

## Appendix II-E1

### Habitat Suitability Assessment Report - New Jersey

March 2024

**Note:** At the time of the initial development of this report, development of a substation and/or converter station at the Brook Road Site in Howell Township, New Jersey was considered. The Brook Road Site is now expected to be prepared and developed as part of the State of New Jersey Board of Public Utility (BPU) State Agreement Approach (SAA) to support multiple offshore wind generation projects that the State will procure as part of New Jersey BPU's Third Offshore Wind Solicitation (Solicitation)<sup>1</sup>. As part of the Solicitation, the BPU will require bidders to utilize the SAA infrastructure. Given this requirement by the BPU, all siting, permitting, and other site preparation activities associated with the substation and/or converter station will be the responsibility of the BPU's SAA-awardee at the Brook Road Site and therefore, have not been considered as part of the Project Design Envelope (PDE) of the Project. Discussion of the site has been retained as part of the study area in this report to demonstrate the completeness of Atlantic Shores' multi-year development efforts.

<sup>1</sup>[New Jersey Board of Public Utilities Order Opening Third Offshore Wind Solicitation](#)

# Appendix II-E1

## Habitat Suitability Assessment Report

### Atlantic Shores Offshore Wind – New Jersey Study Area

Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, and Neptune Township

Monmouth and Ocean Counties, New Jersey

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## ACRONYM LIST

Atlantic Shores	Atlantic Shores Offshore Wind, LLC
BS	Breeding Sighting
E	Endangered
EDR	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
ESA	Endangered Species Act
F	Foraging
IPaC	Information for Planning and Consultation
N	Nest
NBS	Non-Breeding Sighting
NC	Nesting Colony
NHP	Natural Heritage Program
NJDEP	New Jersey Department of Environmental Protection
NOAA	National Oceanic and Atmospheric Administration
OH	Occupied Habitat
PT	Proposed Threatened
SP	Special Concern
T	Threatened
USFWS	United States Fish & Wildlife

