of disturbed vegetation, habitats, and land and water features; and 4. The alignment is located on or in existing transportation corridors and alignments, to the maximum extent practicable.*

Compliance:
The benthic and sediment sampling are not a linear development. Its purpose is to provide information to support the overall design and permitting of the Queensboro Renewable Express (which will be a linear development).

Therefore, the Rule on location of linear development at N.J.A.C. 7:7-14.1 is not applicable to the benthic and sediment sampling.

7.2.7 Subchapter 16. Resource Rules

7:7-16.2 Marine fish and fisheries
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Marine fish are marine and estuarine animals other than marine mammals and birds. Marine fisheries means:

> *1. One or more stocks of marine fish which can be treated as a unit for the purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational and economic characteristics; and*
> *2. The catching, taking or harvesting of marine fish.*

(b) Any activity that would adversely impact the natural functioning of marine fish, including the reproductive, spawning and migratory patterns or species abundance or diversity of marine fish, is discouraged. In addition, any activity that would adversely impact any New Jersey based marine fisheries or access thereto is discouraged, unless it complies with (c) below.

(c) The following coastal activities are conditionally acceptable provided that the activity complies with the appropriate general water area rule(s) at N.J.A.C 7:7-12;

1. Construction of submerged cables and pipelines;

2. Sand and gravel mining to obtain material for beach nourishment, provided:

i. The beach nourishment project is in the public interest;

ii. There are no alternative borrow sites that would result in less impact to marine fish and fisheries;

iii. Any alteration of existing bathymetry within prime fishing areas, as defined at N.J.A.C. 7:7-9.4, does not reduce the high fishery productivity of these areas; and

iv. Measures are implemented to minimize and compensate for impacts to marine fish and fisheries; and

3. The establishment of Aquaculture Development Zones in accordance with N.J.S.A. 4:27- 1 et seq. and any rules developed and adopted pursuant thereto;

4. The establishment of living shorelines to protect, restore, or enhance a habitat area, in accordance with N.J.A.C. 7:7-12.23; and

5. Construction of a recreational dock or pier in accordance with N.J.A.C. 7:7-12.5.

Compliance:

Potential impacts to marine fish from benthic and sediment sampling, if any, will be extremely localized and temporary, resulting from disturbance of sediments during collection of samples. Minor increases in suspended sediments in the immediate vicinity of sample collection activities will occur. The Sampling Areas are naturally subject to high suspended sediment and turbidity levels and fish species that occur in this area routinely experience such conditions. Benthic and sediment sampling are also not anticipated to have direct impacts on fish. Fish are expected to vacate the very small area of impact at each sample site upon commencement of sampling activities. Any displaced fish are expected to rapidly return to the Sampling Areas once sample collection is completed. Benthic egg and larval stages of fish that occur within the direct footprint of sampling activities will be vulnerable to impacts (including injury or mortality), though impacts are unlikely given the planned December to January timing of the sampling. The total estimated bottom impact from vibracoring and benthic grabs is between approximately 553 square feet (0.013 acres), assuming one attempt for all 19 vibracores and 10 grabs, and 1,106 square feet (0.025 acres), assuming two attempts for all 19 vibracores and 10 grabs.

Benthic and sediment sampling activities do not fall into any of the coastal activity categories described in N.J.A.C. 7:7-16.2 (c). However, the benthic and sediment sampling will not impact the natural functioning of marine fish, including reproductive, spawning, and migratory patterns or species abundance or diversity.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Marine Fish and Fisheries at N.J.A.C. 7:7-16.2.

7:7-16.3 Water quality

Relevant standards applicable to the benthic and sediment sampling activities:

(a) As required by Section 307(f) of the Federal Coastal Zone Management Act, 16 U.S.C. §§ 1451 et seq., Federal, State, and local water quality requirements established under the Federal Clean Water Act, 33 U.S.C. §§ 1251 et seq., shall be the water resource standards of the coastal management program. These requirements include not only the minimum requirements imposed under the Clean Water Act but also the additional requirements adopted by states, localities, and

interstate agencies pursuant to Section 510 of the Clean Water Act and such statutes as the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. In the Delaware River Basin, the requirements include the prevailing "Basin Regulations-Water Quality" adopted by the Delaware River Basin Commission as part of its Comprehensive Plan. In the waters under the jurisdiction of the Interstate Environmental Commission in the New Jersey-New York metropolitan area, the requirements include the Interstate Environmental Commission's Water Quality Regulations. Department rules related to water pollution control and applicable throughout the entire coastal zone include, for example, the Surface Water Quality Standards (N.J.A.C. 7:9B), the Ground Water Quality Standards (N.J.A.C. 7:9C), and the New Jersey Pollutant Discharge Elimination System rules (N.J.A.C. 7:14A).

Compliance:
Benthic and sediment sampling activities will comply with applicable water quality requirements, such as the Clean Water Act, Section 510 of the Clean Water Act, as well as the statutes such as the New Jersey Pollution Control Act, Surface Water Quality Standards (N.J.A.C. 7:9B), the Ground Water Quality Standards (N.J.A.C. 7:9C), and the Regulations Concerning the New Jersey Pollutant Discharge Elimination System (N.J.A.C. 7:9-14A).

Benthic and sediment activities (collection of vibracores and benthic grab samples) will result in disturbance of a limited area of the seafloor, which will cause very negligible to minor, localized, and temporary increases in suspended sediments. Sediments disturbed due to benthic and sediment sampling will rapidly settle out of the water column and will have negligible impacts on water quality. Benthic and sediment sampling activities will not violate any of New Jersey's water quality related statutes and regulations adopted pursuant to the Federal Clean Water Act.

Based on the above analysis, the benthic and sediment sampling is in compliance with the standard for Water Quality at N.J.A.C. 7:7-16.3.

7:7-16.8 Air quality
Relevant standards applicable to the benthic and sediment sampling activities:

(a) The protection of air resources refers to the protection from air contaminants that injure human health, welfare or property, and the attainment and maintenance of State and Federal air quality goals and the prevention of degradation of current levels of air quality.

(b) Coastal development shall conform to all applicable State and Federal regulations, standards and guidelines and be consistent with the strategies of New Jersey's State Implementation Plan (SIP). See N.J.A.C. 7:27 and New Jersey SIP for ozone, particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, lead, and visibility.

(c) Coastal development shall be located and designed to take full advantage of existing or planned mass transportation infrastructures and shall be managed to promote mass transportational services, in accordance with the traffic rule, N.J.A.C. 7:7-16.12.

Compliance:
The proposed benthic and sediment sampling will not result in impacts to air quality, other than the transient and negligible emissions from benthic and sediment sampling vessels. Both the Lower New York Bay and Atlantic Ocean Sampling Area and the Upper New York Bay Sampling

Area are heavily trafficked by a wide range of vessels. Emissions associated with the benthic and sediment sampling activities will be negligible when compared to other vessel traffic in the area.

Therefore, the benthic and sediment sampling is in compliance with the standard for Air Quality at N.J.A.C. 7:7-16.8.

7:7-16.9 Public access
Relevant standards applicable to the benthic and sediment sampling activities:

(a) Public access to the waterfront is the ability of the public to pass physically and visually to, from, and along tidal waterways and their shores and to use such shores, waterfronts and waters for activities such as navigation, fishing, and recreational activities including, but not limited to, swimming, sunbathing, surfing, sport diving, bird watching, walking, and boating. Public accessways and public access areas include streets, paths, trails, walkways, easements, paper streets, dune walkovers/walkways, piers and other rights-of way. No authorization or approval under this chapter shall be deemed to relinquish public rights of access to and use of lands and waters subject to public trust rights in accordance with N.J.A.C.7:7-9.48. Further, no authorization or approval under this chapter shall be considered a Tidelands approval or shall exempt an applicant from the obligation to obtain a Tidelands approval, if needed.

Compliance:
Benthic and sediment sampling activities will occur in subtidal waters in the Lower and Upper New York Bay and will have no impacts on New Jersey shores or waterfronts. Public access to waters of the State for navigation, fishing, and recreational activities will not be inhibited by the benthic and sediment sampling. Benthic and sediment sampling will be short in duration (days). The sampling operations will be closely coordinated with USCG Sector New York and the USCG Vessel Traffic Service so as to avoid or minimize impacts to vessel access or navigation within the Sampling Areas.

Based on the above analysis, the benthic and sediment sampling is in compliance with the standard for Public Access at N.J.A.C. 7:7-16.9.

7.2.8 Subchapter 27. Permit Conditions; Modification, Transfer, Suspension, and Termination of Authorizations and Permits

7:7-27.2 Conditions that apply to all coastal permits
Relevant standards applicable to the benthic and sediment sampling activities:

(a) The Department places conditions on a coastal permit to ensure that the approved project complies with this chapter. The conditions that apply to all coastal permits are set forth in (c) below, and the additional conditions that apply to all coastal permits except permits-by-rule are set forth in (d) below.

Compliance:
The benthic and sediment sampling shall comply with the conditions NJDEP includes in the in-water waterfront development permit issued for the benthic and sediment sampling pursuant to N.J.A.C. 7:7-27.2.

8.0 Qualifications of Preparers

See Appendix C for resumes of preparers.

Anna Chase, MS	Water Resources Scientist, TRC
Cindy Martin	Senior Project Manager, TRC
Jack Szczepanski, PhD	Senior Ecologist, TRC
Michael Ernsting, EIT	Project Engineer, TRC
Payson Whitney	Southern New England Area Leader, TRC

9.0 References

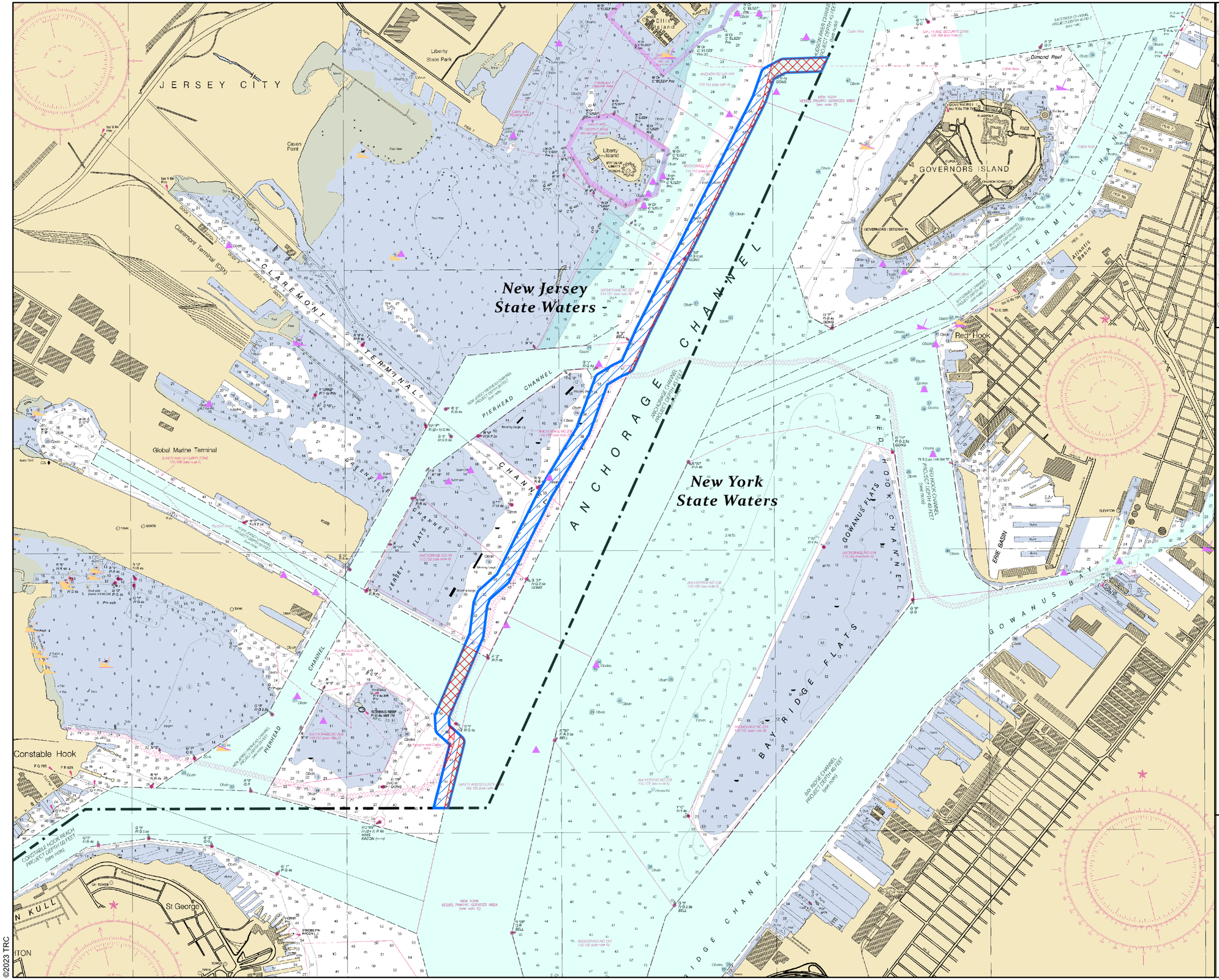
Coch, N.K. 2016. Sediment dynamics in the Upper and Lower Bays of New York Harbor. Journal of Coastal Research, 32: 756–767.

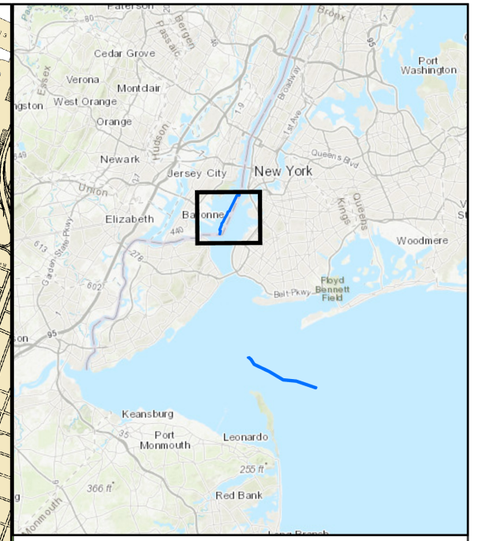
Douglas, W.S., M. Reiss, and J. Lodge. 2005. Evaluation of Sediment Quality Guidelines for Management of Contaminated Sediments in New York – New Jersey Harbor. Use of Sediment Quality Guidelines and Related Tools for the Assessment of Contaminated Sediments (R.J. Wenning, G.E. Bailey, C.G. Ingersoll, and D. Moore, eds).

ESS Group, Inc. 2012. Surficial Sediment Chemistry Monitoring Pre-Installation versus Post-Installation Comparison, Bayonne Energy Center Project. January 31, 2012.

[NOAA] National Oceanic and Atmospheric Administration. 2022. "Tides and Currents." NOAA. Accessed September 2023. https://tidesandcurrents.noaa.gov/datums.html

Figures





Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary
- Federal Channel
- Shipwreck (NOAA ENC)
- Shipwreck (AWOIS)
- Marine Obstruction (AWOIS)

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NOAA Charts 12327, 12334
2) USACE, Federal Channels, 2022
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Figure 1
NOAA Chart
Overview Map

Sheet 1 of 2

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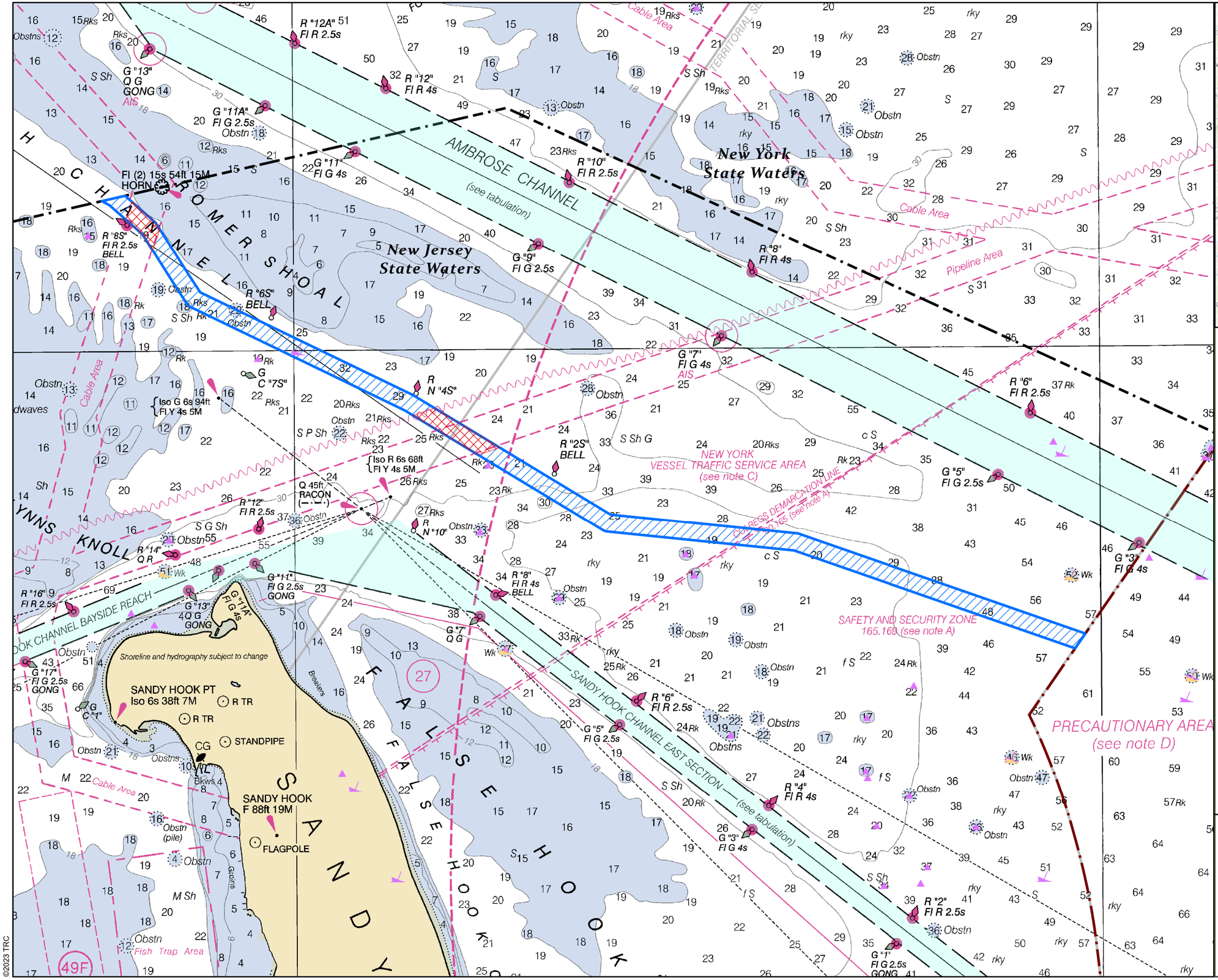

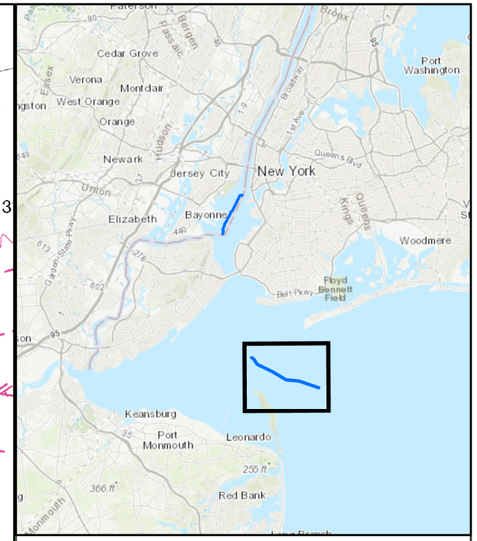

Legend

- Sampling Area
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4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Figure 1
NOAA Chart
Overview Map

Sheet 2 of 2

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

Note: USGS Quad mapping does not accurately represent state boundary in all locations

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) USGS Quad Maps, 2019: Jersey City (Sheet 1), Narrows, Sandy Hook East, Sandy Hook West (Sheet 2)
2) TRC, Sampling Area, 2023
3) NJOIT, State Boundary, 2016
4) BOEM, State SLA Boundary, 2020

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Figure 2
USGS Quad Maps

Sheet 1 of 2

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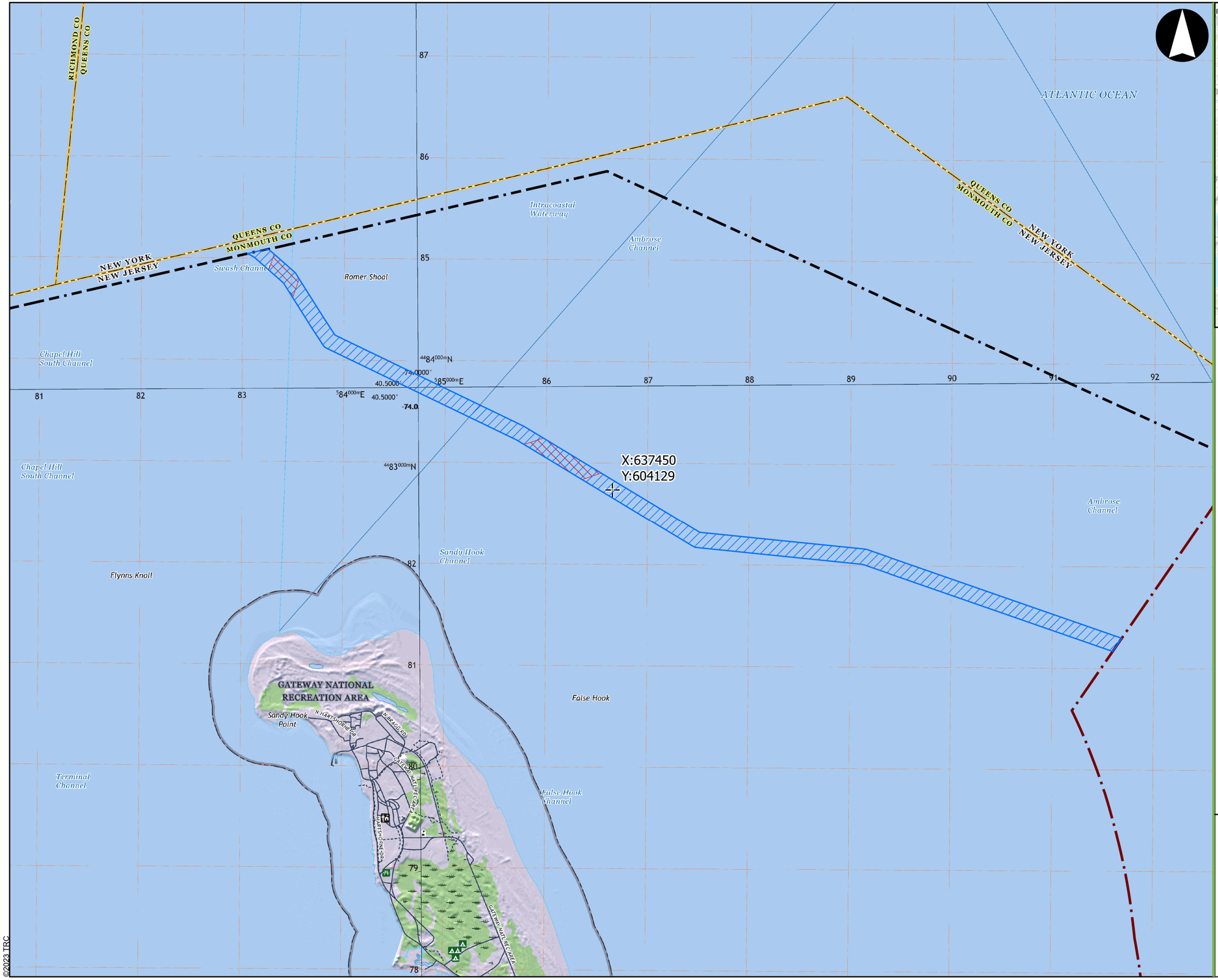

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

Note: USGS Quad mapping does not accurately represent state boundary in all locations

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Figure 2
USGS Quad Maps

Sheet 2 of 2

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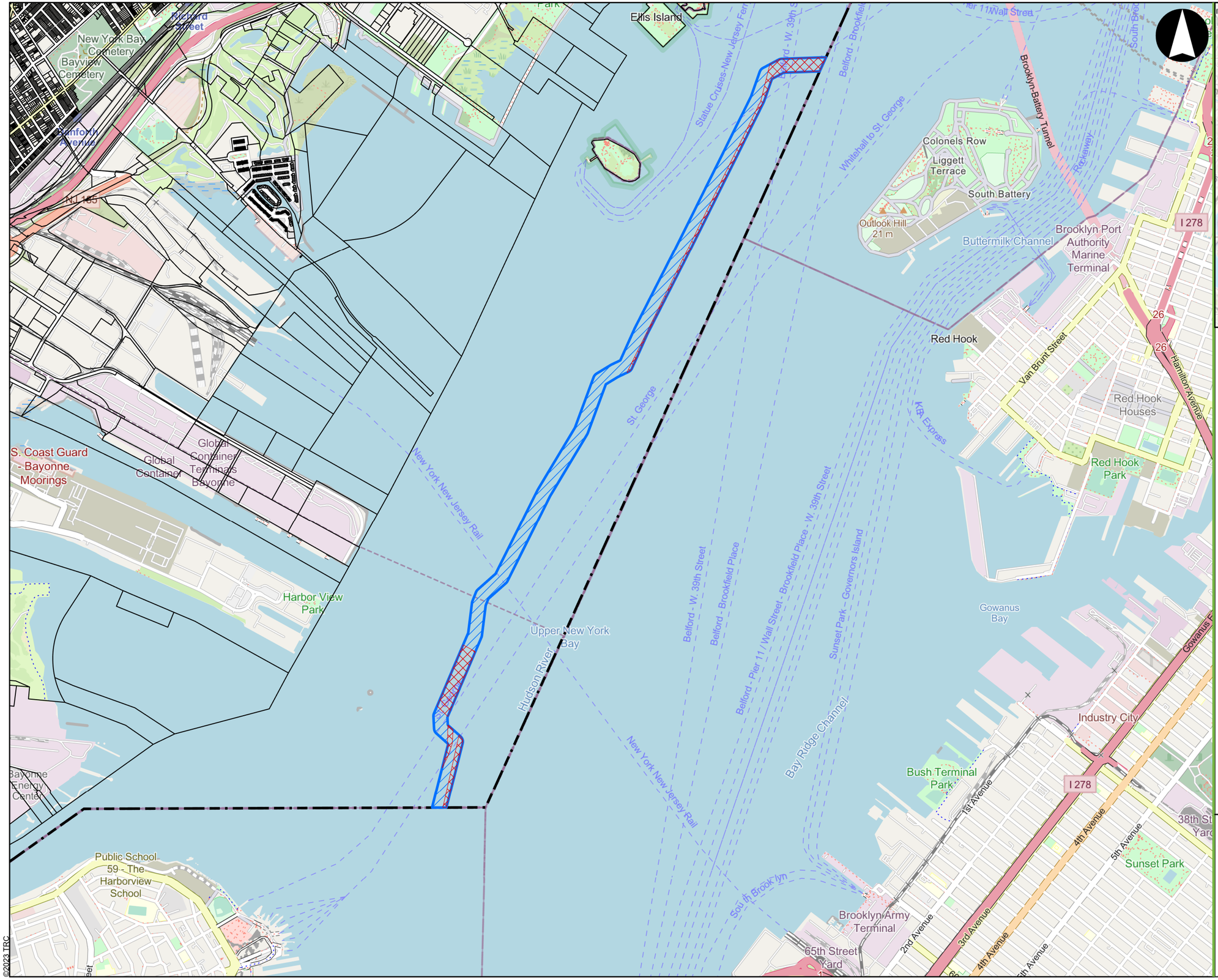

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Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary
- NJ Tax Parcels

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NJOGIS, Tax Parcels, 2018-2022
2) OpenStreetMap, Basemap, 2023
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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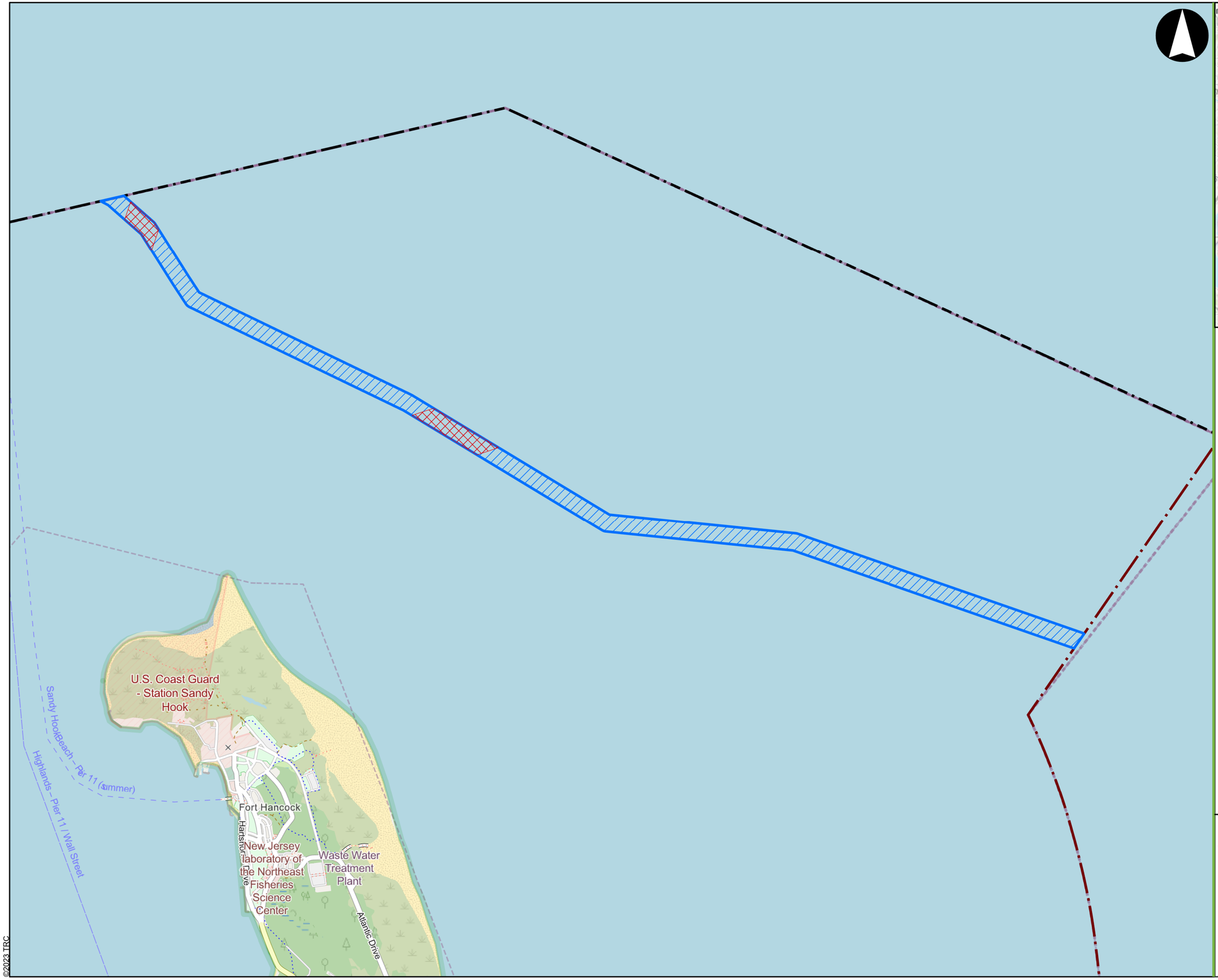
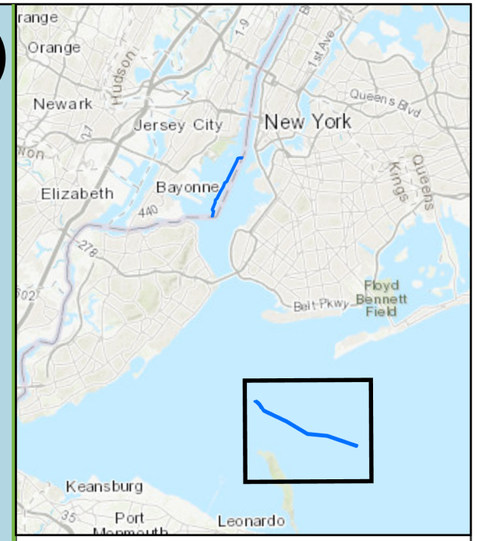
Figure 3
Tax Maps

Sheet 1 of 2





Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary
- NJ Tax Parcels

Datum/Projection:
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(FIPS 2900), US Feet

Data Sources:
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2) OpenStreetMap, Basemap, 2023
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Figure 3
Tax Maps

Sheet 2 of 2

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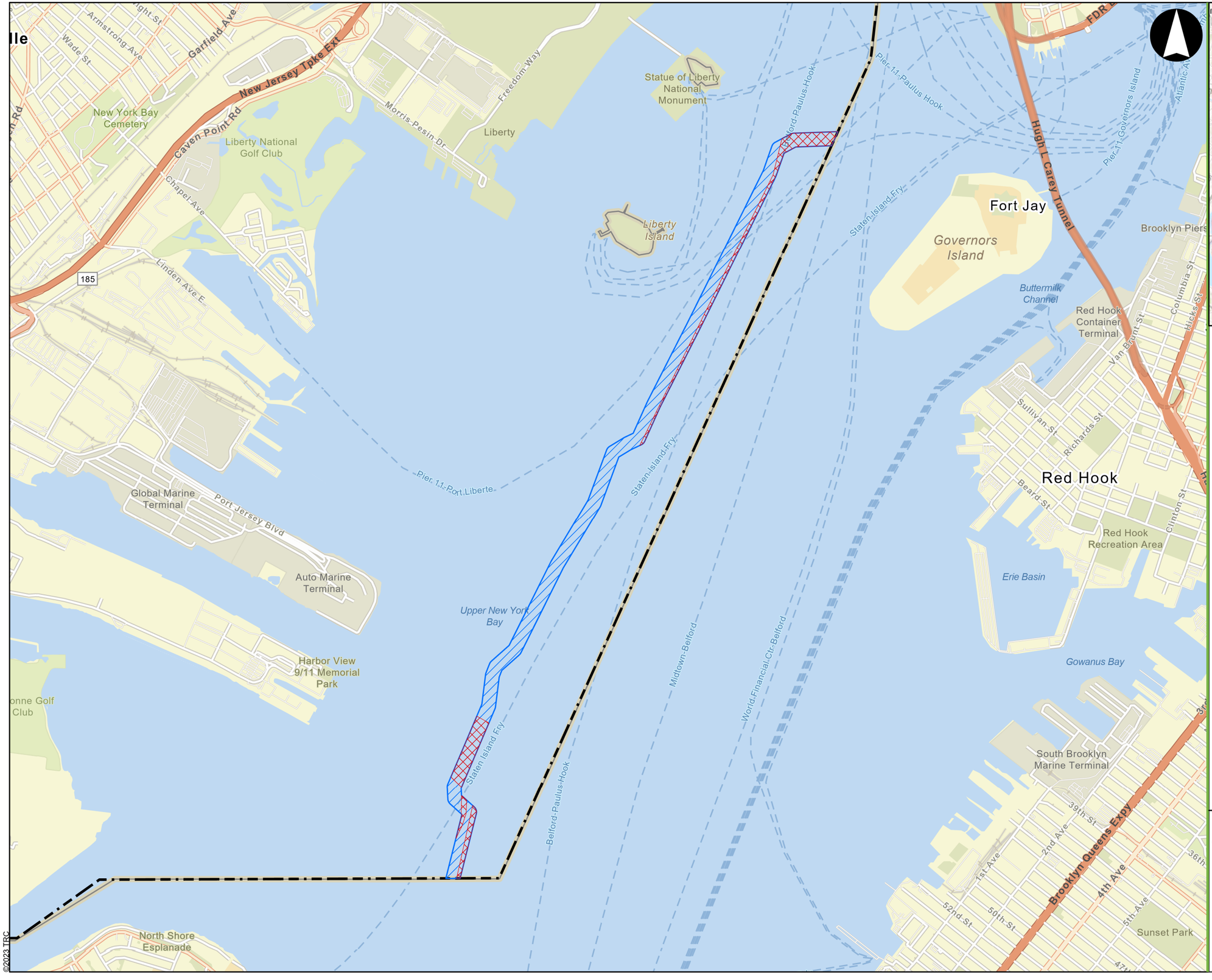
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Armstrong Ave
Wade St
Caven Point Rd
Chapel Ave
Linden Ave E
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New York Bay Cemetery
Liberty National Golf Club
Morris Pesin Dr
Freedom Way
Liberty
Statue of Liberty National Monument
Liberty Island
Global Marine Terminal
Port Jersey Blvd
Auto Marine Terminal
Harbor View 9/11 Memorial Park
North Shore Esplanade
Pier 1.1-Port Liberte
Upper New York Bay
Belford-Paulus Hook
Staten Island Fry
Midtown-Belford
World Financial Ctr-Belford
Pier 1.1-Paulus Hook
Hugh L Carey Tunnel
FDR
Fort Jay
Governors Island
Buttermilk Channel
Brooklyn Piers
Red Hook Container Terminal
Red Hook
Red Hook Recreation Area
Erie Basin
Gowanus Bay
South Brooklyn Marine Terminal
Brooklyn Queens Expy
Sunset Park
Columbia St
Hicks St
Van Brunt St
Beard St
Clinton St
Sullivan St
Richards St
39th St
2nd Ave
1st Ave
4th Ave
5th Ave
36th
52nd St
50th St
47th
Atlantic Ave
Queens Blvd
Kings
Queens
Newark
Jersey City
New York
Elizabeth
Bayonne
Floyd Bennett Field
Belt Pkwy
Keansburg
Port Monmouth
Leonardo
Legend
Sampling Area
Sampling Exclusion Area
Federal Waters Boundary
State Waters Boundary
Note: USGS Quad mapping does not accurately represent state boundary in all locations
Datum/Projection:
NAD 1983 New Jersey State Plane, (FIPS 2900), US Feet
Data Sources:
1) ESRI, Street Basemap, 2023
2) TRC, Sampling Area, 2023
3) NJOIT, State Boundary, 2016
4) BOEM, State SLA Boundary, 2020
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Figure 4
County Road Maps
Sheet 1 of 2
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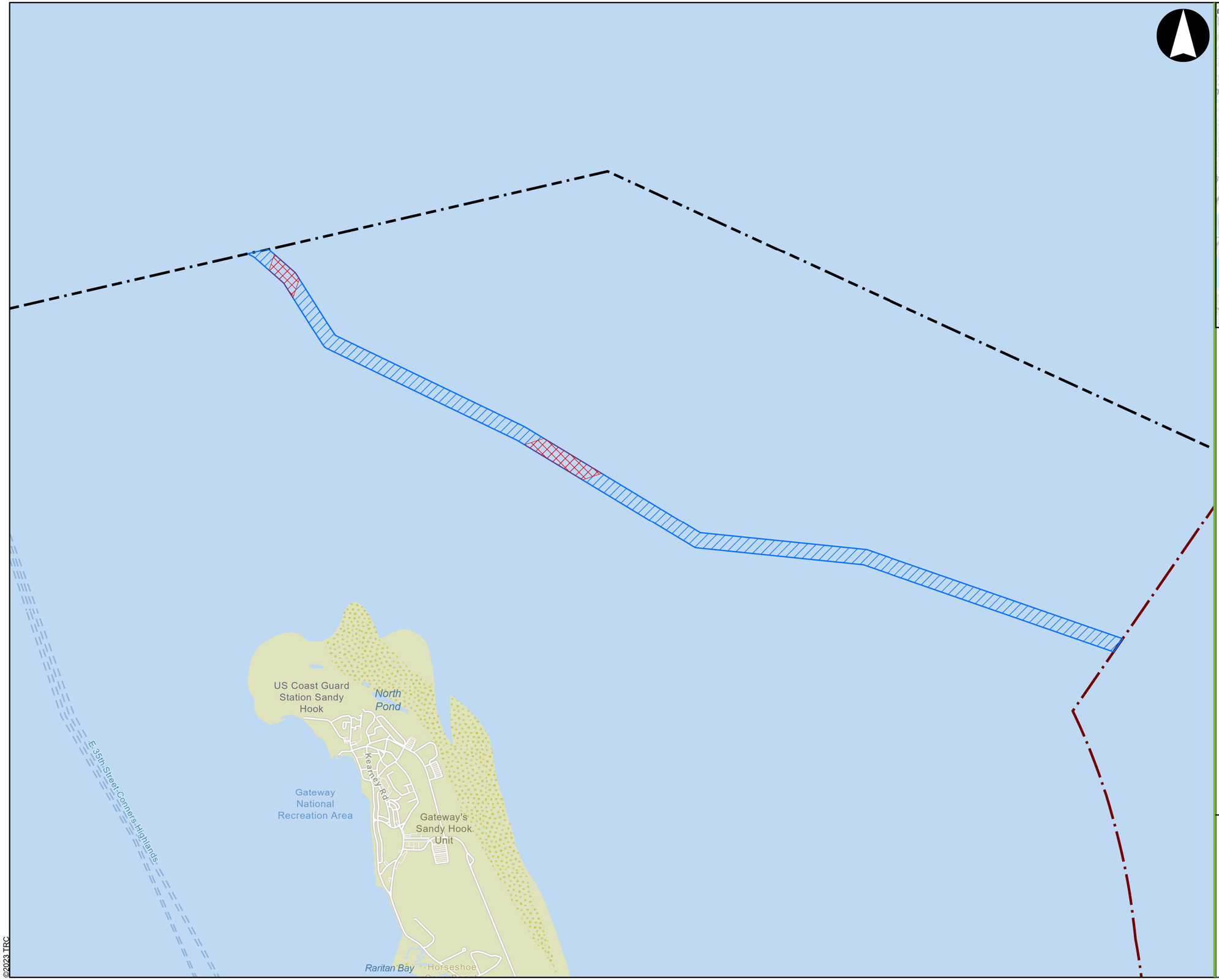

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- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

Note: USGS Quad mapping does not accurately represent state boundary in all locations

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) ESRI, Street Basemap, 2023
2) TRC, Sampling Area, 2023
3) NJOIT, State Boundary, 2016
4) BOEM, State SLA Boundary, 2020