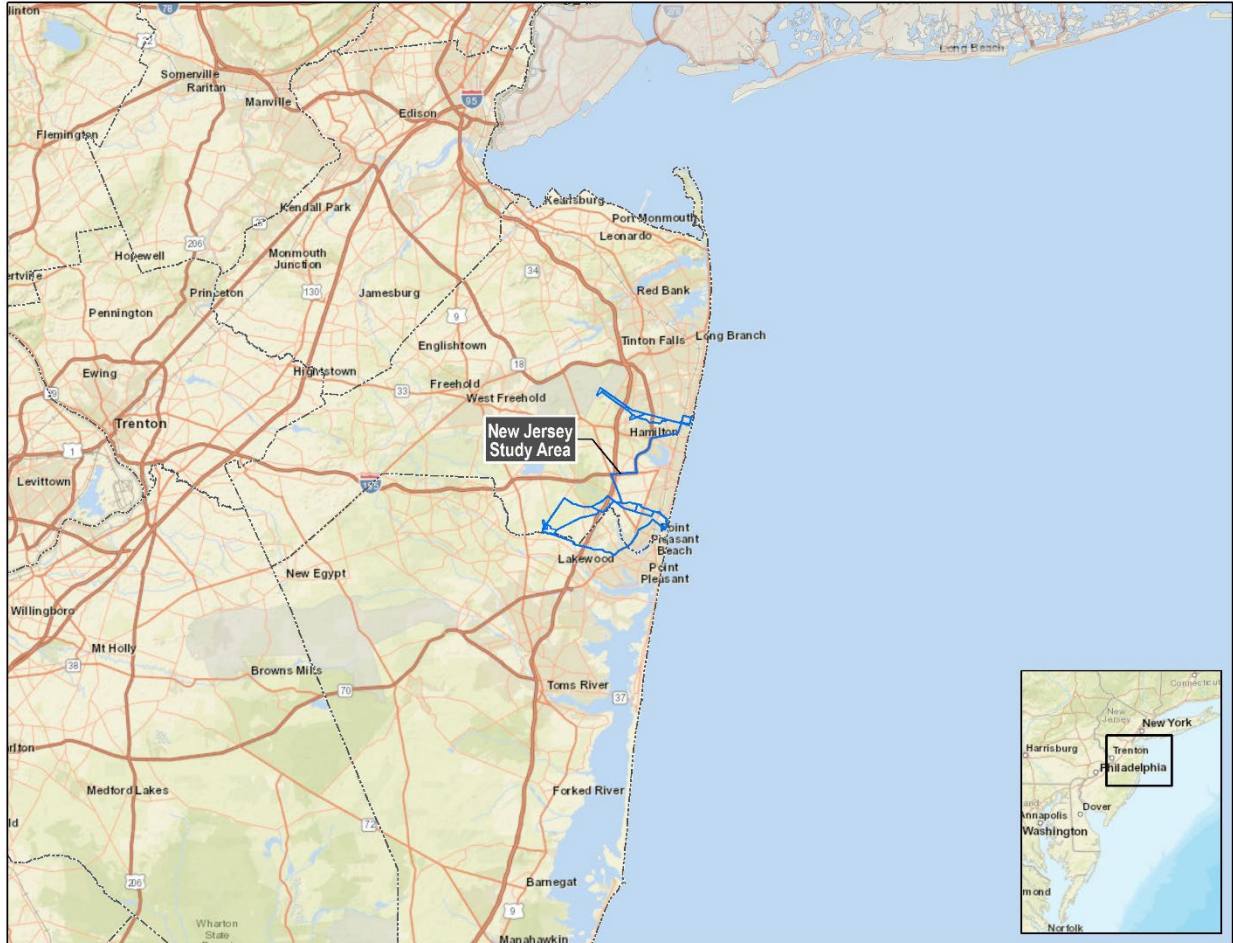
## 1.0 INTRODUCTION

Atlantic Shores Offshore Wind, LLC (Atlantic Shores) is a 50/50 joint venture between EDF-RE Offshore Development, LLC (an indirect wholly owned subsidiary of EDF Renewables, Inc. [EDF Renewables]) and Shell New Energies US, LLC (Shell). Atlantic Shores is submitting a Construction and Operations Plan to the Bureau of Ocean Energy Management for the development of an offshore wind energy generation project (Project) within Lease Area OCS-A 0549 (the Lease Area).

EDR was contracted by Atlantic Shores to conduct a field and desktop wildlife habitat suitability assessment (including habitat for federal and state threatened & endangered species) within and adjacent to the proposed onshore Project components in New Jersey, hereafter referred to as the New Jersey Study Area (see Exhibit 1). Specifically, the New Jersey Study Area includes all of the land within 75 feet (23 meters) of the potential onshore interconnection cable routes, landfall sites, substation site options and potential points of interconnection.

The New Jersey Study Area consists of approximately 59 miles (95 kilometers) encompassing approximately 1,402.7 acres (5.7 square kilometers [km<sup>2</sup>]) with the assumed New Jersey Study Area width of 150 feet (46 meters) in the municipalities of City of Asbury Park, Brick Township, Borough of Brielle, Colts Neck Township, Howell Township, Lakewood Township, Borough of Manasquan, Borough of Neptune City, Neptune Township, Ocean Township, Borough of Point Pleasant, Borough of Sea Girt, Borough of Tinton Falls, and Wall Township, in Monmouth and Ocean Counties, New Jersey (Figure 1 in Appendix A and Exhibit 1). This report provides information on mapped land use and land cover and a summary of field habitat suitability assessments within the New Jersey Study Area.

Exhibit 1: New Jersey Study Area Location (not drawn to scale)



## 1.1 Regulatory Framework

The Endangered Species Act (ESA) was passed in 1973, with the purpose of protecting and recovering imperiled species and the ecosystems upon which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric (NOAA) Fisheries administer the ESA. The USFWS has primary responsibility over terrestrial and freshwater organisms and the NOAA Fisheries oversees marine wildlife such as whales and anadromous fishes. The ESA allows a species to be listed as endangered or threatened and includes subspecies, varieties, and/or distinct population segments. An endangered species is in danger of extinction throughout a significant portion or all of its range. A threatened species is marked as likely to become endangered in the foreseeable future (USFWS 2020a).

The Migratory Bird Treaty Act was passed in 1918 and prohibits the take, including killing, capturing, selling, trading, and transporting of protected migratory bird species without prior authorization by the USFWS. A migratory bird species is included on the list if it meets one or more of the following criteria (USFWS 2020a):

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family, protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

New Jersey's assumption of the Clean Water Act's regulatory authority allows the USFWS to play a more formal role in the review of permit applications requested under the New Jersey Wetlands Protection Act (NJ 2019). The USFWS is authorized through the federal ESA to regulate activities that may result in the "take" of federal-listed threatened or endangered species. Together, the New Jersey Department of Environmental Protection (NJDEP) Division of Fish and Wildlife and USFWS develop guidance on how to minimize or mitigate impacts when a project is regulated under the Waterfront Development Act, the Coastal Area Facility Review Act, or the Flood Hazard Protection Act and have the potential to adversely affect any federally listed species (NJ 2019). In addition, the New Jersey Endangered and Nongame Species Conservation Act of 1973 (N.J.S.A. 23:2A et. seq.) details a list of wildlife species determined by the state as threatened and endangered protecting designated species from impacts such as harassing, hunting, capturing, killing, or attempting to kill.

## **1.2 Purpose**

The purpose of this report is to provide a summary of the type of habitat observed in the field and identified through desktop evaluation within the New Jersey Study Area and provide an assessment of the suitability of the habitat to support wildlife species, particularly threatened and endangered species.

## **2.0 AGENCY CONSULTATION AND PUBLIC RECORDS REVIEW**

EDR consulted the USFWS Information for Planning and Consultation (IPaC) online system to determine the documented presence of threatened & endangered species protected by Section 7 of the ESA under their jurisdiction. EDR also used the NJDEP's Pinelands and Atlantic Coastal Landscape Project data to determine the documented occurrence of state (and federal) listed species and their general locations. Further, EDR submitted a request to the NJDEP Natural Heritage Program (NHP) on December 6<sup>th</sup>, 2022 for records of state- and federal-listed threatened and endangered species or their habitat within the New Jersey Study Area to confirm the results of the Landscape Project mapping review. A response was provided by NJDEP on December 19<sup>th</sup>, 2022. The results of the IPaC and NJDEP Landscape Project review and NHP database search are provided in Appendix B and are summarized in Subsections 2.1 and 2.2, respectively. Typical habitat descriptions mapped within the New Jersey Study Area are provided in Subsection 2.3.

### **2.1 USFWS Information for Planning and Consultation**

The USFWS IPaC identified 10 species within and/or proximate to the New Jersey Study Area that included, "Threatened Status," "Endangered Status" and "Proposed Endangered Status." The species identified



included two mammals (the northern-long eared bat [*Myotis septentrionalis*] and tricolored bat [*Perimyotis subflavus*]); two birds (the piping plover [*Charadrius melodus*] and the red knot [*Calidris canutus rufa*]); one reptile (the bog turtle [*Glyptemys muhlenbergii*]); one insect (the monarch butterfly [*Danaus plexippus*]); and four plants (the American chaffseed [*Schwalbea americana*], Knieskern's beaked-rush [*Rhynchospora knieskernii*], seabeach amaranth [*Amaranthus pumilus*], and swamp pink [*Helonias bullata*]). No critical habitat for these species was designated within and/or proximate to the New Jersey Study Area. Typical habitat for each species is summarized in Table 1.

Table 1. Results of IPaC Review – Endangered Species Act Species

Species	Common Name	Federal Conservation Status <sup>1</sup>	Typical Habitat	Mapped Habitat in New Jersey Study Area
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	Threatened	<p><b>Summer Habitat:</b> roost underneath bark, in cavities or in crevices of both live and dead trees. May also roost in caves and mines.</p> <p><b>Winter:</b> hibernate in caves and mines with large passages, large entrances, constant temperature and high humidity.</p> <p><b>Feeding:</b> understory of forested hillsides and ridges (USFWS 2020b).</p>	No
<i>Perimyotis subflavus</i>	Tricolored Bat	Proposed - Endangered	<p><b>Summer Roosts:</b> dead or alive tree foliage, caves, mines, rock crevices, mature forests along perennial streams (NatureServe, 2022a).</p> <p><b>Winter:</b> hibernate in caves, mines, cave-like tunnels, box culverts (NatureServe, 2022a).</p> <p><b>Foraging:</b> forested landscape, near trees, and along waterways</p>	No
<i>Charadrius melodus</i>	Piping Plover	Threatened	<p><b>Breeding and Nesting Habitat:</b> beaches; nest sites are simple depressions or scrapes in the sand approximately 6 to 8 cm in diameter. Arrive from March to May and migrate as late as mid-August to southern wintering habitat (NatureServe 2020b).</p>	No

Species	Common Name	Federal Conservation Status <sup>1</sup>	Typical Habitat	Mapped Habitat in New Jersey Study Area
<i>Calidris canutus rufa</i>	Red Knot	Threatened	<b>Migratory Habitat:</b> stopover areas, generally along the coast, that have an abundance of food such as small crabs, mussels, snails, crustaceans, marine worms, and horseshoe crab eggs. Migration is timed to coincide with the spawning season of horseshoe crabs (USFWS 2019).	No
<i>Glyptemys muhlenbergii</i>	Bog Turtle	Threatened	<b>Habitat:</b> slow, shallow, muck-bottomed streams, bogs, marshy meadows, spring seeps, wet pastures, and shrub swamps; all usually contain an abundance of sedges and/or mossy cover (NatureServe 2018).	No
<i>Danaus plexippus</i>	Monarch Butterfly	Candidate	<b>Breeding habitat:</b> butterflies lay eggs on their obligate milkweed host plant and larvae emerge after 2 to 5 days. Larvae feed on the milkweed until they pupate into a chrysalis before emerging 6 to 14 days later as an adult butterfly (USFWS 2022).	No
<i>Schwalbea americana</i>	American Chaffseed	Endangered	<b>Habitat:</b> Open pine flatwoods, pitch pine lowland forest, seepage bogs, and grass/sedge dominated plant communities with seasonally wet acidic and sandy/peaty soils, often subject to fires in the growing season (NatureServe 2020).	No
<i>Rhynchospora knieskernii</i>	Knieskern's Beaked-rush	Threatened	<b>Habitat:</b> endemic to five counties in the New Jersey Pine Barrens. Restricted to early successional habitats in pitch pine lowland forests within pine barrens. Prefers a substrate that is nutrient poor, highly acidic, fine grained mineral soils and can frequently be found over clay deposits and sometimes found on bog iron deposits. Prefers areas with a fluctuating water level, bare or sparsely vegetated areas that remain open due to disturbances either natural or human caused (NatureServe 2020j).	No

Species	Common Name	Federal Conservation Status <sup>1</sup>	Typical Habitat	Mapped Habitat in New Jersey Study Area
<i>Amaranthus pumilus</i>	Seabeach Amaranth	Threatened	<b>Habitat:</b> occurs on barrier islands, usually on coastal over-wash flats at the accreting ends of the islands and lower foredunes and on ocean beaches above mean high tide. Prefers areas that are not well vegetated (NatureServe 2020).	No
<i>Helonias bullata</i>	Swamp Pink	Threatened	<b>Habitat:</b> swampy forested wetlands bordering meandering streams; headwater wetlands; sphagnous hummocky, dense, Atlantic white cedar swamps; blue ridge swamps; meadows; bogs and spring seepage areas. In conjunction with these areas the species also requires a habitat that is permanently saturated, but not inundated, by floodwaters. There must be a water table near the surface that fluctuates slightly during spring and summer months. Prefers areas with 20 to 100% canopy cover (USFWS 2020c).	No

The IPaC review also includes a list of migratory bird species that are protected under one or more of the following:

- The Migratory Bird Treaty Act of 1918
- The Bald and Golden Eagle Protection Act of 1940
- 50 CFR Sec. 10.12 and 16 U.S.C Sec 668(a).