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Figure 4
County Road Maps

Sheet 2 of 2

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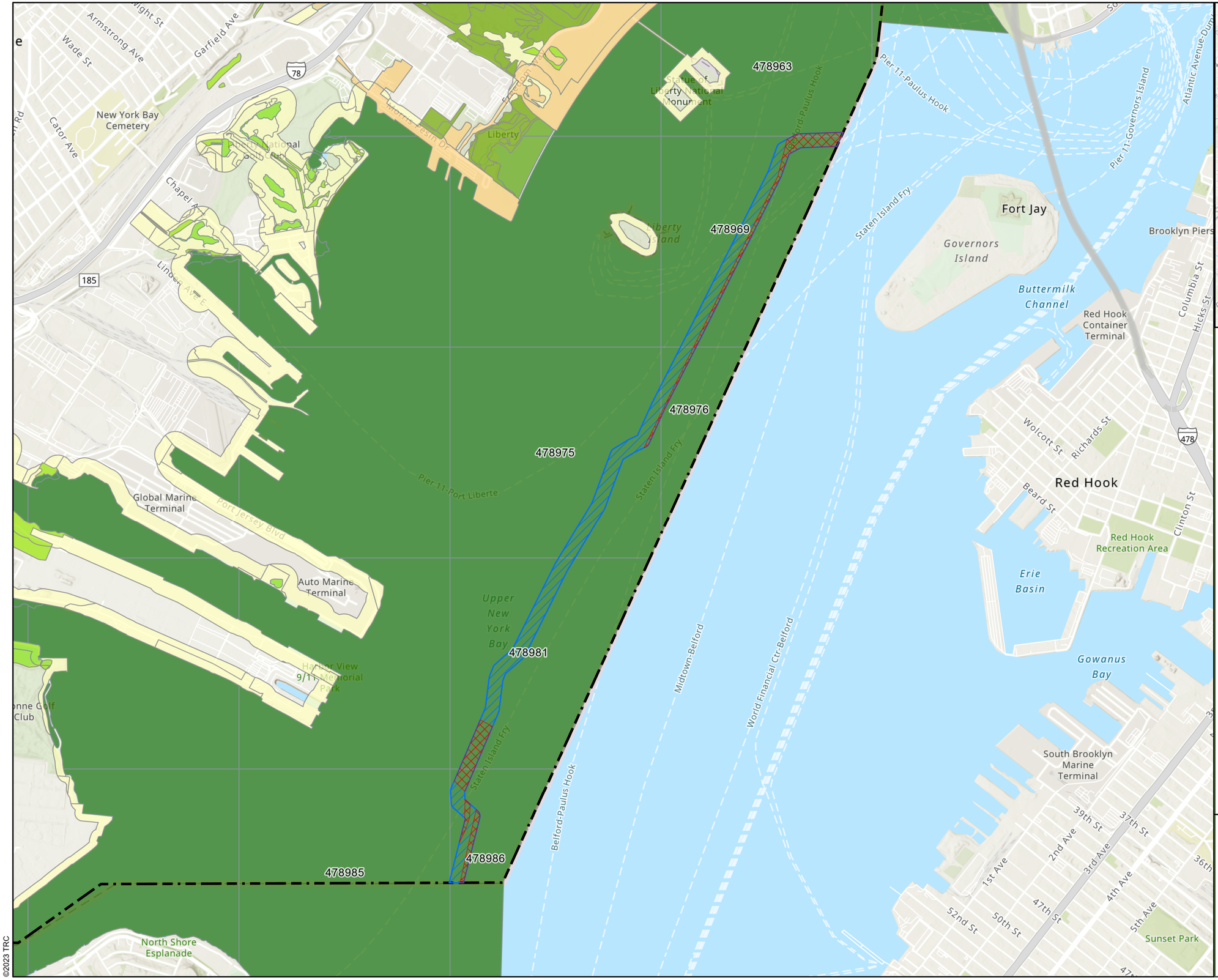

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

NJDEP Landscape Project Habitat Rank

- Rank 1: Habitat-Specific Requirements
- Rank 2: Special Concern
- Rank 3: State Threatened Species
- Rank 4: State Endangered Species
- Rank 5: Federal Listed Species

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NJDEP Landscape Project Data, 2023
2) ESRI, Topo Basemap, 2023
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Figure 6
NJDEP Landscape Project Map
Sheet 1 of 2

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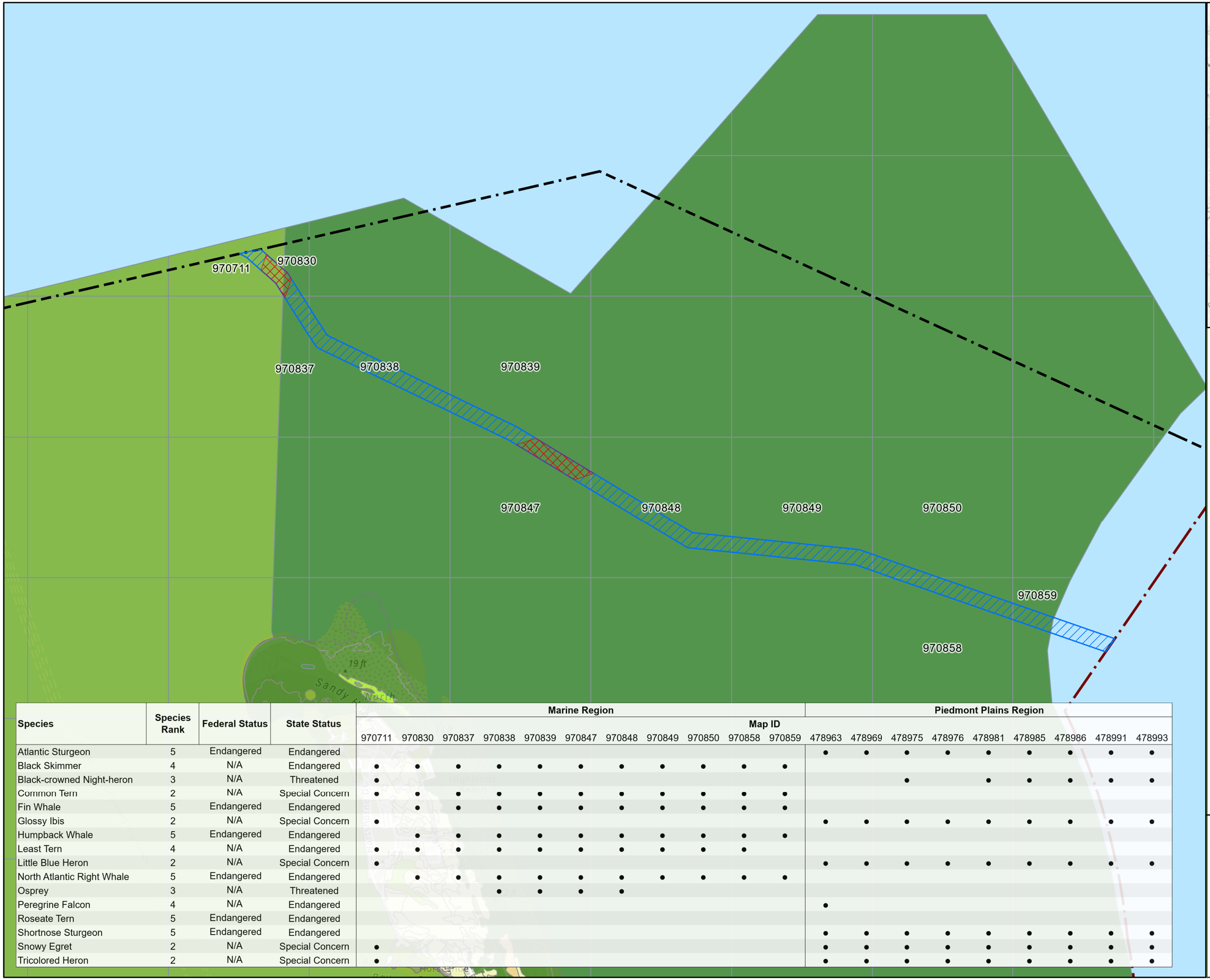

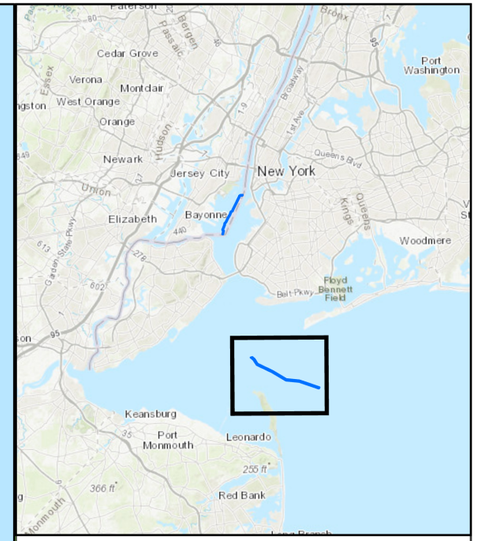

Legend

- Sampling Area
- Sampling Exclusion Area
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NJDEP Landscape Project Habitat Rank

- Rank 1: Habitat-Specific Requirements
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3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Species	Species Rank	Federal Status	State Status	Marine Region											Piedmont Plains Region								
				Map ID																			
				970711	970830	970837	970838	970839	970847	970848	970849	970850	970858	970859	478963	478969	478975	478976	478981	478985	478986	478991	478993
Atlantic Sturgeon	5	Endangered	Endangered												•	•	•	•	•	•	•	•	•
Black Skimmer	4	N/A	Endangered	•	•	•	•	•	•	•	•	•	•	•									
Black-crowned Night-heron	3	N/A	Threatened	•													•		•	•	•	•	•
Common Tern	2	N/A	Special Concern	•	•	•	•	•	•	•	•	•	•	•									
Fin Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Glossy Ibis	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
Humpback Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Least Tern	4	N/A	Endangered	•	•	•	•	•	•	•	•	•	•										
Little Blue Heron	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
North Atlantic Right Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Osprey	3	N/A	Threatened				•	•	•	•													
Peregrine Falcon	4	N/A	Endangered												•								
Roseate Tern	5	Endangered	Endangered																				
Shortnose Sturgeon	5	Endangered	Endangered												•	•	•	•	•	•	•	•	•
Snowy Egret	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
Tricolored Heron	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•

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Figure 6
NJDEP Landscape Project Map
Sheet 2 of 2

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Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary
- Shipwreck (NOAA ENC)
- Shipwreck (AWOIS)
- Marine Obstruction (AWOIS)
- Federal Channel
- Special Urban Areas
- Prime Fishing Areas

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NJDEP, Shellfish Areas, Special Urban Areas, Prime Fishing Grounds, 2023
2) NOAA, Wrecks/Obstructions, 2022
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020
6) ESRI, World Imagery, 2023

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Figure 7
Subchapter 9
Special Areas Map

Sheet 1 of 5

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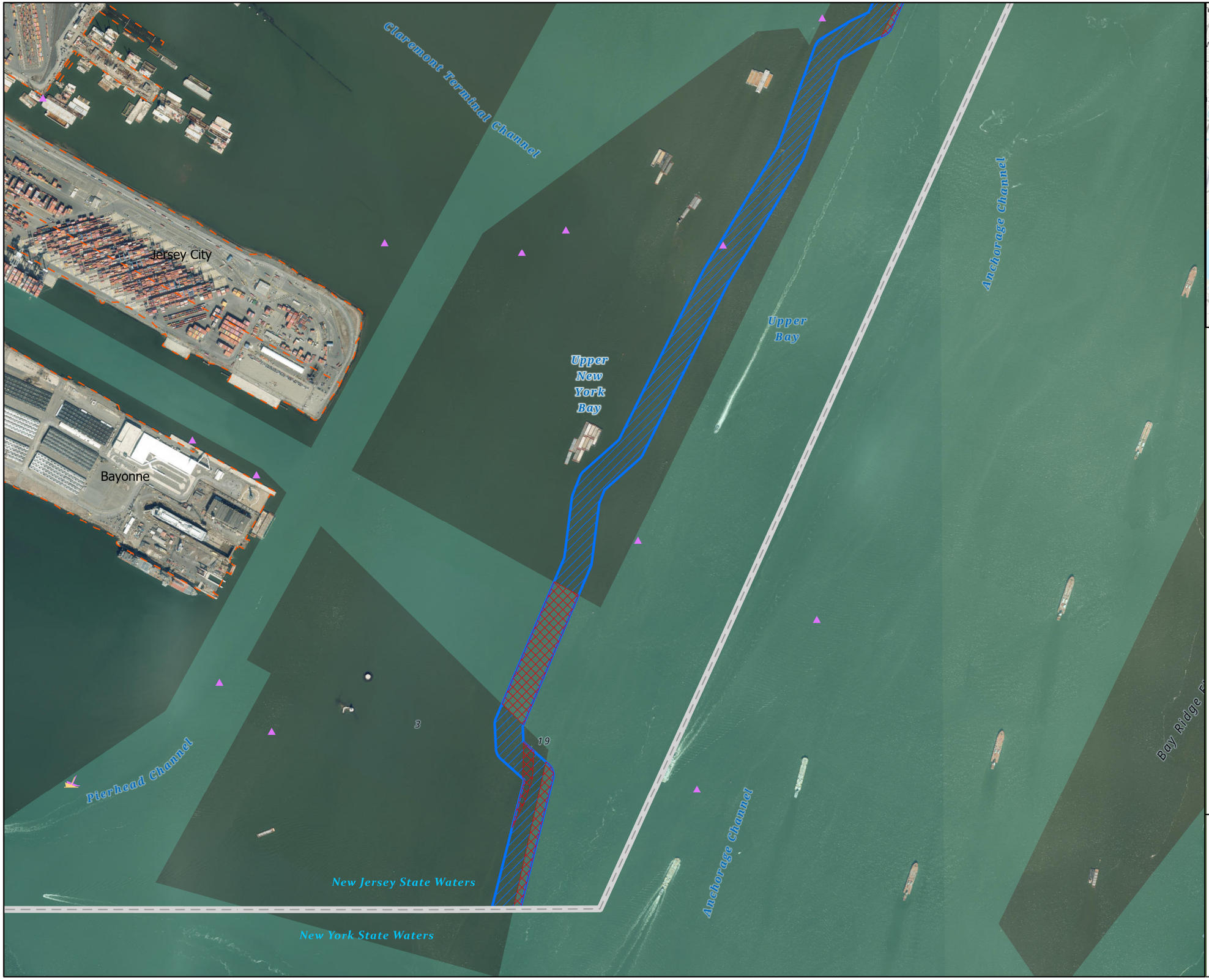

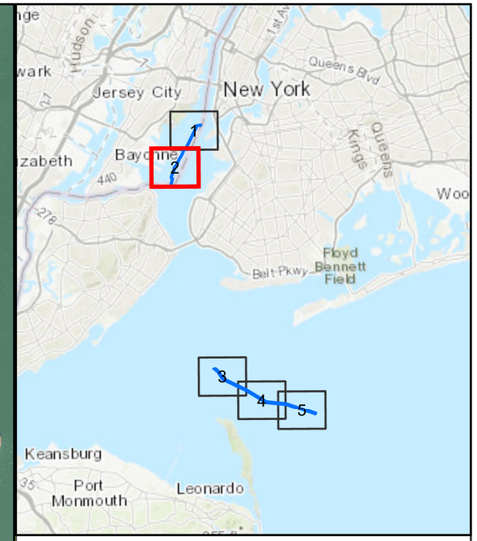

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Figure 7
Subchapter 9
Special Areas Map

Sheet 2 of 5

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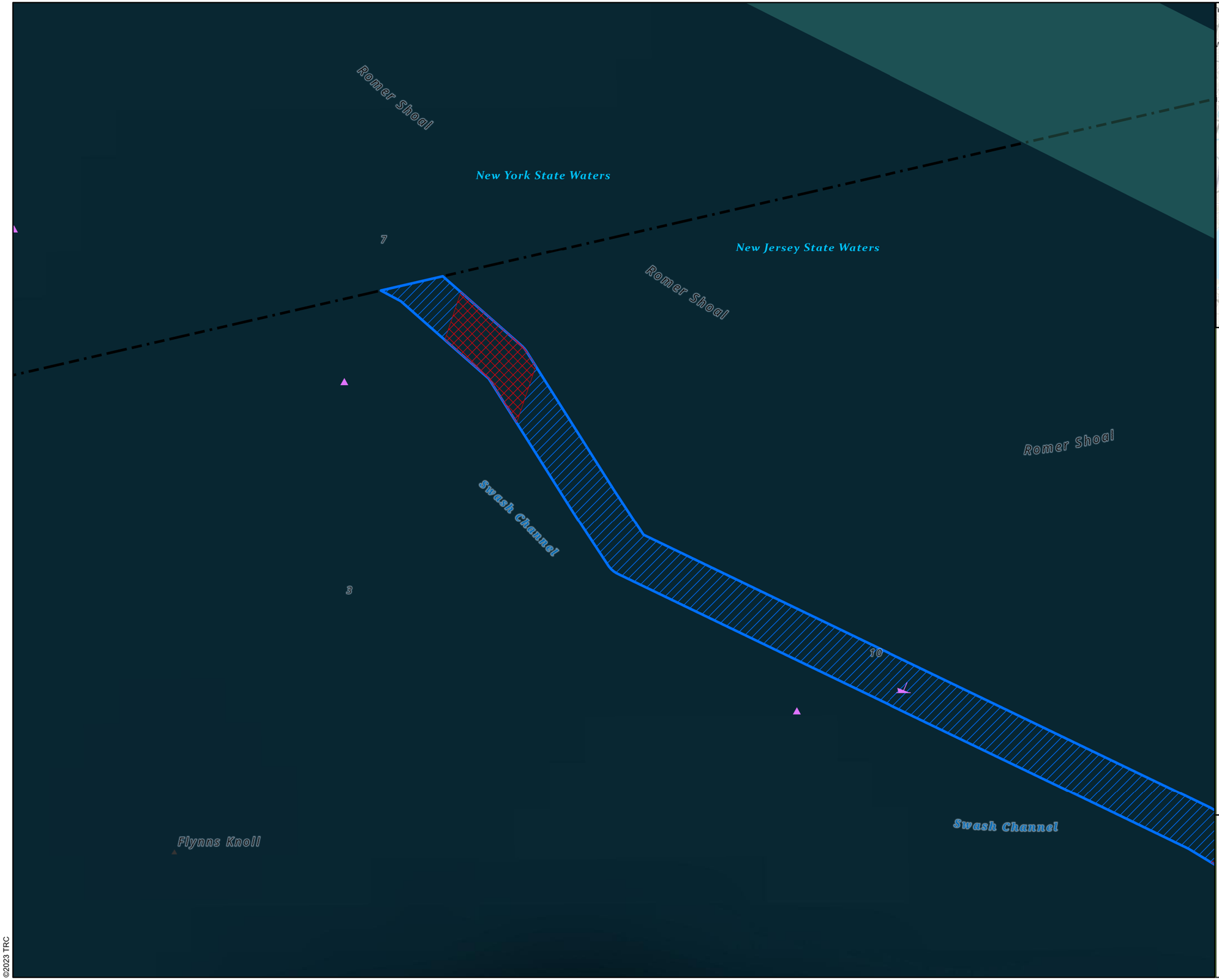

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Figure 7
Subchapter 9
Special Areas Map

Sheet 3 of 5

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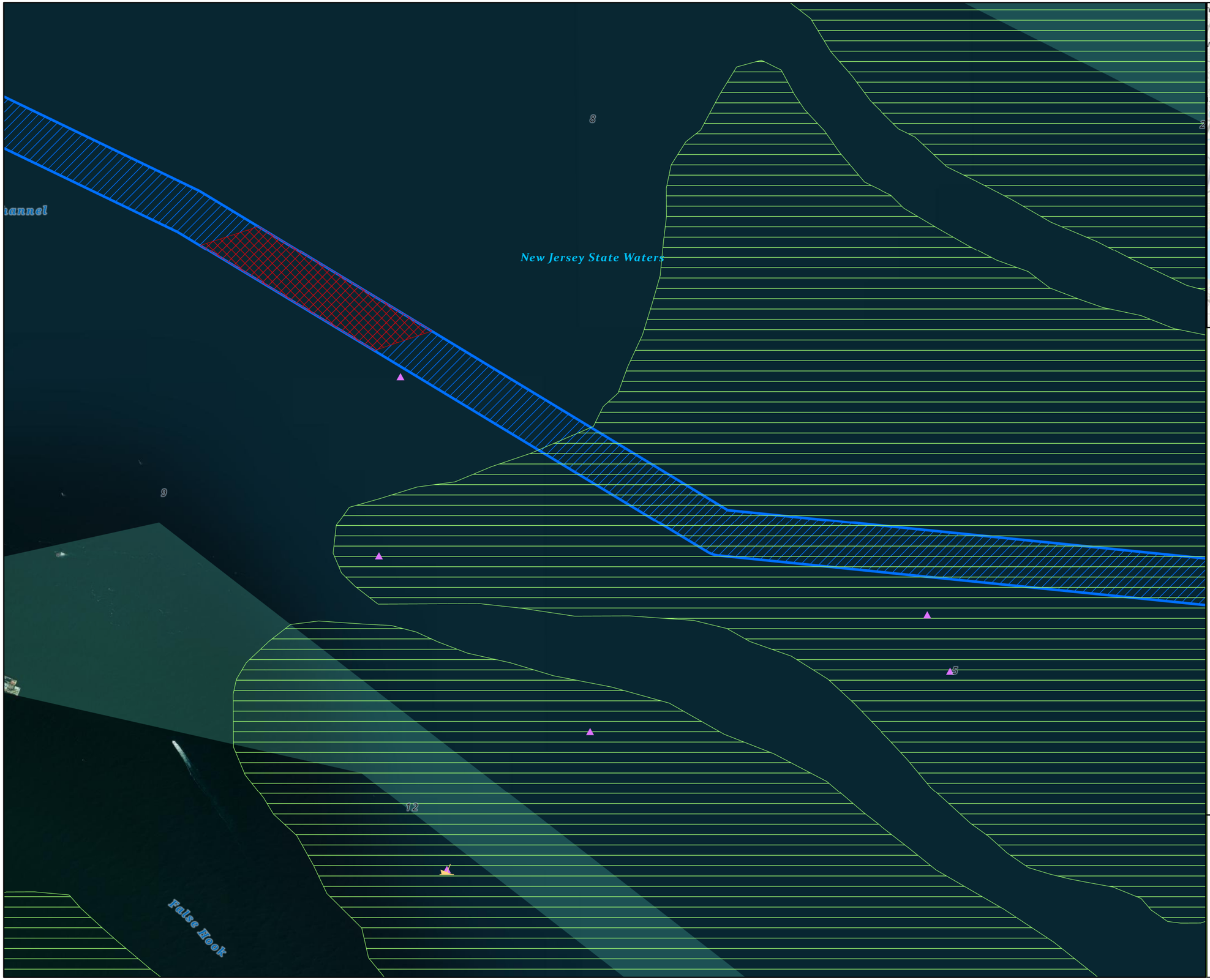