Activities that will impact migratory birds, eagles or their critical habitats should follow the applicable regulations and consider applying conservation measures according to the USFWS guidance. Table 2 summarizes migratory bird and eagle species that have mapped habitat within or proximate to the New Jersey Study Area.

Table 2. Results of IPaC Review – Migratory Bird Species

Species	Common Name	Status	Breeding Season
<i>Haematopus palliatus</i>	American Oystercatcher	Bird of Conservation Concern (BCC)	April 15 to August 31

<b>Species</b>	<b>Common Name</b>	<b>Status</b>	<b>Breeding Season</b>
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Not a BCC	October 15 to August 31
<i>Cephus grylle</i>	Black Guillemont	Not a BCC	May 15 to September 10
<i>Melanitta nigra</i>	Black Scoter	Not a BCC	Breeds elsewhere
<i>Rynchops niger</i>	Black Skimmer	BCC	May 20 to September 15
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	BCC	May 15 to October 10
<i>Rissa tridactyla</i>	Black-legged Kittiwake	Not a BCC	Breeds elsewhere
<i>Vermivora pinus</i>	Blue-winged Warbler	BCC	May 1 to June 30
<i>Dolichonyx oryzivorus</i>	Bobolink	BCC	May 20 to July 31
<i>Pelecanus occidentalis</i>	Brown Pelican	Not a BCC	January 15 to September 30
<i>Cardellina canadensis</i>	Canada Warbler	BCC	May 20 to August 10
<i>Dendroica cerulea</i>	Cerulean Warbler	BBC	April 29 to July 29
<i>Chaetura pelagica</i>	Chimney Swift	BBC	March 15 to August 25
<i>Somateria mollissima</i>	Common Eider	Not a BCC	June 1 to September 30
<i>Gavia immer</i>	Common Loon	Not a BCC	April 15 to October 31
<i>Uria aalge</i>	Common Murre	Not a BCC	April 15 to August 15
<i>Calonectris diomedea</i>	Cory's Shearwater	BCC	Breeds Elsewhere
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Not a BCC	April 20 to August 31
<i>Alle alle</i>	Dovekie	Not a BCC	Breeds elsewhere
<i>Antrostomus vociferus</i>	Eastern Whip-poor-will	BCC	May 1 to August 20
<i>Puffinus gravis</i>	Great Shearwater	Not a BCC	Breeds elsewhere
<i>Gelochelidon nilotica</i>	Gull-billed Tern	BBC	May 1 to July 31
<i>Limosa haemastica</i>	Hudsonian Godwit	BCC	Breeds elsewhere
<i>Oporornis formosus</i>	Kentucky Warbler	BBC	April 20 to August 20
<i>Tringa flavipes</i>	Lesser Yellowlegs	BCC	Breeds elsewhere
<i>Asio otus</i>	Long-eared Owl	BCC	March 1 to July 15
<i>Clangula hyemalis</i>	Long-tailed Duck	Not a BCC	Breeds elsewhere
<i>Dendroica discolor</i>	Prairie Warbler	BCC	May 1 to July 31
<i>Protonotaria citrea</i>	Prothonotary Warbler	BCC	April 1 to July 31
<i>Calidris maritima</i>	Purple Sandpiper	BCC	Breeds elsewhere
<i>Alca torda</i>	Razorbill	Not a BCC	June 15 to September 10
<i>Mergus serrator</i>	Red-breasted Merganser	Not a BCC	Breeds elsewhere
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	BCC	May 10 to September 10
<i>Phalaropus lobatus</i>	Red-necked Phalarope	Not a BCC	Breeds elsewhere
<i>Gavia stellata</i>	Red-throated Loon	BCC	Breeds elsewhere
<i>Larus delawarensis</i>	Ring-billed Gull	Not a BCC	Breeds elsewhere
<i>Sterna dougallii</i>	Roseate Tern	Not a BCC	May 10 to August 31
<i>Thalasseus maximus</i>	Royal Tern	Not a BCC	April 15 to August 31
<i>Arenaria interpres morinella</i>	Ruddy Turnstone	BCC	Breeds elsewhere
<i>Euphagus carolinus</i>	Rusty Blackbird	BCC	Breeds elsewhere

<b>Species</b>	<b>Common Name</b>	<b>Status</b>	<b>Breeding Season</b>
<i>Limnodromus griseus</i>	Short-billed Dowitcher	BCC	Breeds elsewhere
<i>Melanitta perspicillata</i>	Surf Scoter	Not a BCC	Breeds elsewhere
<i>Uria lomvia</i>	Thick-billed Murre	Not a BCC	April 15 to August 15
<i>Melanitta fusca</i>	White-winged Scoter	Not a BCC	Breeds elsewhere
<i>Tringa semipalmata</i>	Willet	BCC	April 20 to August 5
<i>Oceanites oceanicus</i>	Wilson's Storm-petrel	Not a BCC	Breeds elsewhere
<i>Hylocichla mustelina</i>	Wood Thrush	BCC	May 10 to August 31

## 2.2 NJDEP Landscape Project and NJDEP Natural Heritage Program

The New Jersey Landscape Project was developed to guide strategic wildlife habitat conservation and is an ecosystem-level approach with the goal of long-term protection for imperiled species and their important habitats within New Jersey (NJDFW 2018). These data are in a publicly available database that provides species of New Jersey conservation focus that have been documented within specific, mapped habitats. Based on criteria outlined in the Landscape Project, habitat is ranked 1 through 5 based on the Landscape Project criteria:

- Rank 1 – Habitat specific requirements
- Rank 2 – Special Concern
- Rank 3 – State Threatened
- Rank 4 – State Endangered
- Rank 5 – Federal Listed.

Records of federally listed species occur within some Rank 4 and Rank 5 sections. For specific ESA species documented within the New Jersey Study Area, a request for information from the USFWS would initially be required through the IPaC online tool (Section 2.1); however, many federal-listed species are also state-listed species.

New Jersey Landscape Project provides a species list of New Jersey conservation focus that have been documented within mapped habitats. The Natural Heritage Database is a continuously updated inventory of rare plants and animal species and representative ecological communities in New Jersey. The Heritage Program tracks the status of over 800 plant species, 356 of which are listed as endangered in the state (NJDEP 2022). It is the state's most comprehensive, centralized source of information on rare plants, animals, and natural communities. It is a part of NatureServe, the international network of Natural Heritage Programs and Conservation Data Centers, and a source of comprehensive information about plants, animals, and ecosystems. A consultation request was submitted to NJDEP to provide information on the presence of threatened and endangered species within the New Jersey Study Area. Species that are documented within and/or proximate (within 1/4<sup>th</sup>-mile) to the New Jersey Study Area are listed in Table 3, and Landscape Project mapping is provided in Figure 2.

Table 3. Results of NJDEP Landscape Project (Atlantic Coastal Plain [NJDEP 2006]) and NHP Database)

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Falco sparverius</i>	American Kestrel	Threatened	<b>General:</b> open, grassy habitats. Preferably areas that also offer cavities for nesting and perches for hunting (CWF 2011).	Breeding Sighting, Non-Breeding Sighting
<i>Haematopus palliatus</i>	American Oyster Catcher	Special Concern	<b>General:</b> rocky and sandy seacoasts and islands, river mouths and estuaries (NatureServe 2022b). <b>Nesting:</b> open areas of sandy beaches, among rocks, islands, shingle beds, and occasionally salt marshes (NatureServe 2022b).	Nesting Area
<i>Dermochelys coriacea</i>	Atlantic Leatherback	Endangered	<b>General:</b> marine, open ocean, often near edge of continental shelf; also seas, gulfs, bays, and estuaries (Nature Serve 2022d). <b>Nesting:</b> sloping beaches backed up by vegetation, often near deep water and rough seas (Nature Serve 2022d).	Occupied Habitat
<i>Strix varia</i>	Barred Owl	Threatened	<b>General:</b> Dense woodland and forests, swamps, wooded river valleys, frequently in areas bordering streams, marshes and meadows. Also commonly found in upland areas. Preference is given to areas large mature forests with trees that provide suitable nesting cavities and that contain an open understory (NatureServe 2020k).	Breeding Sighting
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Endangered	<b>General:</b> usually found in areas close to open water. <b>Nesting:</b> areas that are safe from human disturbance, usually in a tree (CWF 2020).	Nest, Foraging

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Nycticorax nycticorax</i>	Black-Crowned Night-Heron	Threatened	<b>Feeding:</b> along the edges of ponds or creeks and in marshes. <b>Nesting and Roosting:</b> Forests, scrub/shrub, marshes and ponds that provide cover. Open areas are avoided. Tend to nest in similar areas along with other species in areas with low vegetation (CWF 2020a).	Foraging
<i>Glyptemys muhlenbergii</i>	Bog Turtle	Endangered	<b>General:</b> wet grassy areas, mossy bogs, and herbaceous meadows that have unpolluted, clear spring-fed streams that flow throughout the year. Open areas are required for basking and nesting (CWF 2022a).	Occupied Habitat
<i>Toxostoma rufum</i>	Brown Thrasher	Special Concern	<b>General:</b> dense thickets and shrub areas in deciduous forest clearings as well as along forest edges and thorn-scrub habitat (CWF 2011a).	Breeding Sighting
<i>Hydroprogne caspia</i>	Caspian Tern	Special Concern	<b>General:</b> seacoasts, bays, estuaries, lakes, marshes, and rivers (NatureServe 2022e). <b>Nesting:</b> sandy or gravelly beaches and shell banks along coasts or large inland lakes; sometimes with other water birds (NatureServe 2022e).	Foraging