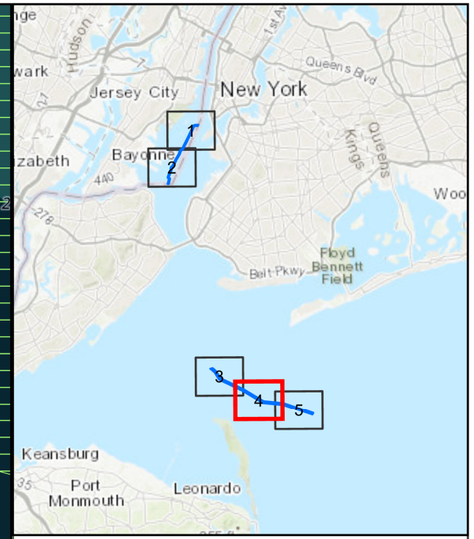

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Figure 7
Subchapter 9
Special Areas Map

Sheet 4 of 5

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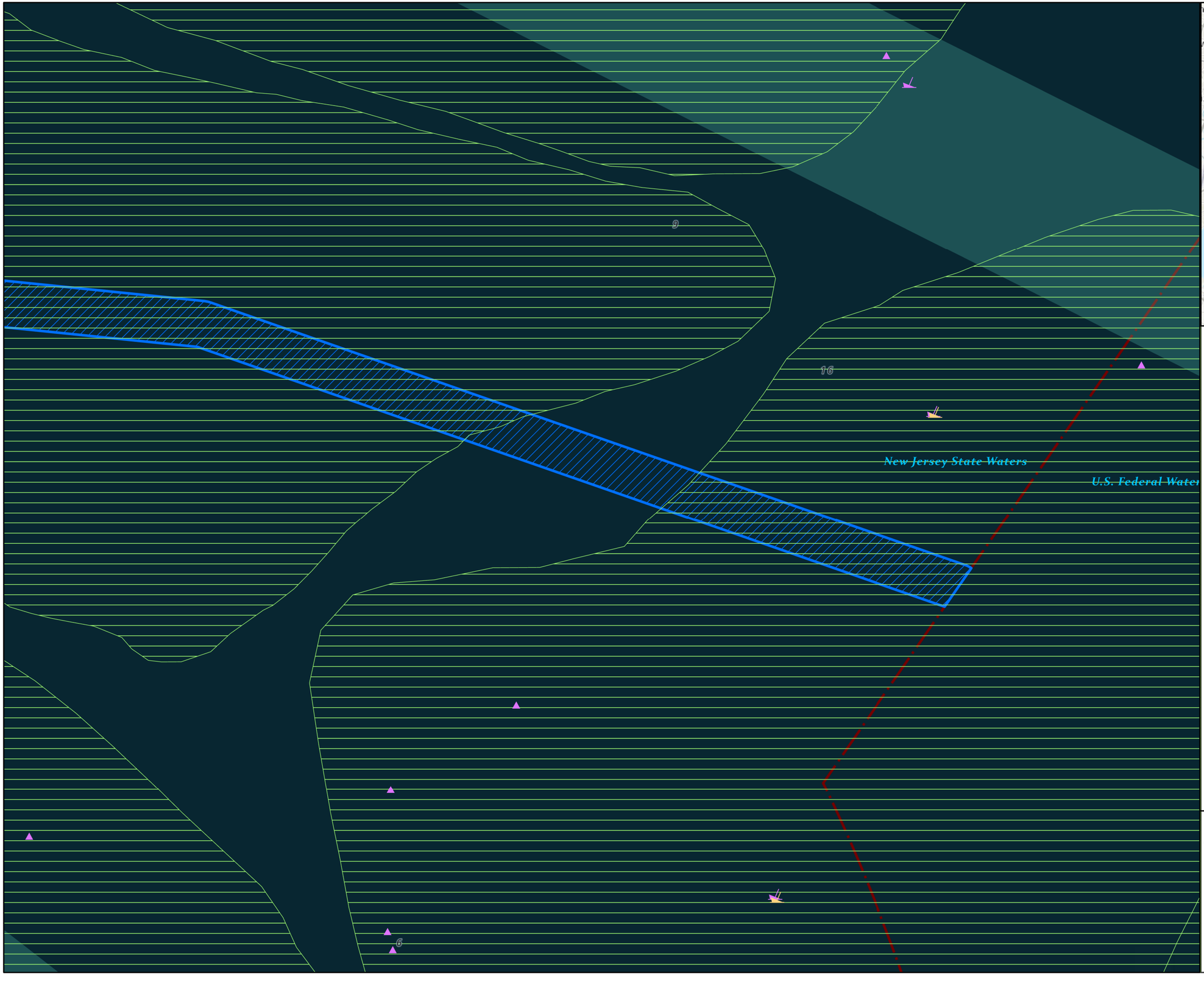

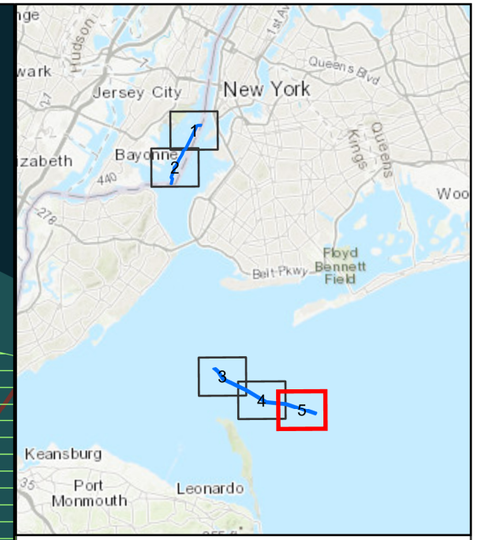

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QUEENSBORO RENEWABLE EXPRESS

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Figure 7
Subchapter 9
Special Areas Map

Sheet 5 of 5

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Appendix A: New Jersey Natural Heritage Program Correspondence

Department of Environmental Protection
Office of Natural Lands Management
Mail Code 501-04, P.O. Box 420
Trenton, New Jersey 08625-0420
Tel. (609) 984-1339; Fax. (609) 984-1427

Invoice

Date	Invoice #
9/28/2023	28576

Bill to:
TRC Engineers, Inc.
404 Wyman Street, Suite 375
Waltham, MA 02451

Make check payable to:
DEP - Office of Natural Lands Management

Include this invoice with payment & send to:
NJDEP Office of Natural Lands Management
Mail Code 501-04, P.O. Box 420
Trenton, New Jersey 08625-0420

Quantity (hrs.)	Description	Rate (per hr.)	Amount
1	Natural Heritage Database search for locational information of rare species and ecological communities. Project: 23-4007461-28576	$ 70.00	$ 70.00
Anna Chase Project Name: Queensboro Renewable Express		**Total**	$ 70.00

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE PARKS, FORESTS & HISTORIC SITES
OFFICE OF NATURAL LANDS MANAGEMENT
501 East State Street
P.O. Box 420, Mail Code 501-04
Trenton, New Jersey 08625-0420
Tel. (609) 984-1339 * Fax (609) 984-1427
https://www.nj.gov/dep/parksandforests/natural/index.html

PHILIP D. MURPHY
Governor

TAHESHA L. WAY
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

September 28, 2023

Anna Chase
TRC Engineers, Inc.
404 Wyman Street, Suite 375
Waltham, MA 02451

Re: Queensboro Renewable Express
NJ Waters within Upper and Lower NY Bay

Dear Anna Chase:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the immediate vicinity of the site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from https://nj.gov/dep/parksandforests/natural/heritage/database.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf.

NHP File No. 23-4007461-28576

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 23-4007461-28576

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Black Skimmer	Rynchops niger	Foraging	4	NA	State Endangered	G5	S1B,S1N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Common Tern	Sterna hirundo	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	Egretta caerulea	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Peregrine Falcon	Falco peregrinus	Urban Nest	4	NA	State Endangered	G4	S1B,S3N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Tricolored Heron	Egretta tricolor	Foraging	2	NA	Special Concern	G5	S3B,S3N
Mammalia								
	Fin Whale	Balaenoptera physalus	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G3G4	S1
	Humpback Whale	Megaptera novaeangliae	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G4	S1

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	North Atlantic Right Whale	Eubalaena glacialis	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G1	S1
Osteichthyes								
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Juvenile Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Black Skimmer	Rynchops niger	Foraging	4	NA	State Endangered	G5	S1B,S1N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Common Tern	Sterna hirundo	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	Egretta caerulea	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Peregrine Falcon	Falco peregrinus	Urban Nest	4	NA	State Endangered	G4	S1B,S3N
	Roseate Tern	Sterna dougallii dougallii	Foraging	5	Federally Listed Endangered	State Endangered	G4T3	S1B,S1N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Tricolored Heron	Egretta tricolor	Foraging	2	NA	Special Concern	G5	S3B,S3N
Mammalia								
	Fin Whale	Balaenoptera physalus	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G3G4	S1
	Humpback Whale	Megaptera novaeangliae	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G4	S1

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	North Atlantic Right Whale	Eubalaena glacialis	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G1	S1
Osteichthyes								
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Juvenile Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1

Appendix B: Endangered or Threatened Wildlife Species Habitat Impact Assessment

Endangered or Threatened Wildlife Species Habitat Impact Assessment

In-Water Waterfront Development Permit Application

Queensboro Renewable Express Benthic and Sediment Sampling

Prepared For:

Queensboro Development, LLC
1700 Broadway, 35th Floor
New York, NY 10019

Prepared By:

TRC
404 Wyman Street, Suite 375
Waltham, MA 02451

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 Introduction

Queensboro Development, LLC, ("Queensboro") a wholly owned indirect subsidiary of Rise Light & Power, LLC, is submitting an In-Water Waterfront Development Individual Permit Application to the New Jersey Department of Environmental Protection ("NJDEP") for authorization to conduct benthic and sediment sampling activities in waters of the State of New Jersey ("waters of the State") to characterize marine sediments. The purpose of the benthic and sediment sampling is to support design and permitting of the Queensboro Renewable Express, a ±400 kilovolt submarine cable facility, designed to deliver approximately 2.62 gigawatts of wind energy generated in Bureau of Ocean Energy Management ("BOEM") Lease Area(s) located in the federal waters of the Outer Continental Shelf into NYISO Zone J at the site of the Ravenswood Generating Facility in Long Island City, New York.

Review of the New Jersey Landscape Project Maps (Figure 1), and data provided by the New Jersey Natural Heritage Program (Appendix A) indicates that habitats or occurrences of state and federally listed endangered or threatened wildlife species occur in the vicinity of the proposed benthic and sediment sampling activities. To demonstrate compliance with N.J.A.C. 7:7-9.36, N.J.A.C. 7:7-11.2, and N.J.A.C. 7:7-11.4, Queensboro conducted this endangered or threatened wildlife species habitat impact assessment.

1.1 Location of the Proposed Sampling

The benthic and sediment sampling will include collection of sediments using vibracores and benthic grabs, and will be conducted in two distinct areas in waters of the State, each referred to as a "Sampling Area" (Figures 2 and 3):

1. Lower New York Bay and Atlantic Ocean Sampling Area – Ten benthic grab samples, ten sediment vibracore samples, and five geothermal vibracore samples will be collected in an approximately 6.0-mile-long, 360-acre area located in Lower New York Bay and the Atlantic Ocean offshore of Middletown and Atlantic Highlands in Monmouth County.
2. Upper New York Bay Sampling Area – Three sediment vibracore samples and one geothermal vibracore sample will be collected within an approximately 3.6-mile-long, 132-acre area located in Upper New York Bay offshore of Bayonne and Jersey City in Hudson County.

1.2 Summary of Disturbance and Potential Impacts

Sampling activities are expected to cause minor and localized temporary impacts in the Sampling Areas. Collection of vibracores and benthic grab samples will result in a total combined temporary disturbance area of up to 0.025 acres of subtidal sediments including up to 0.02 acres in Lower New York Bay and Atlantic Ocean and up to 0.005 acres in Upper New York Bay (Table 1.1).

The benthic grab sampler will result in a bottom impact of approximately 4 square feet for each grab deployed. A maximum of two attempts will occur for collection of each of the benthic grabs. The total estimated bottom impact from benthic grabs is between approximately 40 square feet (0.001 acres), assuming one attempt for all 10 grabs, and 80 square feet (0.002 acres), assuming two attempts for all 10 grabs.

Vibracore sample collection will result in a seabed impact of approximately 27 square feet for each sample collection attempt, including impacts from the vibracore stand and approximately 0.09 square feet of impacts for each 4-inch outer diameter vibracore. The total estimated seabed impact from vibracoring would be approximately 513 square feet (0.012 acres), assuming one attempt for all 19 vibracores samples, to 1,026 square feet (0.024 acres), assuming two attempts for all 19 vibracores samples.

Table 1.1. Estimated Maximum Disturbance Areas Due to Benthic and Sediment Sampling Activities

Sample Type	Estimated Disturbance Per Sample (Square Feet)	Lower New York Bay and Atlantic Ocean			Upper New York Bay		
		No. Sample Locations	Square Feet	Acres	No. Sample Locations	Square Feet	Acres
Benthic Grabs	4	10	80	0.002	0	0	0
Vibracores	27	15	810	0.019	4	216	0.005
Total			**890**	**0.020**		**216**	**0.005**
Notes: Calculation of maximum disturbance area conservatively assumes two attempts per sample.							

Areas where sediment will be removed during sampling activities will be very limited in size. Although (benthic grab sizes can vary, each sample area is expected to be less than two square feet, while vibracore sample areas measure four inches in diameter. Holes left following collection of these samples will rapidly fill in due to natural sediment repositioning and deposition as a result of tidal currents, passage of vessels, and episodic storm events.

Sediment disturbance due to sampling activities may result in negligible localized and temporary increases in suspended sediments from sampling tool contact with the bottom. Sediments disturbed due to survey activities will rapidly settle out of the water column and will have negligible to no impacts on water quality.

The benthic and sediment sampling will generate noise associated with sampling equipment deployment and vessel operation. Both the Lower New York Bay and Atlantic Ocean Sampling Area and the Upper New York Bay Sampling Area are heavily trafficked by a wide range of vessels. Equipment noise associated with the benthic and sediment sampling activities will be negligible when compared to other vessel traffic in the area.

Additional details of the benthic and sediment sampling can be found in the Queensboro Renewable Express Benthic and Sediment Sampling In-Water Waterfront Development Individual Permit Application Environmental Impact Statement, submitted on October 12, 2023.

2.0 Endangered and Threatened Species with Identified Habitats in the Sampling Areas

On August 31, 2023, a New Jersey Natural Heritage Program ("NJNHP") database search request was submitted for the Sampling Areas. The result of the NJNHP review, received on September 23, 2023, indicates that the Sampling Areas are located either in potential habitat for or near previously recorded occurrences of several state and federally listed endangered or threatened species (see Appendix A for copies of correspondence with the NJNHP). These species are listed

in Table 2.1, with New Jersey Landscape Project maps shown in Figure 1. For each listed species, a brief description of life history characteristics and habitat usage are also presented. Discussions of potential impacts to protected species populations and habitats from benthic and sediment sampling activities are then described in Section 3.0.

Table 2.1. Endangered and Threatened Species with Identified Habitats in the Sampling Areas

Wildlife Category	Common Name	Scientific Name	Federal Status*	State Status*	Habitat Presence within the Sampling Area	
					Lower New York Bay and Atlantic Ocean	Upper New York Bay
Birds	Black skimmer	*Rynchops niger*	-	E	•	
	Black-crowned night-heron	*Nycticorax nycticorax*	-	T	•	•
	Least tern	*Sternula antillarum*	-	E	•	
	Roseate tern	*Sterna dougallii*	E	E	•	
	Osprey	*Pandion haliaetus*	-	T	•	
	Peregrine falcon	*Falco peregrinus*	-	E		•
Whales	Fin whale	*Balaenoptera physalus*	E	E	•	
	Humpback whale	*Megaptera novaeangliae*	-	E	•	
	North Atlantic right whale	*Eubalaena glacialis*	E	E	•	
Fish	Atlantic sturgeon	*Acipenser oxyrinchus*	E	E		•
	Shortnose sturgeon	*Acipenser brevirostrum*	E	E		•

*E: Endangered, T: Threatened, -: not listed

2.1 Birds

Consultation with NJ Natural Heritage Program [September 28,2023; copies of correspondence included in Appendix A] and review of the Landscape Project Mapper indicate the potential presence of several state listed and one federally listed endangered and threatened bird species in the Sampling Areas. These species include birds of prey, wading birds, and waterbirds.

2.1.1 Black Skimmer (*Rynchops niger*)

The black skimmer (*Rynchops niger*) is a seabird that is listed as endangered in New Jersey. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Primary threats to black skimmers include tidal flooding and predation, as well as human disturbance and beach raking (NJDEP n.d.a).

Black skimmers are largely crepuscular (active at dawn and dusk) and exhibit a unique foraging strategy. Individuals fly above the water surface with their lower mandible plowing through the water, grabbing prey (primarily small fish) from just below the surface (NJDEP n.d.a, National Audubon Society 2023a). Black skimmers primarily forage in calm coastal waters protected from open surf, including estuaries, tidal creeks lagoons, inlets, ponds, and bays (NJDEP n.d.a, National Audubon Society 2023a).

Black skimmers nest on the ground in sparsely vegetated sandy areas of beaches, islands, sandbars, and shell banks (NJDEP n.d.a, National Audubon Society 2023a). This species has also been documented to nest on marsh islands on wrack mats (NJDEP n.d.a).

Black skimmers migrate southward in winter (National Audubon Society 2023a) and are therefore not anticipated to be present in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area during sample collection.

2.1.2 Black-crowned Night-heron (*Nycticorax nycticorax*)

The black-crowned night heron (*Nycticorax nycticorax*) is a wading bird that is listed as threatened in New Jersey. Habitat for this species is mapped to occur in the vicinity of both the Upper New York Bay Sampling Area and the Lower New York Bay and Atlantic Ocean Sampling Area. Primary threats to this species include habitat destruction, exposure to contaminants (PCBs, etc.), and disturbance of nesting colonies (NJDEP n.d.b).

Black-crowned night-herons forage in a wide variety of shallow water habitats, including marshes, creeks, ponds, tide pools, mudflats, salt marshes, and tidal channels (NJDEP n.d.b, National Audubon Society 2023b).This species is most active in the late evening through the night but can forage in the day (National Audubon Society 2023b). Black-crowned night-herons eat mostly fish, but will also consume crustaceans, mollusks, aquatic insects, frogs, snakes, rodents, and carrion (National Audubon Society 2023b).

Roosting areas and nesting aggregations (heronries) occur at protected sites in proximity to water in wooded swamps, hardwood forests, scrub or hardwood thickets, coastal dune forests, and marshes (NJDEP n.d.b). Black-crowned night-herons breed in single-species or mixed-species colonies, and construct nests in sturdy vegetation generally at a height of 10 to 40 ft, though ground nesting also occurs (National Audubon Society 2023b).

Black-crowned night-herons can be found in New Jersey year-round (National Audubon Society 2023b). However, as this species forages only in shallow shoreline areas, and roosts and nests only in wetland and upland areas, it is not anticipated to be present in the Sampling Areas.

2.1.3 Least Tern (*Sternula antillarum*)

The least tern (*Sternula antillarum*) is listed as endangered in New Jersey. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Primary threats to the least tern include coastal development and anthropogenic disturbances of nesting areas, as well as predation and coastal flooding (NJDEP n.d.c).

Least terns forage in estuaries, bays, lagoons, salt flats, and coastal lakes and rivers (NJDEP n.d.c, National Audubon Society 2023c). These birds feed primarily on small fish, but will also consume mollusks, insects, marine worms, and crustaceans (NJDEP n.d.c, National Audubon Society 2023c). Least terns hover above the water to locate food, then plunge into the water to take prey from just below the surface (National Audubon Society 2023c).

Least terns are ground nesting birds that require bare sandy areas (NJDEP n.d.c). They primarily nest in colonies and prefer locations just upland of the spring tide line (NJDEP n.d.c). In New Jersey, least terns often nest along beach strands and barrier island beaches (NJDEP n.d.c); however, this species will nest on dredge disposal sites, in sand and gravel pits, and sometimes on gravel roofs (National Audubon Society 2023c). Least tern nest sites are often disturbed by beachgoers (National Audubon Society 2023c).