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Sterna hirundo</i>	Common Tern	Special Concern	<p><b>Nesting:</b> in colonies on barrier islands, barrier beaches, promontories attached to the mainland, salt marshes and occasionally freshwater marshes on substrates of sand, shell, cobble or gravel with sparse vegetation. Will occasionally nest in artificial substrate if natural ones are not available.</p> <p><b>Staging</b> (rest and feed): inlets and offshore areas on undisturbed beaches and sand flats near tidal inlets (CWF 2020c).</p>	Foraging
<i>Accipiter cooperii</i>	Cooper's Hawk	Special Concern	<p><b>Nesting:</b> nest in coniferous, deciduous, mixed riparian, and wetland forests. Nests are usually within a forest that provides a closed canopy and a moderate to thick shrub understory. Preference is given to areas adjacent to habitat with some open space (roadways or rivers) for hunting opportunities.</p> <p><b>Winter:</b> winter habitat is similar to nesting but can also include residential areas where songbirds and other prey are readily available (CWF 2012).</p>	Nest, Breeding Sighting
<i>Terrapene carolina carolina</i>	Eastern Box Turtle	Special Concern	<p><b>General:</b> open woodlands and meadows, residential backyards in suburban or rural areas. Generally located within proximity to freshwater (CWF 2020b).</p>	Occupied Habitat
<i>Balaenoptera physalus</i>	Fin Whale	Endangered	<p><b>General:</b> pelagic; usually found in largest numbers 25 miles or more from shore (NatureServe 2022f).</p>	Occupied Habitat (Live Individual Sighting)
<i>Anaxyrus fowleri</i>	Fowler's Toad	Special Concern	<p><b>General:</b> wooded areas, river valleys, and floodplains, including agricultural and residential areas, where deep friable soils are present (NatureServe 2022c).</p>	Occupied Habitat



Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Plegadis falcinellus</i>	Glossy Ibis	Special Concern	<p><b>Nesting:</b> in colonies with other species on the ground of marshes or in small trees and bushes near water.</p> <p><b>General:</b> found in marshes, swamps, lagoons, pond margins, lakes, flooded pastures and in fresh, brackish or salt water (NatureServe 2020h).</p>	Foraging
<i>Ardea herodias</i>	Great Blue Heron	Special Concern	<p><b>General:</b> freshwater and brackish marshes, lake edges, rivers, bays, lagoons, ocean beaches, fields and meadows.</p> <p><b>Nesting:</b> high in trees in swamps and forested areas. Occasionally on bushes or the ground. Generally located close to foraging habitats (NatureServe 2020a).</p>	Foraging, Nesting Colony
<i>Wilsonia citrina</i>	Hooded Warbler	Special Concern	<p><b>Breeding:</b> deciduous woodland understory, preferably near streams. Prefers large tracts of uninterrupted forest with a thick understory and a sparse herbaceous layer.</p> <p><b>Winter:</b> males prefer mature forests and females prefer scrub and secondary forests (CWF 2011b).</p>	Breeding Sighting
<i>Eremophila alpestris</i>	Horned Lark	Threatened	<p><b>General:</b> prefers open spaces, with bare ground, occasional shrubs and short, sparse grasses and flowers (CWF 2012a).</p>	Non-Breeding Sighting
<i>Megaptera novaeangliae</i>	Humpback Whale	Endangered	<p><b>General:</b> the open ocean and coastal waters, sometimes including inshore areas such as bays. Summer distribution is in temperate and subpolar waters. In winter, most humpbacks are in tropical/subtropical waters near islands or coasts (NatureServe 2022g).</p>	Occupied Habitat (Live Individual Sighting)

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Sternula antillarum</i>	Least Tern	Endangered	<b>Breeding:</b> seacoasts, beaches, bays, estuaries, lakes and rivers. Nests in shallow depression on level ground in sparsely vegetated areas on sandy/gravelly beaches and banks of rivers or lakes. Will habitat artificial areas similar to the natural ones like dredge spoil areas and flat rooftops covered with gravel. Nests are generally found in areas above the high tide mark on beaches (NatureServe 2020j).	Foraging
<i>Egretta caerulea</i>	Little Blue Heron	Special Concern	<b>General:</b> marshes, ponds, lakes, meadows, mudflats, streams, and other bodies of calm shallow water. Prefers freshwater areas. <b>Nesting:</b> above the ground or water in trees and shrubs. (NatureServe 2020c).	Foraging
<i>Eubalaena glacialis</i>	North Atlantic Right Whale	Endangered	<b>General:</b> inhabits nearshore and offshore waters. Mainly coastal in the North Atlantic (Nature Serve 2022h).	Occupied Habitat (Live Individual Sighting)
<i>Circus cyaneus</i>	Northern Harrier	Endangered	<b>General:</b> open areas such as tidal marshes, emergent wetlands, fallow fields, grasslands, meadows, airports, and agricultural areas. <b>Breeding/Nesting:</b> high marsh areas that are usually drier than low marsh areas. These areas are generally dominated by salt hay, marsh elder, or reed grass. They may also nest in freshwater tidal marshes, managed fallow or low intensity agricultural fields that contain tall herbaceous vegetation (CWF 2010).	Breeding Sighting
<i>Pandion haliaetus</i>	Osprey	Threatened	<b>General:</b> primarily located along rivers, lakes, reservoirs and seacoasts. Typically build nests consisting of sticks on living or dead trees and will also utilize man-made structures such as utility poles. Nests are usually located near or above water (NatureServe 2020g).	Foraging, Nest

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
<i>Arnoglossum atriplicifolium</i>	Pale Wild Caraway	Endangered	<b>Habitat:</b> edges of woods, pastures, roadsides (FNA 2020).	Occupied Habitat in the Vicinity (Live Individual Sighting)
<i>Hyla andersonii</i>	Pine Barrens Treefrog	Threatened	<b>General:</b> requires specialized acidic habitats such as Atlantic white cedar swamps and pitch pine lowlands that are carpeted with dense sphagnum moss. <b>Breeding:</b> acidic, temporary ponds no greater than 2 feet deep. In white cedar bogs, seepage areas along tributaries to major watercourses, and temporary woodland ponds serve as breeding ponds (CWF 2020d).	Vernal Pool Breeding, Occupied Habitat
<i>Charadrius melodus</i>	Piping Plover	Endangered	<b>Nesting Habitat:</b> beaches; nest sites are simple depressions or scrapes in the sand approximately 6 to 8 cm in diameter (NatureServe 2020b).	Nesting Area
<i>Bolboschoenus maritimus</i> (reclassified from <i>Schoenoplectus maritimus</i> )	Saltmarsh Bulrush	Endangered	<b>Habitat:</b> saltmarshes (see listing in Natural Heritage Database report in Appendix B).	Occupied Habitat in the Vicinity (Live Individual Sighting)
<i>Amaranthus pumilus</i>	Seabeach Amaranth	Endangered	<b>Habitat:</b> occurs on barrier islands, usually on coastal over-wash flats at the accreting ends of the islands and lower foredunes and on ocean beaches above mean high tide. Prefers areas that are not well vegetated (NatureServe 2020).	Occupied Habitat in the Vicinity (Live Individual Sighting)
<i>Hockenya peploides</i> var. <i>robusta</i>	Seabeach Sandwort	Endangered	<b>Habitat:</b> sea beaches, sandy flats, and dunes above high tide (FNA 2020b).	Occupied Habitat in the Vicinity (Live Individual Sighting)
<i>Polygonum glaucum</i>	Sea-beach Knotweed	Endangered	<b>Habitat:</b> tidal flats, shoreline (NatureServe 2020i).	Occupied Habitat in the Vicinity (Live Individual Sighting)
<i>Helonias bullata</i>	Swamp-pink	Endangered	<b>Habitat:</b> swampy forested wetlands bordering meandering streams;	Occupied Habitat in the

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
			headwater wetlands; sphagnum hummocky, dense, Atlantic white cedar swamps; blue ridge swamps; meadows; bogs and spring seepage areas. In conjunction with these areas the species also requires a habitat that is permanently saturated, but not inundated, by floodwaters. There must be a water table near the surface that fluctuates slightly during spring and summer months. Prefers areas with 20 to 100% canopy cover (USFWS 2020c).	Vicinity (Live Individual Sighting)
<i>Egretta thula</i>	Snowy Egret	Special Concern	<b>General:</b> Marshes, lakes, ponds, and shallow coastal habitats. <b>Nesting:</b> trees or shrubs over water or ground. Will occasionally nest on the ground or in marsh vegetation (NatureServe 2020d).	Foraging
<i>Egretta tricolor</i>	Tricolored Heron	Special Concern	<b>General:</b> Marshes, ponds, rivers, islands and found in salt and freshwater habitats. <b>Nesting:</b> usually near salt water in thickets of tidal marshes and rushes of freshwater marshes (NatureServe 2020e).	Foraging
<i>Catharus fuscescens</i>	Veery	Special Concern	<b>Breeding:</b> wetland forests with shrubby understory areas. Preference is given to large wooded areas. <b>Winter:</b> woodlands, lowland forests, and scrub (CWF 2011c).	Breeding Sighting
<i>Hylocichla mustelina</i>	Wood Thrush	Special Concern	<b>Breeding:</b> deciduous or mixed forests with a dense canopy and well-developed understory. Preference is given to areas near or within wetlands. <b>Winter:</b> various types of woodlands (CWF 2011d).	Breeding Sighting
<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	<b>General:</b> aquatic and terrestrial, the species prefers freshwater streams, creeks, brooks and rivers that are relatively remote. The watercourses are usually clean, free of litter or other pollutants, and occur within undisturbed wet fields, meadows and forests. Terrestrial habitat tends to consist of open fields of thickets suitable for basking. Habitats are	Occupied Habitat

Species	Common Name	NJ State Conservation Status <sup>1</sup>	Typical Habitat	Habitat Type Mapped in New Jersey Study Area <sup>2</sup>
			generally over half a mile from developed or populated areas and contain few roads (CWF 2010a).	
<i>Nyctanassa violacea</i>	Yellow-Crowned Night-Heron	Threatened	<b>General:</b> marshes, swamps, lakes, mainly coastal habitats. <b>Nesting:</b> Trees in wooded areas near water, occasionally in shrubs or on the ground (NatureServe 2020f).	Foraging, Nesting Colony

### 2.3 Land Use/Land Cover Mapped within the New Jersey Study Area

Land cover and vegetation occurring within the New Jersey Study Area were evaluated using current NLCD mapping (Figure 3 [Yang et al. 2019]). The New Jersey Area encompasses approximately 1,402.7 acres (5.7 km<sup>2</sup>) and primarily consists of developed space (low intensity, open space, and medium intensity) (see Table 4).