Least terns leave North America and migrate southward to tropical regions in the winter (National Audubon Society 2023c) and are therefore not anticipated to be present within the Sampling Areas during sample collection.

2.1.4 Roseate Tern (*Sterna dougallii*)

The roseate tern (*Sterna dougallii*) is a federally and New Jersey state listed endangered waterbird. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Primary threats to the roseate tern include habitat loss, disturbance of nesting areas, and predation by gulls (NJDEP n.d.d, USFWS 2023).

Roseate terns primarily forage by plunge-diving in coastal and marine areas, including seacoasts, bays, estuaries, inlets and offshore waters (NJDEP n.d.d). Fish are their primary prey source, though roseate terns will also consume crustaceans and mollusks (National Audubon Society 2023d).

Along the Atlantic Coast, roseate terns nest primarily on islands in sandy beach, open bare ground, and grassy habitats, typically near areas with cover or shelter (NJDEP n.d.d, National Audubon Society 2023d). Roseate terns are considered to be a non-breeding species in the state by the New Jersey Natural Heritage Program (NJDEP n.d.d).

Roseate terns leave North America and migrate southward to the Caribbean and coastal South America in the winter (National Audubon Society 2023d). Therefore, this species is not anticipated to be present within the Sampling Areas during sample collection.

2.1.5 Osprey (*Pandion haliaetus*)

The osprey (*Pandion haliaetus*) is listed as threatened in New Jersey. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. The osprey was previously listed as endangered in New Jersey but was reclassified as threatened in 1992 following substantial population recovery (due to reductions in pesticide and contaminant exposure, and the acceptance of man-made nest structure) (CWFNJ n.d., NJDEP n.d.e).

Osprey are adapted to an exclusive diet of fish and hunt by diving, feet first, several feet into the water (CWFNJ n.d.). They are found in a wide variety of water-associated habitats, including coastal marshes, bays, inlets, and rivers, as well as inland waterbodies (NJDEP n.d.e).

Osprey build large stick nests in proximity to waterbodies, typically on dead trees, or manmade structures (e.g., light poles, channel markers, purpose-built nesting platforms) that offer unobstructed views of the surrounding area (NJDEP n.d.e). In New Jersey, osprey begin to arrive at breeding grounds in late March, and depart for overwintering areas (Florida, gulf coast states, and points south) in late August to early September (CWFNJ n.d.).

Osprey migrate to southern regions (Florida, Cuba, Central America, etc.) in the winter (National Audubon Society 2023e) and are therefore not anticipated to be present within the Sampling Areas during sample collection.

2.1.6 Peregrine Falcon (*Falco peregrinus*)

The peregrine falcon (*Falco peregrinus*) is listed as endangered in New Jersey. Habitat for this species is mapped to occur in the vicinity of the Upper New York Bay and Atlantic Ocean Sampling Area. Primary threats to the peregrine falcon include exposure to environmental contaminants including pesticides, heavy metals, and PCBs (NJDFW 2015).

Peregrine falcons are found in a wide variety of habitats, often near water and in coastal areas (National Audubon Society 2023f). These raptors feed almost entirely on birds, including pigeons, ducks, waterbirds, gulls, and songbirds. When taking prey, peregrine falcons perform high speed dives, striking their target in midair (National Audubon Society 2023f). Prey is consumed on the ground (National Audubon Society 2023f).

Peregrine falcons do not construct nests; eggs are laid in simple depressions, usually in gravel substrate (NJDFW 2015, National Audubon Society 2023e). On cliff ledges or man-made structures (buildings, bridges) (Audubon). Most peregrine falcons that nest in New Jersey remain in the area year-round (NJDFW 2015).

Peregrine falcons can be found in New Jersey year-round (White et al. 2020), and therefore could be transient in the vicinity of the Upper New York Bay and Atlantic Ocean Sampling Area during sample collection.

2.2 Whales

Habitat for three state and federally listed endangered whale species, the fin whale (*Balaenoptera physalus)*, humpback whale (*Megaptera novaeangilae)*, and North Atlantic right whale

(*Eubaelena glacialis)*, was identified in the Lower New York Bay and Atlantic Ocean Sampling Area.

2.2.1 Fin Whale (Balaenoptera physalus)

Fin whales are the second largest whale species, and typically feed on krill and schooling fish in the Gulf of Maine and the waters surrounding New England (Hayes et al. 2022). Fin whales are fast swimmers and are most commonly found in groups of two to seven individuals, although they have been observed feeding in larger groups of mixed species (Hayes et al. 2022; NOAA Fisheries 2022a).

Fin whales, if present in the vicinity of the Sampling Areas, are expected to be part of the Western North Atlantic stock, which is comprised of fin whales off the eastern coast of the United States, Nova Scotia, and the southeastern coast of Newfoundland. Fin whales are federally and New Jersey state listed as endangered. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Like most other whale species present along the eastern coast of the United States, ship strikes and fisheries entanglements are causes of serious injury and mortality, although contaminants and climate-related changes may impact this population as well (Hayes et al. 2022).

The range of the Western North Atlantic stock of fin whales extends from the Gulf of Mexico and Caribbean Sea to the southeastern coast of Newfoundland in the north (Hayes et al. 2022). Fin whales generally migrate from the Arctic and Antarctic coastal feeding areas in the summer to deeper tropical breeding and calving areas in the winter (Hayes et al. 2022). However, not all fin whale individuals migrate annually (Aguilar 2009), and fin whales have been observed and acoustically detected in all seasons in waters of the State of New Jersey (Geo-Marine 2010). During migration, they generally travel in open seas away from coastal areas; however, calving, mating, and wintering locations are unknown for most of the fin whale population (Hayes et al. 2022). and fin whales are broadly distributed throughout the western North Atlantic in all seasons (Hayes et al. 2022). Critical habitat has not been designated under the Endangered Species Act ("ESA") for fin whales in the western Atlantic.

2.2.2 Humpback Whale (Megaptera novaeangilae)

Humpback whales are a cosmopolitan species of baleen whale that feeds on small prey, including krill and fish such as herring and sand lance (Kenney and Vigness-Raposa 2009). Humpback whales use unique behaviors including bubble nets, bubble clouds, and flickering of their flukes and fins, to herd and capture prey (NMFS 1991).

Humpback whales were previously listed as endangered under the ESA throughout its range. In September 2016, National Oceanic and Atmospheric Administration ("NOAA") Fisheries identified fourteen Distinct Population Segments ("DPS") of humpback whale worldwide and revised the ESA listing for this species (81 FR 62259). The humpback whales living along the North American Atlantic coast belong to the West Indies DPS, which is not at risk and has been delisted from the ESA (81 FR 62259). Humpback whales are New Jersey state listed as endangered. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Human impacts, including vessel collision and fishing gear entanglements, may be slowing the population recovery of the humpback whale (Hayes et al. 2020). The large majority

of humpbacks that inhabit the waters off the eastern United States, including individuals that may occur within the Sampling Areas, belong to the Gulf of Maine stock.

Humpback whales in the Gulf of Maine stock typically feed in the waters between the Gulf of Maine and Newfoundland during the spring, summer, and fall, but have been known to feed over a range that encompasses the entire coast along the eastern United States (Hayes et al. 2020). Humpback whales generally migrate to the West Indies (including the Antilles, the Dominican Republic, the Virgin Islands, and Puerto Rico) in the winter, where they mate and calve their young (Hayes et al. 2020). However, not all humpback whales from the Gulf of Maine stock migrate to the West Indies every winter; significant numbers of animals can be found in mid- and high-latitude regions at this time (Swingle et al. 1993). Humpback whales have been sighted in the New York-New Jersey harbor estuary, and in proximity to New York City (Brown et al. 2018, Hayes et al. 2020). This species has been observed in waters of the State of New Jersey during all seasons (Geo-Marine 2010). There are currently no critical habitat areas designated for this species near the Sampling Areas (Hayes et al. 2020).

2.2.3 North Atlantic Right Whale (Eubaelena glacialis)

North Atlantic right whales ("NARWs") are among the rarest of all marine mammal species. These whales are slow moving grazers that feed on dense concentrations of prey, primarily zooplankton and copepods belonging to the *Calanus* and *Pseudocalanus* genera (Hayes et al. 2022), anywhere in the water column from the surface to the seafloor (NOAA Fisheries 2023b). Research suggests that NARW must locate and exploit extremely dense patches of zooplankton to feed efficiently (Mayo and Marx 1990). These dense zooplankton patches are likely a primary characteristic of the spring, summer, and fall NARW habitats (Kenney et al. 1986; Kenney et al. 1995).

The NARWs occurring in waters of the Unites States waters belong to the western Atlantic stock. The most recent official estimate of minimum NARW population size is 338 individuals (Hayes et al. 2023). NARW are federally and New Jersey state listed as endangered. Habitat for this species is mapped to occur in the vicinity of the Lower New York Bay and Atlantic Ocean Sampling Area. Due to the small NARW population size, it is estimated that human sources of mortality (including fisheries entanglement and vessel strikes) have a disproportionately large effect on population growth (Hayes et al. 2023). Additionally, changes to NARW habitat have caused migration into new territory, which has exposed NARWs to new anthropogenic threats (NOAA Fisheries 2023b).

The NARW is a strongly migratory species that exhibits condition-dependent partial migration; though all NARW have the potential to migrate each winter to the southeastern United States, only a portion of the NARW population migrates in any given year (Gowan et al. 2019). Migration behavior and habitat use varies between years and across different demographic groups (Gowan et al. 2019). Generally, NARW occupy feeding grounds in New England waters, the Canadian Bay of Fundy and Scotian Shelf, and the Gulf of St. Lawrence in spring, summer, and fall, and travel to their sole known calving and wintering grounds in the waters of the southeastern United States (Kenney and Vigness-Raposa 2009), late in the year. Mid-Atlantic waters, including nearshore waters of the State of New Jersey, are a primary migration corridor during these seasonal migrations (Geo-Marine 2010, Knowlton et al. 2002, Firestone et al. 2008). The Lower New York Bay and Atlantic Ocean Sampling Area is not located in either of the two NMFS-designated critical habitat areas for the NARW: the Northeastern U.S. Foraging Area is located in

the Gulf of Maine/Georges Bank region, or the southeastern United States. Calving area in coastal waters from North Carolina to Florida (81 FR 4837).

2.3 Sturgeon

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*), both listed as endangered federally and by the state of New Jersey, may occur in the Upper New York Bay Sampling Area.

2.3.1 Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus)

The Atlantic sturgeon is a long-lived estuarine-dependent, anadromous species that is found along the eastern coast of North America from Canada to Florida (NOAA Fisheries 2023c). This species, which consumes benthic invertebrates, spends the majority of its life in marine waters, but spawns in freshwater (NOAA Fisheries 2023c).

Four Atlantic sturgeon DPS's were federally listed as endangered under the ESA in 2012: the New York Bight DPS, Chesapeake Bay DPS, Carolina DPS, and South Atlantic DPS (NOAA Fisheries 2023c). The Gulf of Maine DPS was also federally listed as threatened in 2012. Atlantic sturgeon occurring in the Sampling Areas would belong to the New York Bight DPS. Habitat for this species is mapped to occur in the vicinity of the Upper New York Bay Sampling Area.

Critical habitat for the New York Bight DPS of Atlantic sturgeon was established by NMFS in 2017 and includes approximately 547 kilometers (340 miles) of aquatic habitat in the Hudson, Connecticut, Housatonic, and Delaware Rivers (82 CFR 39160). Benthic and sediment sampling activities will not occur within designated Critical Habitat, which is located outside the Upper New York Bay Sampling Area to the north in the Hudson River. NMFS determined that the key conservation objective for the New York Bight DPS was promoting increased reproduction and recruitment (82 FR 39160). Primary threats to Atlantic sturgeon include unintended bycatch, habitat degradation, habitat impediments (e.g., dams), and vessel strikes (NOAA Fisheries 2023c).

Spawning adult Atlantic sturgeon in the New York Bight DPS move into the Hudson River Estuary from marine waters from April to May (Bain et al. 1998a). Spawning locations are not well-documented, and Atlantic sturgeon spawning likely do not occur in the lower ~100 km of the Hudson River due to the intolerance of their eggs and larvae to brackish conditions (Bain 1997). When not undergoing spawning migrations, adult and late-juvenile life stage Atlantic sturgeon primarily occur in coastal marine waters (Smith 1985). A recent study tracked Atlantic sturgeon detections within the New York Wind Energy Area (in the New York Bight; not in the Sampling Areas) and observed distinct seasonal trends; detections of Atlantic sturgeon peaked from November through January, and the species was uncommon or entirely absent in summer months (Ingram et al. 2019).

Adult Atlantic sturgeon would be expected to occur in the Upper New York Bay Sampling Area while migrating between their preferred spawning areas in the Hudson River (upstream of the Sampling Area) and preferred overwintering areas in coastal waters (seaward of the Sampling Area). These migrations take place in the spring and fall months; not in the December to January timeframe when benthic and sediment sampling is planned to occur. Juvenile Atlantic sturgeon

are expected to remain upriver of the Upper New York Bay Sampling Area during winter and spring, when benthic and sediment sampling is planned.

2.3.2 Shortnose Sturgeon (Acipenser brevirostrum)

The shortnose sturgeon is a long-lived, late-maturing fish found in large rivers and estuaries of the North America eastern seaboard from the Indian River in Florida to the St. John River in Canada (NOAA Fisheries 2023d). Shortnose sturgeon are amphidromous fish, which spend the majority of their lives in the river in which they were born (NOAA Fisheries 2023d). Individuals may occasionally enter the marine environment, but generally remain close to shore, and overwinter and spawn in freshwater (NOAA Fisheries 2023d, Moser and Ross 1995, Collins and Smith 1997). Shortnose sturgeon are bottom feeders, with a diet consisting of benthic insects, crustaceans, mollusks, and annelids (NOAA Fisheries 2023d).

The shortnose sturgeon has been federally listed as endangered under the ESA since its enactment in 1973 and is also listed as endangered by the state of New Jersey. Habitat for this species is mapped to occur in the vicinity of the Upper New York Bay Sampling Area. Research suggests that the Hudson River population of shortnose sturgeon has increased by more than 400% since the 1970s (Bain et al. 2007). Though these findings have led some researchers to suggest that the Hudson River population of shortnose sturgeon should be designated as recovered (Bain et al. 2007), others attribute the observed population growth to several particularly strong year-classes rather than increased adult survivorship (Woodland and Secor 2007). The most significant threats to shortnose sturgeon are impediments that block access to spawning or feeding habitats (e.g., dams) and habitat degradation (e.g., decreases in water quality caused by human activities) (NOAA Fisheries 2023d).

Shortnose sturgeon primarily reside in brackish waters, where they may prefer deep pools with vegetated soft substrate bottoms (NYNHP 2019). Spawning occurs from April to May at upstream Hudson River sites between Coeymans, New York and the Troy Dam (NYDEC 2014). This species does not breed every year; females spawn every third year and males spawn every other year (NYDEC 2014). Shortnose sturgeon migrate southward to feed during the summer, and overwinter near Kingston New York, and in the Haverstraw Bay area near the fresh/brackish water interface (Bain et al. 1998b).

Adult shortnose sturgeon could possibly pass through the Upper New York Bay Sampling Area in May when they disperse downriver after spawning. Some adults or juveniles may also pass through this Sampling Area in October as they head upriver to overwintering areas north of the Sampling Area. Preferred spawning and overwintering areas are all located well upriver of the Lower New York Bay Sampling Area. Based on the timing of planned activities (winter), shortnose sturgeon are not expected to be present within the Sampling Areas during sample collection.

3.0 Potential Impacts to Endangered and Threatened Species

The proposed benthic and sediment sampling will not negatively affect the populations or habitat of endangered or threatened wildlife species. The sampling activities may result in negligible to minor, temporary, and very localized changes in water quality, benthic habitats, and noise levels, and will involve the movement of vessels and sampling equipment. Impacts to listed species, if

any, are expected to be negligible, and measures will be employed to further reduce the risk of impacts.

3.1 Birds

No impacts to listed avian species along the Sampling Areas are expected. Sampling activities will occur exclusively in subtidal waters and will not result in any habitat alteration, upland vegetation removal, or impacts to shoreline areas. No bird nesting or roosting habitats will be impacted by the benthic and sediment sampling. Sampling is planned for early winter, outside of the nesting season for the endangered and threatened bird species identified as potentially occurring in the Sampling Areas. Additionally, during this time period many of the species that may occur in the Sampling Areas have migrated to wintering grounds and are not expected to be present in the region (black skimmer, least tern, roseate tern, osprey).

The benthic and sediment sampling will generate noise associated with sampling equipment deployment and vessel operation and may temporarily displace fish and other avian prey from the immediate vicinity of sample collection activities. Both Lower New York Bay and Upper New York Bay are heavily trafficked by a wide range of vessels. Equipment noise associated with the benthic and sediment sampling activities will be negligible when compared to other vessel traffic in the area. Bird species that remain present in the Lower New York Bay and Atlantic Ocean Sampling Area or the Upper New York Bay Sampling Area during the planned sampling in the December to January timeframe are expected to be accustomed to the high amounts of vessel traffic and noise already present within the Sampling Areas.

Due to the location and timing of the benthic and sediment sampling, the proposed benthic and sediment sampling will not impact threatened or endangered bird species populations or their habitats.

3.2 Whales

Benthic and sediment sampling activities are not anticipated to impact whales. Collection of sediment samples may result in negligible alterations of seafloor habitats and localized and temporary increases in suspended sediments. These negligible and short-duration alterations of existing conditions will not result in indirect or secondary impacts to whales (i.e., sampling activities will not impact the availability of whale prey species, etc.). Direct impacts to these species are also not anticipated. Direct contact with whales will be avoided due to the protective measures put in place and the low likelihood that these species will be present in the Sampling Areas and surrounding area.

Sampling vessels will be staffed by qualified Protected Species Observers (“PSOs”). The PSOs will be dedicated to:

1. Watching for and recording sightings of whales that may occur within the vicinity of the Sampling Areas;
2. Ensuring that protective measures and best management practices such as the establishment of exclusion zones for NARW and other protected whale species, vessel

speed restrictions, and the implementation of vessel strike avoidance procedures are implemented.

Due to the impact avoidance and minimization measures outlined above, the rarity of whales in the Sampling Areas and surrounding area, as well as the limited and temporary nature of benthic and sediment sampling, the proposed benthic and sediment sampling will not negatively impact these protected species or their habitats.

3.3 Sturgeon

Benthic and sediment sampling activities are not anticipated to impact Atlantic or shortnose sturgeon or their habitats in the Upper New York Bay Sampling Area. In winter months, shortnose sturgeon are not likely to be present in the Upper New York Bay Sampling Area, which is located well to the south of known overwintering areas for this species. Atlantic sturgeon are also not anticipated to be present in this Sampling Area during winter months since this species is likely to be found in coastal marine waters seaward of the Sampling Area at this time.

Even if sturgeon were present, temporary and localized increases in suspended sediment levels and the generation of low levels of underwater noise associated with the benthic and sediment sampling are expected to have little to no impact on sturgeon. Sturgeon are highly mobile fish species and would temporarily avoid the area of disturbance during sample collection. In addition, the Upper New York Bay Sampling Area routinely experiences high levels of suspended sediments under naturally occurring conditions and is subject to intensive vessel traffic. Therefore, very short-term increases in suspended sediments, and low levels of sampling vessel and equipment noise, will not substantially increase impacts to Atlantic or shortnose sturgeon that may be present in the Upper New York Bay Sampling Area during the sampling.

Substrate disturbance caused by sample collection could result in extremely localized and very small-scale loss of benthic forage for sturgeon; however, given the amount of surrounding undisturbed forage area in the vicinity of sample locations in the Upper New York Bay Sampling Area, any reduction in prey species availability would be negligible. Additionally, benthic macroinvertebrates from adjacent non-impacted habitats are expected to rapidly recolonize the very small areas disturbed during sediment sample collection.

Survey vessels and equipment will be primarily located on the water surface, with equipment only contacting the bottom for a short time at each sampling location (minutes). As Atlantic and shortnose sturgeon are bottom oriented species, the risk of a vessel strike or. It is expected that any sturgeon located in the vicinity of sampling locations would temporarily relocate to nearby habitats in response to sampling operations. To further minimize the chance of direct impacts to these species, the following mitigation measures will be implemented:

- Vibracore and benthic grab equipment will be lowered through the water column in a controlled manner and paused briefly before contacting the seabed to provide time for any sturgeon that may be below the equipment to vacate the area.
- Vessel operators and crews will maintain a vigilant watch for sturgeon, and slow down or stop the survey vessel to avoid striking a sturgeon, if observed; and

Due to the anticipated scarcity of sturgeon in the vicinity of the Upper New York Bay Sampling Area during the planned sampling period, the non-intensive nature of survey activities, and the mitigation measures to be implemented, no negative impacts to listed sturgeon or their habitats are anticipated.

4.0 Conclusion

The proposed benthic and sediment sampling will not negatively affect populations or habitat of endangered or threatened species due to the selected location, winter timing, and brief duration of activities. The activities may result in negligible, temporary, and very localized changes in water quality, benthic habitats, noise levels, and vessel activity in the Sampling Areas. Impacts to individuals of listed species are expected to be negligible, and the mitigation measures described above will further reduce the risk of impacts.

Based on the above, the benthic and sediment sampling is in compliance with the standard for Endangered or Threatened Wildlife or Plant Species Habitats at N.J.A.C. 7:7-9.36.

5.0 Qualifications of Preparers

See Appendix B for resumes of preparers.

Anna Chase, MS	Water Resources Scientist, TRC
Cindy Martin	Senior Project Manager, TRC
Jack Szczepanski, PhD	Senior Ecologist, TRC
Michael Ernsting, EIT	Project Engineer, TRC
Payson Whitney	Southern New England Area Leader, TRC

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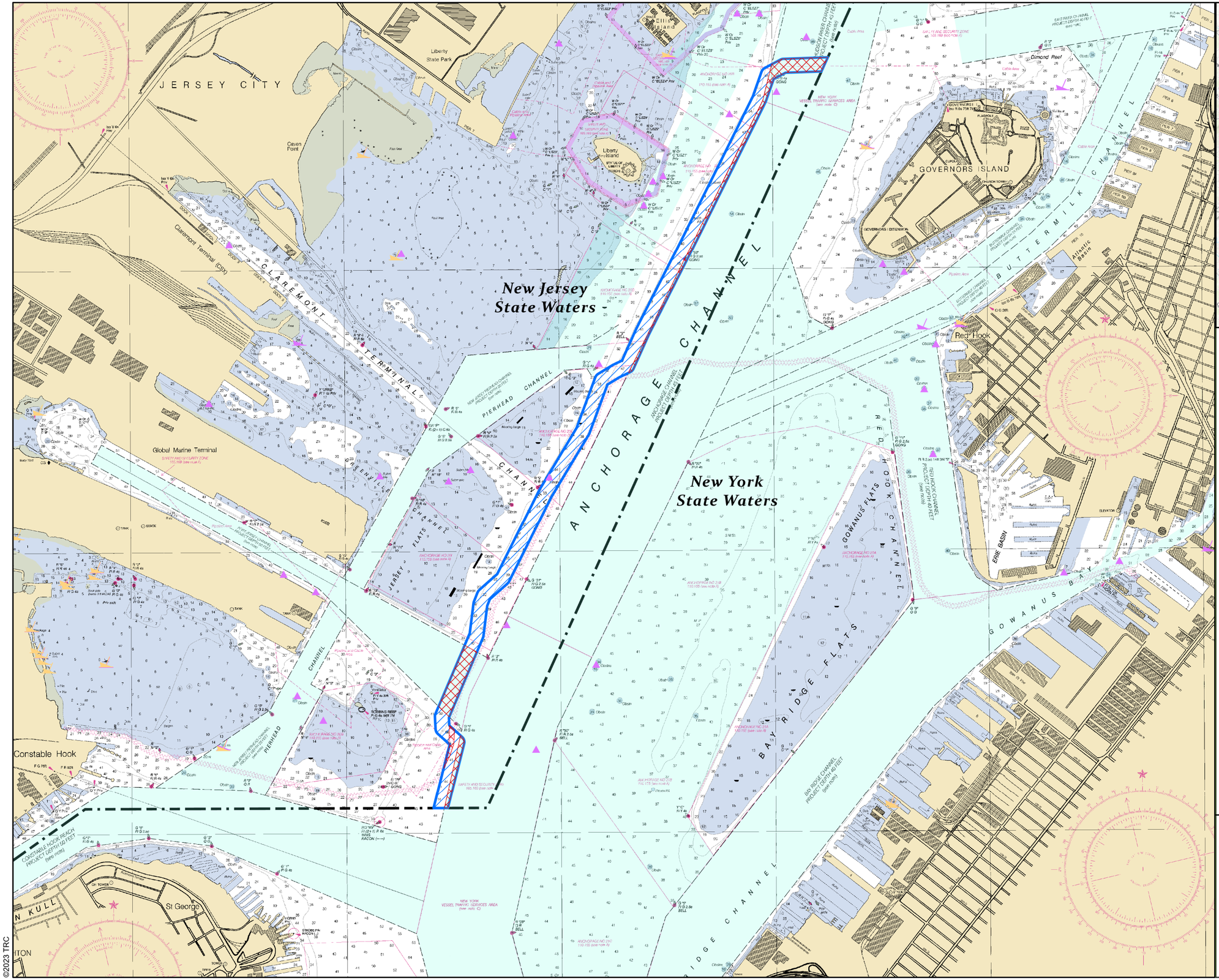

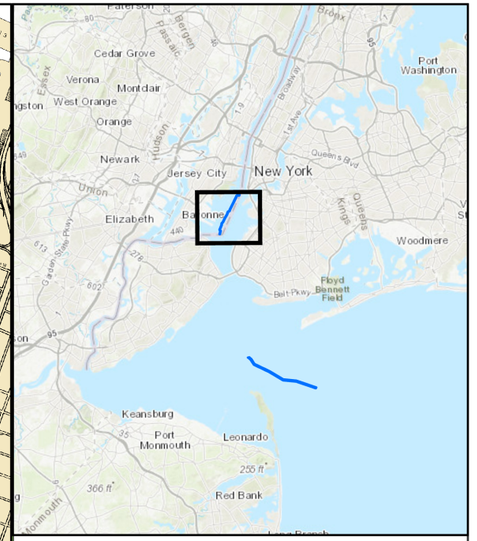

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary
- Federal Channel
- Shipwreck (NOAA ENC)
- Shipwreck (AWOIS)
- Marine Obstruction (AWOIS)

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NOAA Charts 12327, 12334
2) USACE, Federal Channels, 2022
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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QUEENSBORO RENEWABLE EXPRESS

TRC

Figure 1
NOAA Chart
Overview Map

Sheet 1 of 2

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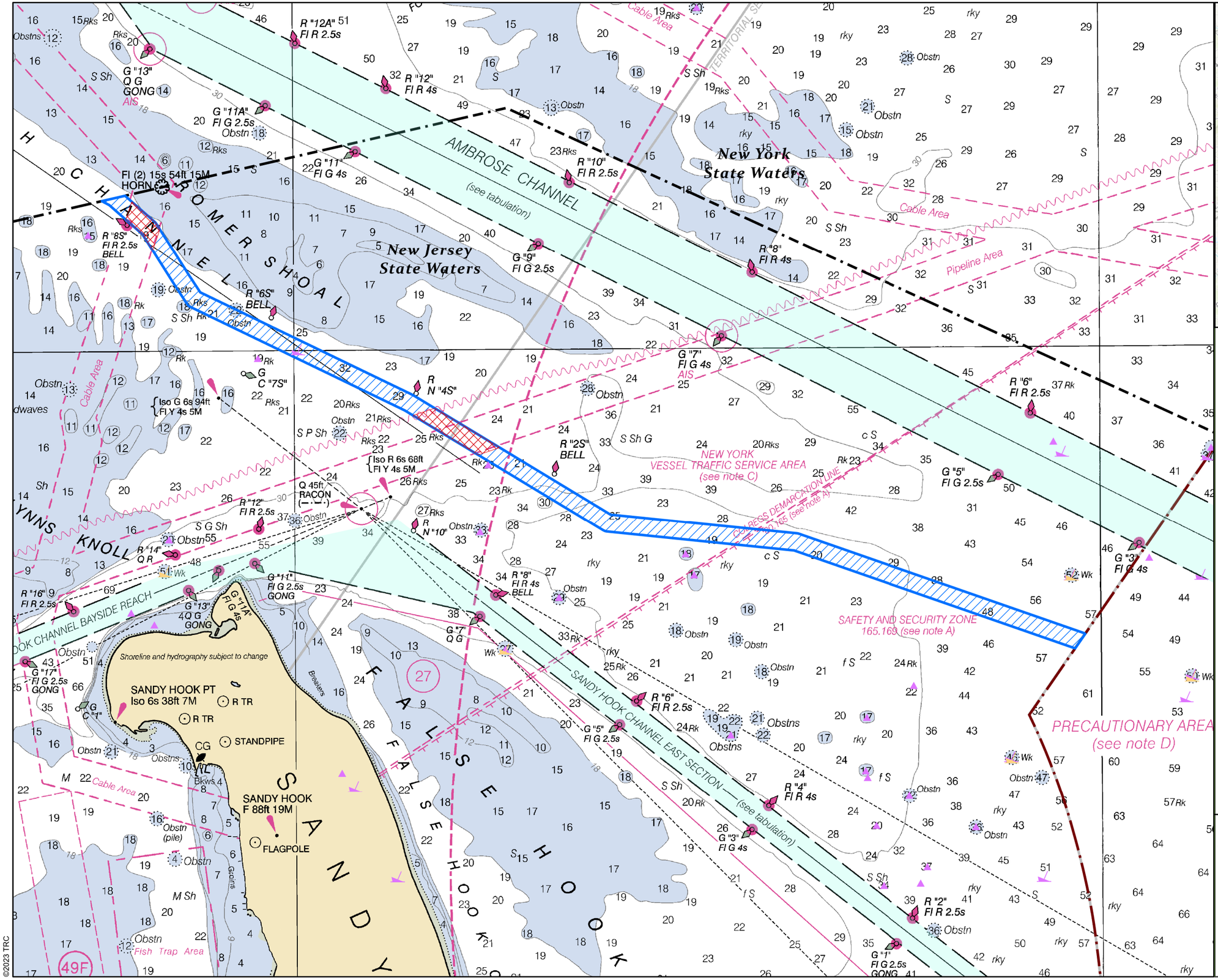

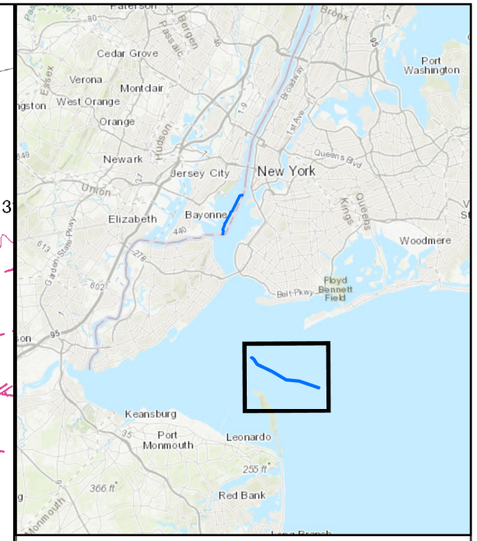

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4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Figure 1
NOAA Chart
Overview Map

Sheet 2 of 2

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

Note: USGS Quad mapping does not accurately represent state boundary in all locations

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) USGS Quad Maps, 2019: Jersey City (Sheet 1), Narrows, Sandy Hook East, Sandy Hook West (Sheet 2)
2) TRC, Sampling Area, 2023
3) NJOIT, State Boundary, 2016
4) BOEM, State SLA Boundary, 2020

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Figure 2
USGS Quad Maps

Sheet 1 of 2

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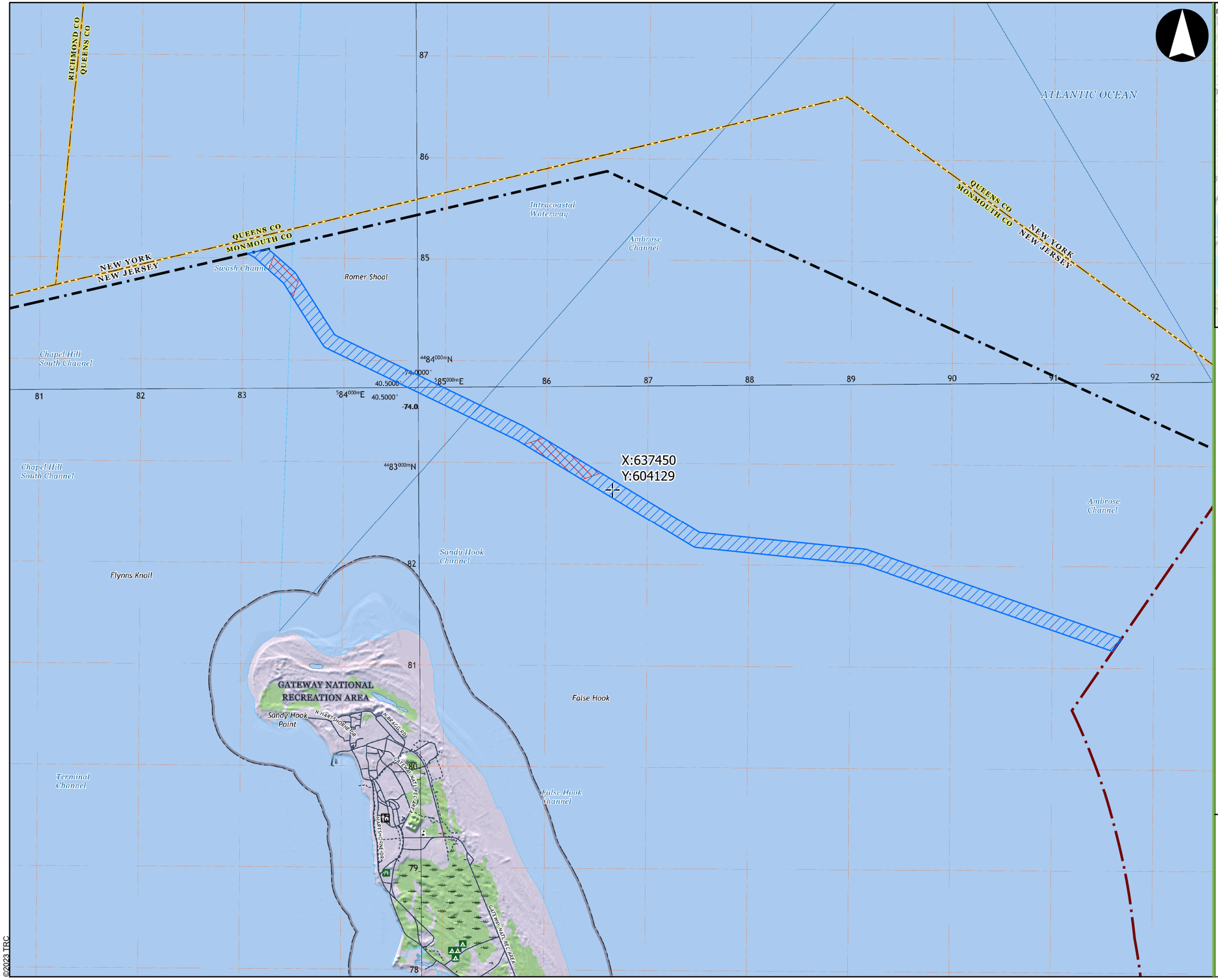

Legend

- Sampling Area
- Sampling Exclusion Area
- Federal Waters Boundary
- State Waters Boundary

Note: USGS Quad mapping does not accurately represent state boundary in all locations

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

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3) NJOIT, State Boundary, 2016
4) BOEM, State SLA Boundary, 2020

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Figure 2
USGS Quad Maps

Sheet 2 of 2

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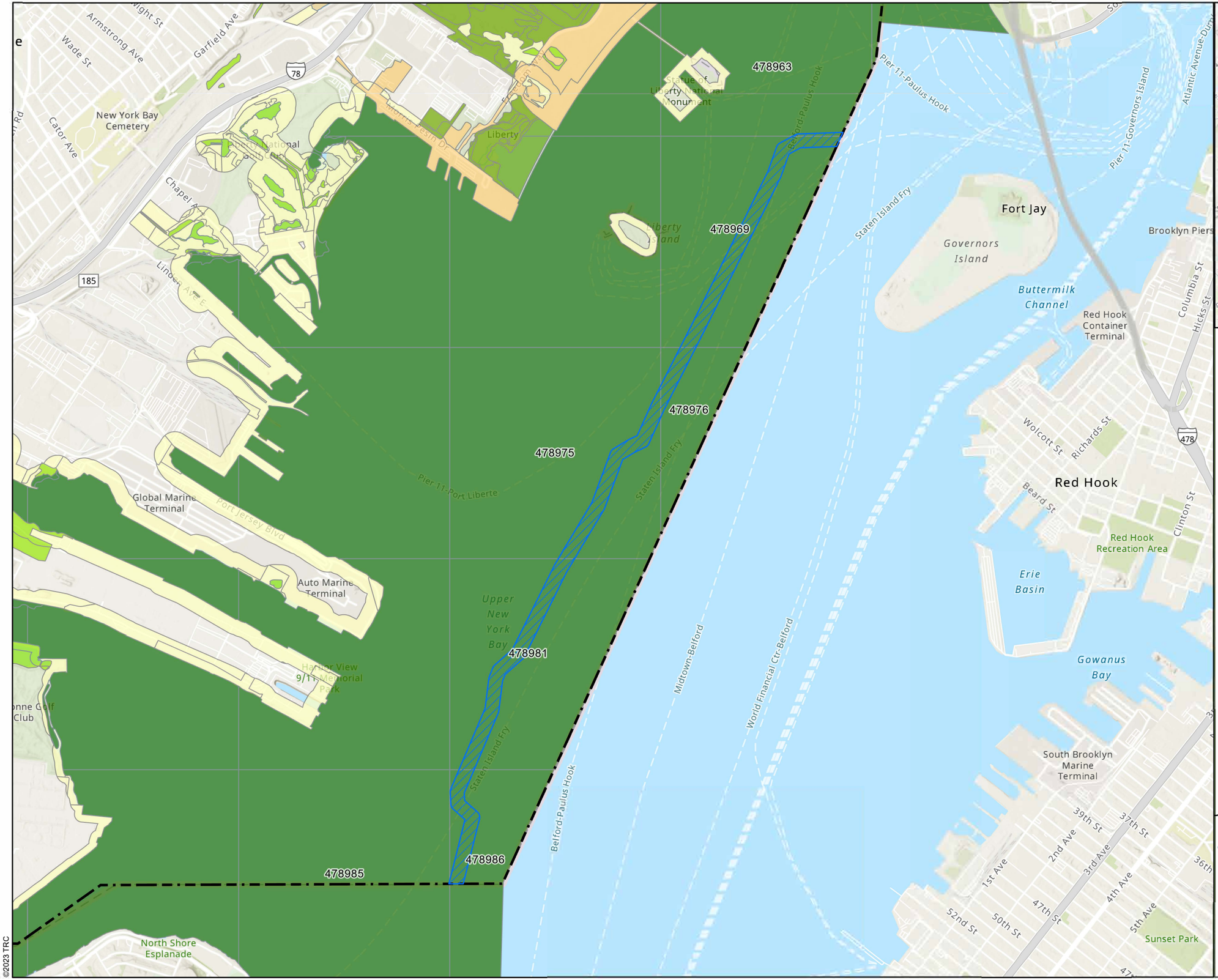

Legend

- Sampling Area
- Federal Waters Boundary
- State Waters Boundary

NJDEP Landscape Project Habitat Rank

- Rank 1: Habitat-Specific Requirements
- Rank 2: Special Concern
- Rank 3: State Threatened Species
- Rank 4: State Endangered Species
- Rank 5: Federal Listed Species

Datum/Projection:
NAD 1983 New Jersey State Plane,
(FIPS 2900), US Feet

Data Sources:
1) NJDEP Landscape Project Data, 2023
2) ESRI, Topo Basemap, 2023
3) TRC, Sampling Area, 2023
4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Figure 3
NJDEP Landscape Project Map
Sheet 1 of 2

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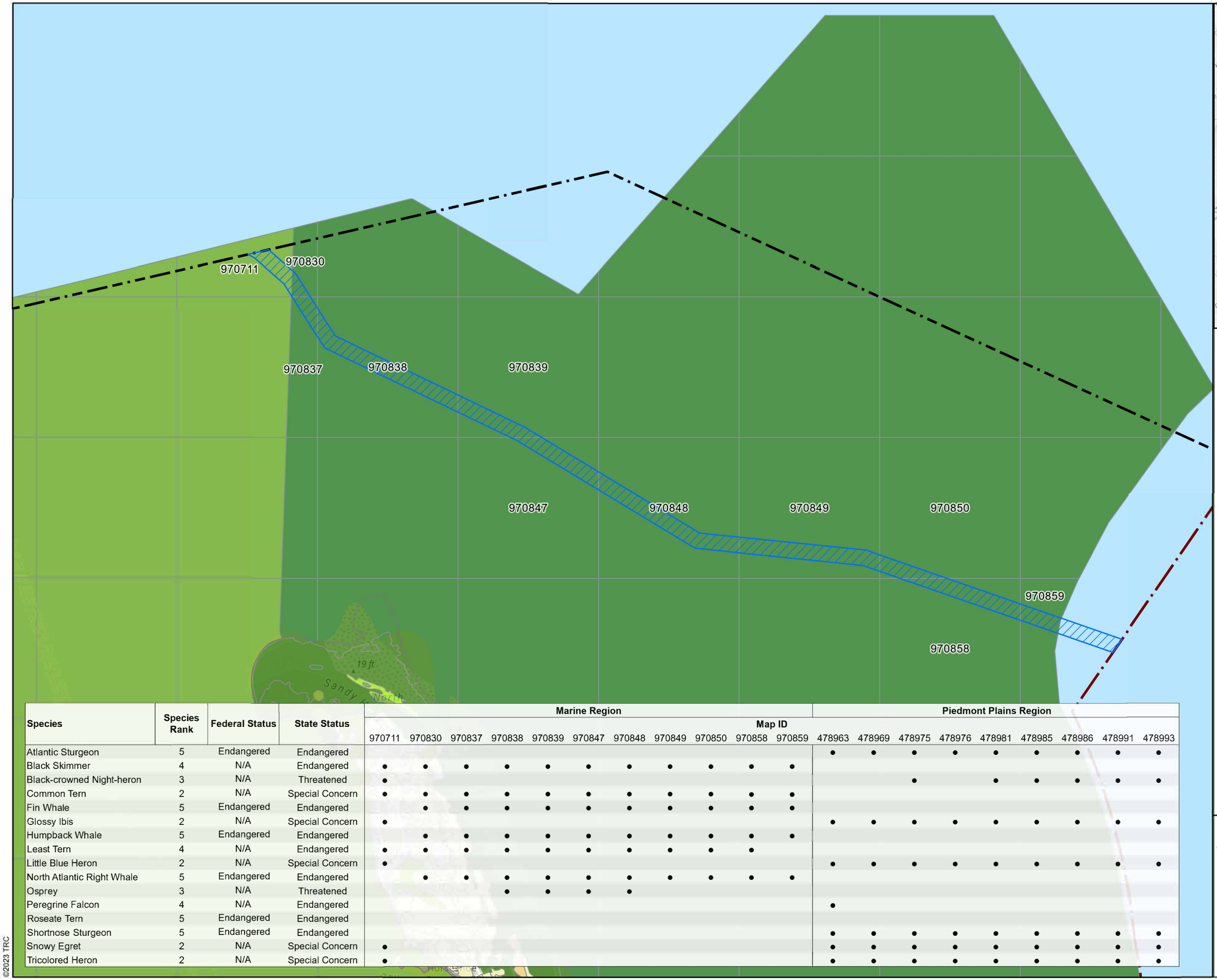

Legend

- Sampling Area
- Federal Waters Boundary
- State Waters Boundary

NJDEP Landscape Project Habitat Rank

- Rank 1: Habitat-Specific Requirements
- Rank 2: Special Concern
- Rank 3: State Threatened Species
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4) NJOIT, State Boundary, 2016
5) BOEM, State SLA Boundary, 2020

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Species	Species Rank	Federal Status	State Status	Marine Region											Piedmont Plains Region								
				Map ID																			
				970711	970830	970837	970838	970839	970847	970848	970849	970850	970858	970859	478963	478969	478975	478976	478981	478985	478986	478991	478993
Atlantic Sturgeon	5	Endangered	Endangered												•	•	•	•	•	•	•	•	•
Black Skimmer	4	N/A	Endangered	•	•	•	•	•	•	•	•	•	•	•									
Black-crowned Night-heron	3	N/A	Threatened	•													•		•	•	•	•	•
Common Tern	2	N/A	Special Concern	•	•	•	•	•	•	•	•	•	•	•									
Fin Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Glossy Ibis	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
Humpback Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Least Tern	4	N/A	Endangered	•	•	•	•	•	•	•	•	•	•										
Little Blue Heron	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
North Atlantic Right Whale	5	Endangered	Endangered		•	•	•	•	•	•	•	•	•	•									
Osprey	3	N/A	Threatened				•	•	•	•													
Peregrine Falcon	4	N/A	Endangered												•								
Roseate Tern	5	Endangered	Endangered																				
Shortnose Sturgeon	5	Endangered	Endangered												•	•	•	•	•	•	•	•	•
Snowy Egret	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•
Tricolored Heron	2	N/A	Special Concern	•											•	•	•	•	•	•	•	•	•

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TRC

Figure 3
NJDEP Landscape Project Map
Sheet 2 of 2

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Appendix A: New Jersey Natural Heritage Program Correspondence

See Appendix A of the Queensboro Renewable Express Benthic and Sediment Sampling In-Water Waterfront Development Individual Permit Application Environmental Impact Statement

Appendix B. Resumes of Preparers

See Appendix C of the Queensboro Renewable Express Benthic and Sediment Sampling In-Water Waterfront Development Individual Permit Application Environmental Impact Statement

Appendix C: Resumes of Preparers

ANNA CHASE

EDUCATION

M.S., Zoology, University of New Hampshire, 2015

B.A., Biology and Environmental Studies, *Magna Cum Laude*, Honors in Biology, Bowdoin College, 2013

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Society for Freshwater Science – Certified Taxonomist: Eastern Ephemeroptera, Plecoptera, and Trichoptera

NAUI Certified Basic and Master SCUBA Diver

AREAS OF EXPERTISE

- Benthic Ecology
- Macroinvertebrate Sampling and Taxonomic Identification
- Marine Mammals and Sea Turtles
- Threatened and Endangered Species
- Data Analysis (Univariate and Multivariate Statistics)
- Surface Water Quality Monitoring

REPRESENTATIVE EXPERIENCE

Ms. Chase is a water resources scientist with more than eight years of experience working on marine projects, and over 10 years of experience in marine macroinvertebrate taxonomy. She earned her MS in Zoology, focused on marine invertebrate biology, from the University of New Hampshire. Ms. Chase has supported several offshore wind development and submarine cable installation projects and has provided services for numerous state and municipal governments and federal agencies. Ms. Chase manages projects, prepares technical reports and management recommendations, conducts data analysis (univariate and multivariate statistics) and research, performs field work, and assists with experimental design.

US Wind, Maryland Offshore Wind Energy Project – Outer Continental Shelf, Federal Waters off the Coast of MD and Indian River Bay

Ms. Chase was a Technical Lead for the benthic habitat, marine mammals, and sea turtles sections of the Construction and Operation Plan (COP) or the Maryland Offshore Wind Energy Project; an offshore wind farm development proposed for the Outer Continental Shelf off the coast of Maryland. She also assisted with drafting of an updated Site Assessment Plan (SAP) for the installation of a meteorological buoy. She drafted an application for Incidental Harassment Authorization (IHA) to allow for the taking by harassment of small numbers of marine mammals due to the operation of noise-producing equipment during site assessment activities within the WEA. Ms. Chase consulted with NOAA Fisheries Office of Protected Resources and utilized revised acoustic guidance to calculate estimated takes of marine mammals by Level A and Level B harassment. Following consultation, she drafted a letter for NOAA concurrence stating that proposed High Resolution Geophysical (HRG) survey activities would not result in take of marine mammals. Most recently, Ms. Chase assisted with the preparation of a Letter of Authorization (LOA) application for incidental take of marine mammals during wind farm construction and micro-siting surveys.

Ms. Chase served as Lead Taxonomist for the analysis of over 240 benthic samples collected from marine waters of the Lease Area and along proposed submarine cable routes in 2016, 2017, and 2021. She provided taxonomic identification and enumeration of benthic organisms, analyzed community data and composed multiple reports detailing the findings of these benthic sampling programs.

Vineyard Wind, LLC, Vineyard Wind 1 – State and Federal Waters off MA

Ms. Chase assisted in the preparation of a Site Assessment Plan (SAP) required by BOEM under the renewable energy framework. She compiled a matrix detailing previously completed research and relevant studies to provide an initial assessment of future surveys needed to fulfill BOEM guidelines and NEPA requirements. Ms. Chase assisted in the preparation of an Incidental Harassment Authorization (IHA) application for site assessment activities within the project area. She compiled data, synthesized information, composed marine mammal and sea turtle species profiles, and drafted a benthic survey report for the SAP.

Anbaric Development Partners, New York/New Jersey OceanGrid™, Development Strategy – NY and NJ

Ms. Chase drafted scientific narratives for the marine mammals, benthic habitat, sediment, and essential fish habitat sections of the Environmental Assessment (EA).

Anbaric Development Partners, Massachusetts OceanGrid™ Site Characterization Surveys – Offshore, MA

Ms. Chase drafted an application for Incidental Harassment Authorization (IHA) to allow for the taking by harassment of small numbers of marine mammals due to the operation of noise-producing equipment during reconnaissance-level site characterization activities along proposed cable routes connecting the MA WEA with landfall locations.

Mayflower Wind Energy LLC, Mayflower Wind Site Assessment Plan (SAP) – Offshore, MA

Ms. Chase assisted with the preparation of a SAP for the deployment of a metocean buoy within the Mayflower Wind WEA. She drafted the benthic, marine mammal, and sea turtle sections.

Naval Facilities Engineering Command (sub to Leidos), Key West Range Complex Biological Assessments – Key West, FL

Ms. Chase served as Scientist assisting with the preparation of the Biological Assessment (BA) to support the Environmental Assessment (EA) for Naval Special Warfare Training in the Key West Range Complex. The BA evaluated the potential environmental effects of current and future training operations and activities on Federally listed species and critical habitat, under USFWS and NOAA Fisheries jurisdiction. Ms. Chase prepared species profiles for fish, marine mammals and sea turtles.

SELECTED PUBLICATIONS AND PRESENTATIONS

Chase, A.L., Dijkstra, J.A., Harris, L.G. 2016. “The Influence of substrate material on ascidian larval settlement”. Marine Pollution Bulletin. 106, 35-42.

CYNTHIA MARTIN

EDUCATION

M.S., Biology, State University College at Buffalo
B.S., Biology (Concentration in Marine Ecology), SUNY Buffalo
(Two years coursework, University of Miami, Coral Gables Florida)

AREAS OF EXPERTISE

Ms. Martin has over 25 years' experience encompassing:

- Aquatic Ecology and Fisheries Assessments
- Environmental Studies and Impact Assessments
- Federal, State, and Local Environmental Permitting
- Impact Mitigation and Restoration Planning and Design
- Siting and Feasibility Studies
- National Oceanic and Atmospheric Administration (NOAA) Fisheries: Essential Fish Habitat (EFH) Assessment and Endangered Species Act (ESA) Section 7 Consultations
- Section 404/10 U.S. Army Corps of Engineers (USACE) Permitting
- 401 Massachusetts Department of Environmental Protection (MassDEP) Water Quality Certification (WQC)

REPRESENTATIVE EXPERIENCE

Ms. Martin is a Senior Project Manager with technical responsibilities for aquatic habitat assessment, fishery resource characterization and impact assessment, report preparation, agency and client interaction, task management, technical editing and quality assurance and quality control (QA/QC) on projects throughout the eastern United States. Her background as an aquatic/fisheries biologist includes work on several studies looking at the impacts of submarine construction techniques and the effects of wastewater effluents on aquatic habitats in freshwater and marine environments. Ms. Martin supports energy clients on siting and permitting of transmission lines, land-based and marine renewable energy development and natural gas pipelines, LNG facilities, electric generating facilities and infrastructure clients on coastal bridge replacement projects.

Spectra Energy, New Jersey-New York Expansion Project – NJ/NY (Senior Scientist)
Ms. Martin prepared an Essential Fish Habitat (EFH) Assessment in support of required resource specific sections submitted to Federal Regulatory Energy Commission (FERC) Resource Report 3. She designed a water quality monitoring plan to be implemented during construction of the horizontal directionally drilled (HDD) natural gas pipeline beneath the 8,000-foot crossing of the Hudson River, from Hoboken, New Jersey to Manhattan, New York. In addition, Ms. Martin coordinated with NMFS and NYSDEC for water quality monitoring plan implementation, sample collection and reporting of sub-contractor sample collection, including "clean hands/dirty hands" processing for mercury and silver analysis.

Transmission Developers, Inc., Champlain Hudson Power Express Project – NY (Senior Scientist)
Ms. Martin performed as a senior aquatic biologist for a proposed HVDC transmission line project involving over 350 miles of underground and submarine cable with a total transmission capacity of 1,000 MW. The project was unique because of its primary siting within Lake Champlain and the whole of the Hudson River. Ms. Martin reviewed and provided support and evaluation for all aspects of aquatic ecosystems potentially impacted by construction of the submarine cable including: water quality chemistry, benthos, fisheries, rare, threatened and endangered (RTE) species. Information was

incorporated into various permitting documents, including the Article VII Application submitted to New York State Public Service Commission (NYS PUC).

City of Boston Public Works Department, Long Island Bridge Demolition and Utility and Superstructure Replacement Project, Boston Harbor, MA (Deputy Project Manager) Ms. Martin assisted the City of Boston Public Works Department (Boston PWD) in obtaining permits required to replace critical utility services formerly carried by the 3,300-foot Long Island Bridge. The utility replacement work involved a combination of a 3,250-foot long dredged trench and 100 feet of horizontal directional drilling (HDD) within Boston Harbor. Ms. Martin prepared an Essential Fish Habitat (EFH) Assessment to analyze potential impacts on designated EFH species and their habitats in the project area, performed biological review of underwater remote video (U/W ROV) surveys, as well as sediment chemistry and grain size data collected via vibracore. Currently Ms. Martin is assisting the City in obtaining permits for the superstructure replacement of the previously demolished bridge.

MBTA North Station Draw 1 Bridge Replacement, Boston, MA (Senior Project Manager) As a Senior Scientist, Ms. Martin is assisting in the permitting process for the proposed replacement of two movable railroad bridges crossing the Charles River in the immediate vicinity of North Station in Boston. Services currently being provided include development and implementation of FTA NEPA strategy for the project, the full range of environmental permitting services with all relevant agencies having jurisdiction, including the USACE, the USCG, NOAA/NMFS, the USEPA, MassDEP, MassCZM, Mass Division of Marine Fisheries (DMF), state and local historic agencies, and municipal entities with jurisdiction over wetlands. For the proposed North Station Draw One Bridge Replacement project, Ms. Martin prepared the Essential Fish Habitat (EFH) Assessment and the Endangered Species Act (ESA) Section 7 Consultations to support environmental federal permit applications, such as the Section 404/10 submittal to the U.S. Army Corps of Engineers.

MassDOT, Belden Bly (Rt. 107) Bridge Replacement Project – Saugus and Lynn, MA (Senior Scientist) Ms. Martin assisted the Massachusetts Department of Transportation (MassDOT) in obtaining permits required to replace the 1912 Belden G. Bly Bridge with a new bridge over the tidally influenced Saugus River, approximately 0.5 miles from its confluence with Lynn Harbor, MA. Ms. Martin prepared an Essential Fish Habitat (EFH) Assessment to analyze potential impacts to designated EFH species and their habitats in the Project area, prepared the Endangered Species Act (ESA) Section 7 Consultations to support environmental federal permit applications, assisted in the development of an agency approved Sediment and Benthic Analysis Plan, preparation of Massachusetts Department of Environmental Protection (MassDEP) 401 Water Quality Certification Application and in development of U.S. Army Corps of Engineers Massachusetts General Permit Application. Ms. Martin is providing oversight and support for contractor incorporation of best management practices (BMPs) specified as part of USACE project permit conditions. The replacement bridge project is currently under construction.

Gloucester Draw Railroad Bridge Replacement Project, Massachusetts Bay Transportation Authority (MBTA), Gloucester, MA (Senior Scientist) The Gloucester Draw Railroad Bridge Replacement Project is located over the tidally influenced Annisquam River, located in Gloucester, Massachusetts. The Project work involved complete reconstruction of the railroad bridge as well as removal of existing structures within and surrounding the Annisquam River. Project permitting documents included: U.S. Army Corps of Engineers (USACE) Sections 404 Category 2 Massachusetts General Permit (GP); U.S. Coast Guard Bridge Permit; Massachusetts Department of Environmental Protection (MassDEP) Section 401 Water Quality Certification; Coastal Zone Management Consistency Review; and NEPA

Categorical Exclusion. For resource specific sections of permit applications Ms. Martin prepared a Water Quality Monitoring Plan, Essential Fish Habitat (EFH) Assessment, and assisted in the development of the Greater Atlantic Regional Fisheries Office (GARFO) Endangered Species Act (ESA) Section 7: Not Likely to Adversely Affect (NLAA) Program Verification Form, for the potential occurrence of endangered species in the Project action area.

US Wind, Maryland Offshore Wind Project – Offshore Atlantic Coast, MD (Senior Project Manager) Ms. Martin was responsible for preparation of the U.S. Army Corps of Engineers (USACE) Section 404/10 Individual Permit and Section 408 Authorization for work in the Federal Navigation Project based on Project-specific Construction and Operations Plan (COP), to support this client-initiated offshore wind energy project of up to approximately 2 gigawatts located off the coast of Maryland on the Outer Continental Shelf. Additional Permit application preparation and reviews will require, filing of several federal, state, and local permits Environmental Impact Statement (EIS), Water Quality Certification (WQC), and Erosion/Sediment Control and Stormwater Management Plan approvals. Martin directed a team of technical subject matter professionals in preparation of the Draft USACE documents and oversaw all aspects of document development, technical quality assurance and editorial review.

U.S. Department of the Interior, Minerals Management Service, Third Party EIS Cape Wind Project, Nantucket Sound, MA (Senior Scientist) Ms. Martin assisted in Preparation of the Cape Wind Third Party Draft and Final Environmental Impact Statement (DEIS and FEIS) for this first in the nation, proposed 468 MW, 130 turbine, offshore wind energy project proposed in Nantucket Sound, MA. Ms. Martin was responsible for technical editing and document control, including QA/QC review efforts, and coordination of all support documentation and studies for reference in the DEIS. Ms. Martin played a lead role in getting the three volume DEIS formatted, assembled, and ready for delivery to the printer. Ms. Martin also assisted in preparation for the DEIS comment hearings by preparing the printed and graphic materials for the hearings, planned and coordinated with venues, and assisting in coordination of the hearing team, which consisted of up to 20 TRC staff and MMS employees. Ms. Martin was integral in the coordination of over 45,000 comment letters and documents and incorporating editorial changes into the EIS in preparation for release of the FEIS.

Algonquin Gas Transmission, Salem Lateral Project – Salem Harbor, Salem, MA (Senior Scientist) Ms. Martin prepared Essential Fish Habitat (EFH) Assessment, and assisted in the development of additional permit applications including; Section 401 Massachusetts Department of Environmental Protection (MassDEP) Water Quality Certification, Section 404 USACE permit, and in support of required resource specific sections submitted to Federal Regulatory Energy Commission (FERC) Resource Reports 2 and 3. Ms. Martin also assisted in the design of project Mitigation Plans and developed a water quality monitoring plan to be implemented during construction of the horizontal directionally drilled (HDD) 1.2 miles of new 16-inch diameter submarine lateral pipeline in Beverly Harbor, MA. In addition, in accordance with the requirements of the National Environmental Policy Act (NEPA), Ms. Martin prepared the client assisted Environmental Assessment (EA) for the FERC. The EA assesses the potential environmental effects of the construction and operation of the submarine pipeline.

JOHN A. (JACK) SZCZEPANSKI, PhD, CBLP

EDUCATION

Ph.D., Life & Environmental Sciences, University of Rhode Island, 2013
M.S., Biological Sciences, Saint Joseph's University, 2006
B.S., Biological Sciences, Cook College of Rutgers University, 2002

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Chesapeake Bay Landscape Professional – Green Infrastructure, 2021-2023
NJ Secondary Education Teaching License #00412100, Biology

AREAS OF EXPERTISE

- Critical Technical Review and Environmental Assessment of a wide range of Development Plans
- Assessment, Evaluation, and Management of Coastal & Marine Biodiversity
- Biology and Population Dynamics of Marine Fishes, Cephalopods, and Crustaceans
- Wetlands and Salt Marsh Resilience, Restoration, and Monitoring
- Design and Implementation of Benthic Trawl Studies for Marine Monitoring Programs
- Ecological Uplift and Green Infrastructure Project Management and Implementation
- Watershed Plan Development

REPRESENTATIVE EXPERIENCE

Dr. Szczepanski has 19 years of overall experience which has led to him taking part in many critical reviews of planned residential and industrial development, as well as serving as Environmental Expert on several municipal planning boards in support of development application reviews for stormwater and environmental compliance. Dr. Szczepanski also has experience with restoration work, such as salt marsh restoration, to increase coastal resiliency and develop varied monitoring plans for projects based on standard BACI design. He has advised on the biological implications and supervised the implementation of the coastal resiliency and monitoring project designs. Further, Dr. Szczepanski has an understanding of engineering processes and provided support and facilitation of various multidisciplinary projects including dredge design and implementation. Dr. Szczepanski has worked with over 40 different clients on more than 50 different projects.

Dr. Szczepanski has developed and implemented many biological and environmental surveys, which in combination with the management of restoration projects and installation of BMPs, give him unique expertise in the approach of dozens of types of projects.

Environmental Expert Technical Review

Eastern Environmental Law Center, Technical Reviews of the Northeast Supply Enhancement Project's Environmental Impacts Assessments – NJ and NY States, (Marine Resource Technical Expert: 2019)
Reviews included examination of materials submitted for the offshore portion of the Williams Transco Northeast Supply Enhancement for Raritan Bay Loop in NJ. Compliance with NJ and NY statutes with specific focus on impacts to T&E species and Surface Water Standards were evaluated. Materials were evaluated for completeness of impact assessment for each site and identification of impacts that were overlooked, understated, or oversimplified.

US Army Corps of Engineers, Fire Island Inlet to Moriches Inlet Stabilization Project Piping Plover and Seabeach Amaranth Conservation Measure Review – New York, NY (Technical Expert: 2018)
The overall objective of this project was to evaluate the performance and adequacy of certain aspects of the FIMI project that directly relate to the ESA coordination and agreements between USACE and USFWS. Dr. Szczepanski examined, investigated, reviewed and made appropriate recommendations to improve the impact of conservation measures' ability to offset adverse impacts to endangered species within the FIMI project, notably the Piping Plover. He reviewed the conservation measures described in USACE-NAN Biological Assessment for Piping Plover and Seabeach Amaranth (2014) and the FWS Biological Opinion (BO, 2014).

Various Clients, Environmental Expert for Municipal Planning Boards – Various Locations, NJ (Environmental Expert: 2018-2022)
Facilitation of stormwater and environmental impact reviews associated with development applications submitted to various municipal planning and land use boards. Reviews entailed mostly evaluating plans, designs, and materials for local and state ordinance compliance; emphasis was often put on the impacts to T&E species like Indiana Bats (among others) and the inclusion of green infrastructure BMPs. Municipalities served in NJ included the Borough of Mountain Lakes, Mendham Township, Peapack & Gladstone, and Readington Township.

Ecological Assessments, Restoration, and Monitoring

US Army Corps of Engineers, Champlain Canal Invasive Species Barrier – Glen Falls, NY (Project Manager: 2018-2022)
Contribution of ecological data review and synthesis to a larger effort to develop multiple conceptual designs and evaluate them based on existing data and stakeholder feedback into a highly vetted alternative to advance to engineering design and implementation. Dr. Szczepanski headed development of a species inventory for the Lake Champlain watershed which included both native and invasive species, impacts to the lake by aquatic invasives, and assessment of how different barrier alternatives would affect invasive species distribution; consideration of impacts to T&E species was also included. This document was developed for the US Army Corps of Engineers and is being used to inform engineers on alternatives being designed for invasive species barriers to prevent the transmission of aquatic invasive species from the Hudson River through the Champlain Canal into Lake Champlain.

USFWS, Restoring Coastal Marshes in New Jersey National Wildlife Refuges #37, Design/Build Marsh Restoration at the Cape May NWR and Supawna Meadows NWR – Cape May Court House and Pennsville, NJ (Project Manager: 2015-2017)
The restoration project at Cape May NWR focused on restoration of hydrology via small channel excavation at Reeds Beach while the focus of the project at Supawna Meadows NWR was to improve tidal connection to Delaware Bay by breakwater modification. Duties for both sites included coordination of project activities with contractors such as timeline and budget review, development of Sect. 106 and Sect. 7 assessments, tribal consultation (with the Delaware Tribe of Indians), keeping regional administration up to date, collection of supplemental Refuge-specific baseline data, and developing a long-term monitoring plan for the sites.

Deep Water Wind, Block Island Wind Farm Demersal Fish Population Assessment Survey– New Shoreham, Rhode Island (Chief Field Biologist: 2012-2014)
Dr. Szczepanski developed and implemented baseline population study to assess local fish and invertebrate populations at two (2) reference sites and one (1) proposed construction site of the Block Island Wind Farm (BIWF) for Deep Water Wind. Duties included coordination of the Virginia Marise and her crew to tow a 62' otter trawl along 2 different lines at each site. All species collected were sorted, counted, and weighed; stomachs of commercially important flatfish and gadids are excised and analyzed for diet characterization. Responsibilities also included scheduling of vessel, crew, and gear, maintenance of safety standards and consistency of field sampling protocol (QA/QC). Data was then compiled and incorporated into a monthly synopsis with basic analysis; stomach samples collected from gadids and pleuronectids were sent to Roger Williams University for further analysis of gut contents.

SELECTED PUBLICATIONS AND PRESENTATIONS

Szczepanski, J. and George, R. (2021) Nekton Monitoring to Assess Beneficial Reuse of Dredged Material in Salt Marsh Restoration presented at various various professional conferences.

Lubnow, F. and Szczepanski, J. (2019) From Scum to Fish: Ecosystem Management presented at NJ Land Rally.

US Fish and Wildlife Service. (2017). Cape May NWR Reeds Beach Marsh Restoration Project Summary & Monitoring Plan. Cape May, NJ. 27 pages.

Szczepanski, J.A., and Bengtson, D.A. (2014). Quantitative food habits of the bullnose ray, *Myliobatis freminvillii*, in Delaware Bay. Environmental Biology of Fishes 97:981-997.

Szczepanski, J.A., Lipsky, A., and Carey, D. (2014) Baseline Demersal Fish Survey for Block Island Wind Farm, Rhode Island; Monthly Reports. Deep Water Wind, Inc. (Monthly reports submitted to Deep Water Wind 2012-2014).

Thompson, J.T., Szczepanski, J.A., and Brody, J. (2008). Mechanical specialization of the obliquely striated circular mantle muscle fibers of the long-finned squid *Doryteuthis pealei*. Journal of Experimental Biology 211:1463-1474.

MICHAEL ERNSTING

EDUCATION

BS, Environmental Engineering, Tufts University

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Registered Engineer-in-Training, Massachusetts (Cert. No 23966)

FAA-Certified Remote Pilot, Small Unmanned Aircraft Systems (Cert. No 3933000)

REPRESENTATIVE EXPERIENCE

Mr. Ernsting is a Project Engineer with over nine years of experience in environmental impact modeling, engineering design, and project management. Mike is proficient in mapping and modeling applications such as ArcGIS, ArcGIS Pro, AutoCAD, Global Mapper, Cadna-A, 3D Studio Max, WindPRO, and Microsoft Excel/Visual Basic. Mike's engineering work at ESS includes submarine and onshore transmission cable routing, energy facility siting, GIS mapping and spatial analysis, visual simulations, CAD design work, air emissions calculations, and predictive noise modeling. His field work experience at ESS includes geophysical and geotechnical field surveys, sediment classification/sampling, stack testing, environmental monitoring, stormwater sampling and inspections, pond sampling and vegetation surveys, long- and short-term sound measurement, indoor air and soil gas sampling, and Phase I site assessments. He is also an FAA-certified UAS (Unmanned Aircraft Systems) pilot with over six years of experience in planning and conducting drone flights for aerial survey purposes as well as in capturing inspection photos and video for project documentation.

Project Experience

Bureau of Ocean Energy Management, Visual Simulations – Offshore MA and RI

Mr. Ernsting assisted in preparing the photo documentation and visual simulations of a 1600-turbine offshore wind farm, including development of curvature-of-earth and refraction calculations for horizon distance and turbine visibility and GIS maps showing the wind turbine layout from each of 24 specified viewpoints. He generated over 600 daytime and nighttime 3D simulations from the specified viewpoint locations for the proposed wind energy areas offshore Rhode Island and Massachusetts, including 3D modeling of turbines and lights in multiple weather conditions and advanced photo editing to reflect changes in vegetation, season, and time of day.

Bureau of Ocean Energy Management (BOEM), Visual Simulations – Offshore CA

Mr. Ernsting prepared visual simulations for proposed Wind Energy Areas offshore California, including preliminary turbine array design, turbine visibility calculations from potential Key Observation Points (KOPs), and concept modeling for a future 15MW offshore floating turbine. He generated daytime and nighttime 3D simulations using field photography from the specified KOPs and assisted in preparation of an accompanying meteorological report.

Bureau of Ocean Energy Management (BOEM), Visual Assessment – Offshore SC

Mr. Ernsting assisted with the preparation of a visual impact assessment for the proposed wind energy area off of South Carolina in support of the BOEM lease. Specifically created the 3D model for the

proposed MET tower based on schematic drawings. He aligned the 3D model to baseline photography and generated day/night renderings of the MET tower from 5 of the viewpoints. In addition, Mr. Ernsting produced final photo simulations for the EA document.

Cape Wind Associates, LLC, Cape Wind Energy Project – Offshore MA

Mr. Ernsting performed technical analysis for the filings of an OCS Air Permit and General Conformity for this proposed 468 MW wind farm offshore of Cape Cod, Massachusetts. He generated total air emissions estimates for construction and transportation tasks for over 200 vessel and stationary engines to be used by multiple subcontractors over a projected two-year period, based on engine size, usage, vessel routes, and other parameters.

Centrica Business Solutions, Solar Projects – RI

Mr. Ernsting provided a variety of technical analyses for multiple small-scale ground-mounted solar projects in Rhode Island, including predictive noise modeling, line-of-sight analysis, visual simulations, and UAS orthophotography. Prepared conceptual site renderings and noise impact assessment reports and provided expert testimony for local planning boards relating to potential noise impacts.

Confidential Client – Middlesex County, NJ

Mr. Ernsting developed a visual impact assessment study for a proposed electrical substation in New Jersey, including landscape and sensitive visual resource analysis, viewshed modeling and analysis of proposed equipment, and field photo verification.

Hudson Transmission Partners, Hudson River Transmission Cable Reconductoring – NY

Mr. Ernsting provided environmental monitoring services for the removal and replacement of damaged submarine cable in the Hudson River, including day-to-day observation services and coordination with site management and NYSDPS to ensure that best management practices and permit requirements were followed and that environmental concerns were addressed and properly reported. He prepared daily inspection reports and construction progress reports for submittal to state agencies.

Invenergy, LLC, Clear River Energy Center – RI

Mr. Ernsting assessed environmental impacts for a proposed combined-cycle energy generating facility in Rhode Island. Prepared initial site critical issues analysis including identification of potential sites, elevation and slope characteristics, water usage calculations and environmental factors such as wetlands, sensitive receptors, and conservation lands. He developed detailed health risk assessment based on air dispersion modeling and multiple exposure pathways.

NextEra Energy, Routing & Substation Assessments – NY

Mr. Ernsting assessed a comprehensive network of potential transmission line upgrade and greenfield route options for a NY transmission upgrade solicitation. He developed route and substation environmental assessments based on a wide range of factors including wetland resources, potential rare and endangered species habitat, remediation sites, and cultural and historical resources. He developed preliminary marine transmission routes and coordinated marine reconnaissance surveys of marine routes and landfalls.

Poseidon Transmission, LLC, Article VII Application for Transmission – NY & NJ

Mr. Ernsting supported the preparation of an Article VII Application for a proposed 500 MW submarine transmission cable from Long Island, NY to northern NJ. He collected and logged sediment cores and benthic samples in Raritan Bay as part of the geophysical survey and vibracore sampling, coordinated laboratory analysis for chemical and physical characteristics, and assisted in final report preparation. Mr. Ernsting oversaw additional vibracore sampling and analysis offshore Sandy Hook, NJ.

Rise Light & Power, Queensboro Renewable Express Project – NY and NJ

Mr. Ernsting served as Project Manager for this proposed submarine cable project between offshore wind lease areas and the Ravenswood Generating Station Site in Queens, New York, including development of offshore cable routes, coordination of marine surveys and sampling, and overseeing the preparation of multiple permit applications, including the New York Article VII Application and USACE Individual Permit Application. Managed TRC services and day-to-day client and project team coordination, along with providing technical input related to cable routing, alternatives analysis, and visual impact analysis.

US Wind, Inc., Maryland Wind Project – MD

Mr. Ernsting provided technical assistance for the permitting of this proposed 1500 MW wind farm offshore Ocean City, Maryland, including preparation of a pre-auction desktop assessment of the lease sale area, project air emissions estimates for the OCS Air Permit, export cable routing analysis, and preparation of figures and drawings for the Construction and Operations Plan. He was the visual impact assessment technical lead, which included development of visual simulations and LIDAR viewshed analysis from multiple onshore viewpoints for multiple wind turbine models and configurations, as well as desktop assessment of visual resources.

Providence Water Supply Board, UAS Services – RI

Mr. Ernsting provided UAS imagery services for the City of Providence, RI Water Supply Board, including video inspection flights for water towers, pumphouses, and other structures, as well as aerial photography of reservoirs and surrounding areas.

Winchester Country Club – Winchester, MA

Mr. Ernsting conducted UAS flights to capture high-definition aerial video and spatially accurate orthophotography and digital elevation data for a golf course in Winchester, Massachusetts. Post-processed imagery and elevation data to create 3D terrain models was used to illustrate proposed course layout changes.

Wind Energy Development – Kent & Washington Counties, RI

Mr. Ernsting performed technical analysis for planning and permitting of several wind turbines in Coventry, West Warwick, and North Kingstown, Rhode Island, including predictive noise modeling and worst- and real-case shadow flicker analyses based on topography, wind turbine parameters, and regional wind and sunshine data using Cadna-A, WindPRO, and GIS software.

SPECIALIZED TRAINING

OSHA 40-Hour HAZWOPER Training (Cert. No. 1601115126293)

PAYSON R. WHITNEY, III, PE

EDUCATION

B.S., Civil Engineering, Lehigh University, 1994

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

- Professional Engineer (Civil):
  - Massachusetts (#41706), 2001
  - Rhode Island (#8551), 2006
  - Virginia (#50185), 2012
  - New Hampshire (#14163), 2013
  - Maryland (#47100), 2015
  - Maine (#14040), 2015
- National Council of Examiners for Engineering and Surveying Record, (#47445), 2011

AREAS OF EXPERTISE

Mr. Whitney has project design and management and technical experience in the following general areas:

- Submarine Cable System Planning
- Submarine Electric Transmission Cable Routing
- Planning Studies
- Dredging Impacts and Mitigation
- Dredging Design/Construction Oversight
- Navigational Risk Assessment
- Marine Geophysical and Geotechnical Field Investigation Program Planning
- Permitting for High Voltage Transmission Lines and Substations
- Local, State, and Federal Environmental Regulatory and Land Use Permitting
- Flood Hazard Analyses and Mapping
- Environmental Monitoring
- Roadway Design
- Marina Planning and Design
- Construction Phase Services
- Preparing and Reviewing Construction Bid Documents and Shop Drawings
- Site Layout and Design
- Stormwater Management System Design
- Third Party Technical Peer Reviews

REPRESENTATIVE EXPERIENCE

Mr. Whitney is a Professional Engineer with more than 27 years of experience as a Civil/Coastal Engineer and Project Manager in a wide range of public and private sector projects, including project design and management activities in civil/site engineering, coastal permitting/shoreline assessment, and the planning and permitting of electrical transmission projects. He specializes in planning, routing, surveying, and installing High Voltage AC and DC submarine electric transmission cable systems, landfall transitions, and interconnections with local grid substations. Mr. Whitney has conducted submarine cable routing, constructability and installation assessments, and permitting for some of the largest submarine cable system projects developed along the eastern seaboard in the last 20 years. He is among the foremost submarine cable system planners in the industry with multiple successful projects under his leadership.

Mr. Whitney is also well versed in local, state, and federal environmental regulatory and land use permitting requirements and strategies. He has particular expertise in permitting projects subject to Massachusetts Chapter 91 Waterways regulations. Mr. Whitney has provided written and oral expert testimony before regulatory/siting agencies in Massachusetts, New Hampshire, Rhode Island, and New York.

New York-New Jersey Submarine Cable Project Experience

Bayonne Energy Center, LLC, Permitting for Submarine Transmission Cable Project – NJ & NY

Mr. Whitney served as Project Manager for environmental consulting, regulatory permitting, and preliminary engineering for the submarine electric transmission cable aspect of the project, which entailed the construction of a 512 MW electric generating plant in Bayonne, NJ. Responsible for day-to-day coordination of services, coordination with the client and its project team, coordination with the project engineers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing marine geophysical and geotechnical field investigations. Mr. Whitney was responsible for developing the proposed submarine cable route and identifying from project survey and constraints information. Mr. Whitney oversaw the preparation of New York Article VII filing and US Army Corps of Engineers (USACE) permit application, as well as various separate supporting reports and responses to comments. Supported New Jersey Department of Environmental Protection (NJDEP) Waterfront Development Permit application by preparing sections relevant to the submarine cable. During construction, was responsible for coordination with project owner and installation contractor to resolve routing challenges prior to installation, for verifying installer cable burial depth estimates, and for conducting required environmental inspections and monitoring in New York.

North Bergen Liberty Generating, LLC, North Bergen Liberty Generating Project – North Bergen, NJ to New York, NY

Mr. Whitney served as Project Director for environmental consulting, regulatory permitting, and preliminary engineering for the electric transmission aspect of the project, which proposed the construction of a 1,200 MW combined cycle generating facility in North Bergen, NJ with a connection to the New York electric grid through a 6.2 mile long, double circuit 345 kV transmission generator lead connecting to Con Edison's West 49th Street Substation. Responsible for day-to-day project strategy and coordination of services, coordination with the client and its project team, coordination with the project engineers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing marine geophysical and geotechnical field investigations. Mr. Whitney was responsible for developing the proposed submarine cable route. Mr. Whitney oversaw the preparation of New York Article VII filing, US Army Corps of Engineers (USACE) permit application, NJDEP Waterfront Development Permit application, and NJDEP Tidelands License applications.

Hudson Transmission Partners, LLC, The Hudson Project – Ridgefield, NJ & New York, NY

Mr. Whitney provided and coordinated engineering support for regulatory permitting efforts for the construction of a new High Voltage DC, 660 MW electric transmission facility linking the regional PJM Interconnection with the New York Independent System Operator. The Project included the construction of a new back-to-back AC-DC-AC Converter Station located in Ridgefield and installation of a new 230 kV AC link to the nearby PSE&G Bergen Substation, also in Ridgefield. From the Converter Station a new 345 kV AC electric transmission cable system is routed in an overland underground configuration from Ridgefield to Edgewater, New Jersey where it then crosses the Lower Hudson River estuary in a buried submarine cable configuration to make landfall at Piers 92 – 94 at the Mid-town Manhattan waterfront where it is then interconnected via upland underground cable to the existing Con Edison West 49th Street Substation.

Hudson Transmission Partners, LLC, Hudson Project Submarine Cable Reconductoring – Edgewater, NJ to New York City, NY

Mr. Whitney served as Project Manager responsible for providing environmental consulting and regulatory permitting services for the 2017 replacement of the Hudson Project submarine cable. The Project operated successfully between June 2013 and January 1, 2016. In 2016, the submarine cable experienced three separate faults on the "C" Phase cable. The cause of these faults could not be determined despite thorough investigations. HTP determined that the long-term viability of the Project and its ability to provide New York Power Authority (NYPA) customers with power from the Project required the replacement of the existing submarine cable between its landfalls in Edgewater, NJ and Manhattan, NY with a new solid dielectric submarine cable. Mr. Whitney was responsible for assisting HTP with developing and implement regulatory strategies for New York, New Jersey, and the USACE New York District. The work included preparing and submitting an application for a New Jersey In-Water Waterfront Development Individual Permit and Water Quality Certificate in less than three weeks to enable NJDEP to complete their review to meet the accelerated project schedule. Managed ESS environmental monitoring and inspection services required by the Project's Article VII Certificate and EM&CP document during cable removal operations that included pre- and post-construction sediment and benthic monitoring, Independent Environmental Inspectors onboard the cable removal vessel, and TSS/Water Quality monitoring.

West Point Partners, LLC, West Point Transmission Project – Hudson River, NY (Project Role: 2011 – 2013)

Mr. Whitney served as Project Manager responsible for development of the Project's overland and in-river transmission cable routes, managed initial stakeholder outreach meetings, and preparation of the Project's New York State Article VII and USACE Individual Permit applications. Responsible for day-to-day coordination of services, coordination with the client and its project team, coordination with the selected installers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing in-river geophysical and geotechnical field investigations. Mr. Whitney was responsible for overseeing development of the Project's Alternatives Analysis.

PSEG Power LLC, Cross Hudson Project – Ridgefield, NJ to New York City, NY

Mr. Whitney served as Project Manager for environmental consulting and engineering services for the construction of a submarine electric cable system to transmit power from the PSEG Bergen Station in Ridgefield, New Jersey to the ConEd West 49th Street substation in New York City. The cable system, approximately seven miles long (including upland and submarine portions), transmits approximately 500 MW of AC energy as well as fiber optic communications. Responsible for day-to-day coordination of services, coordination with the client, coordination with the project engineers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing multiple marine geophysical and geotechnical field investigations. Developed the proposed submarine cable route from project survey and constraints information. Mr. Whitney was responsible for overseeing preparation of New York Article VII filing and U.S. Army Corps of Engineers permit application, as well as various separate supporting reports and responses to comments.

TransÉnergie U.S., Ltd., Cross Sound Cable Project – New Haven, CT to Brookhaven (Shoreham), NY

Mr. Whitney planned, directed, and oversaw geophysical and geotechnical field investigation programs, developed proposed cable route alignments, and provided dredging design/construction oversight for the project that crosses Long Island Sound between New Haven, Connecticut and Brookhaven, New York. The cable system is approximately 24 miles long and transmits approximately 300 MW of DC energy. The DC cable energy is transformed to AC energy for power grid distribution at DC/AC Converter Stations located near each of the cable landfalls. The field investigation programs included hydrographic, sub-bottom profiling, side-scan sonar, and magnetometer surveys, as well as advancing jet probes and vibracores, to evaluate surface and shallow subsurface sediment/geologic conditions along the proposed alternative routes and in problematic areas encountered during cable installation. Developed the final proposed cable route from project survey and constraints information and coordinated development of project plan sets. Provided engineering support for proposed construction methodologies and regulatory permitting application preparation. Served as an expert witness during Connecticut Siting Council proceedings. Mr. Whitney was responsible for designing and managing a 12,000-cubic-yard hydraulic dredging operation at the Shoreham landfall to facilitate cable embedment. Planned and executed a post-installation cable and obstruction survey to field locate the cable and to identify and characterize obstructions encountered during installation, and for determining proposed remedial cable burial means and methods.

Other Submarine Cable Project Experience

- Cape Wind Associates, LLC, Offshore Renewable Energy and Submarine Cable Project – Nantucket Sound, MA
- Commonwealth Electric, Martha's Vineyard Cable – Vineyard Haven, MA
- Connecticut Light & Power Company and its Project Partners, Long Island Replacement Cable Project – Norwalk, CT to Northport, NY
- Eversource Energy, 601/602/603 Submarine Cable O&M Services – Norwalk, CT to Northport, NY
- Eversource Energy, Seacoast Reliability Project – Little Bay, NH
- Green Line Devco, Maine Green Line Project – Orrington, ME to Plymouth, MA
- Nantucket Cable Electric Company, Inc, Nantucket Cable Project – Harwich to Nantucket, MA
- New England Power, Quincy Cable Project – Boston to Quincy, MA
- New Hampshire Counsel for the Public, Seacoast Reliability Project – Little Bay, NH
- Silver Run Electric, LLC, Silver Run Project – Odessa, DE to Lower Alloways Creek Township, NJ

SELECTED PUBLICATIONS AND PRESENTATIONS

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