**Table 4. Land Use/Land Cover Within the New Jersey Study Area**

Land Cover Class	Area (acres)	Area (m <sup>2</sup> )	Percent Cover (%)
Developed, Low Intensity	329.22	1,332,311.4	23.5
Developed, Open Space	308.44	1,248,217.4	22.0
Developed, Medium Intensity	268	1,084,521.4	19.1
Developed, High Intensity	75.3	304,850.9	5.4
Woody Wetlands	149.33	604,319.5	10.6
Deciduous Forest	142.3	575,910.4	10.1
Mixed Forest	53.9	218,247.8	3.8
Shrub/Scrub	5.0	20,355.8	0.4
Cultivated Crops	23.0	93,037.6	1.6
Grassland/Herbaceous	6.2	25,090.6	0.4
Barren Land (Rock/Sand/Clay)	13.0	52,568.9	0.9
Open Water	3.6	14,366.4	0.3
Emergent Herbaceous Wetlands	0.9	3,601.7	0.1
Evergreen Forest	24.1	97,651.0	1.7
Pasture/Hay	0.4	1,497.3	>0.1
Total	1,402.7	5,676,525.5	100.0

Source: NLCD 2016 (Yang et al., 2019).

## 2.4 Descriptions of Habitat Types Mapped within the New Jersey Study Area

The New Jersey Study Area ranges from shallow, flat shorelines to the east to deciduous and mixed forests to the west. Common characteristics of coastal terrestrial habitats that occur within and directly adjacent to the New Jersey Study Area and dominant vegetation species are as follows:

- Deciduous and Mixed Forest/Scrub Shrub/Herbaceous Field:* Deciduous and mixed forests are the dominant habitat type in this region of New Jersey. Forested land is relatively young (two-thirds is less than 60 years old) and encompasses approximately 45% of the State of New Jersey (2.1 million acres); however, these areas are not distributed evenly across all counties. The average forest patch size in Monmouth County is approximately 30 acres while average forest patch size in Ocean County is 64 acres (USDA 2004). The most common cover type of forest in the state is an Oak/Hickory forest, which consists of common species such as white oak (*Quercus alba*), northern red oak (*Quercus rubra*), hickory (*Carya* sp.), white ash (*Fraxinus americana*), yellow poplar (*Liriodendron tulipifera*), and red maple (*Acer rubrum*). The shrub understory is also characteristic for the region and includes species such as: huckleberry (*Gaylussacia* sp.), blueberry (*Vaccinium* sp.), sweet pepperbush (*Clethra alnifolia*), and sheep laurel (*Kalmia angustifolia*). Some wildlife species that

prefer younger deciduous forests include the American goldfinch (*Carduelis tristis*), cedar waxwing (*Bombycilla cedrorum*), and eastern cottontail (USDA Forest Service 2004). More mature forests are more likely to house black bears (*Ursus americanus*), porcupines (*Erethizon dorsatum*), and pileated woodpeckers (*Dryocopus pileatus*).

- Typical scrub-shrub/herbaceous fields in New Jersey occur along and are generally associated with active, fallow or abandoned agricultural practices. This habitat provides suitable habitat to grassland bird species and a diversity of herbaceous and woody shrub vegetation; however, these habitats are not suitable for many wildlife species along the edges, particularly where active human influence is persistent such as highways, railroads and other forms of residential, commercial, and industrial development.
- Open Water: Freshwater rivers and other waterbodies can be found in deciduous forest patches that provide habitat for fish and freshwater wetlands. Some common species of fish that are found throughout freshwater, perennial streams include large/smallmouth bass (*Micropterus salmoides/Micropterus dolomieu*), northern pike (*Esoc lucius*), yellow perch (*Perca flavescens*), and carp (*Cyprinus carpio*).
- Wetlands (herbaceous/woody): The area is dominated by the Pinelands ecoregion, which contains sandy and excessively well drained soils that have natural undulations in elevation and are generally low fertility soils. The coastal plain province is also an important aquifer area due to the shallow depth to groundwater. These shallow depths to groundwater support a diverse system of drainages and wetlands (NCTC 2020). These features provide habitat for a variety of flora and fauna. Common plant species found in herbaceous and forested wetlands includes a variety of sedges (*Carex* spp.), rushes (*Juncus* spp.), and grasses (*Poaceae*), maples (*Acer* spp.), oaks (*Quercus* spp.) and others. .
- Developed: Developed land comprises the majority of the New Jersey Project Area. These areas are characterized by residential, commercial, or industrial development, large areas of impervious surface, or managed areas of vegetations such as parks and golf courses.
- Agricultural (cultivated crops/pasture/hayfields): Agriculture in Jersey is largely dominated by blueberries, cranberries, peaches, tomatoes, bell peppers, eggplant, cucumbers, apples, spinach, squash, and asparagus (Rutgers 2022). In addition to cropland, pasture or hay fields are also prevalent in New Jersey, serving as grazing grounds for livestock.
- Barren Land (Rock/Sand/Clay): Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover (MRLC 2011).
- Shoreline: The sandy, coastal shoreline consists of dunes made up of the foredune and secondary dunes leading seaward to the beach berm or backshore (the flat, dry section of the beach normally used for recreation above the high tide line), to the foreshore (area that is exposed to constant wave action, intertidal areas between mean low water to the high tide zone) continuing under water to the nearshore area, submerged area below mean water to 29.5 feet (Wootton et al. 2016). These

coastal, terrestrial habitats are subject to constant change due to wave and wind action, currents, and storm activities. The constant change, open environment, lack of freshwater, and sparse vegetation make this habitat inhospitable to most species except those specifically adapted to these conditions or for species who utilize the area as transients for foraging purposes such as gulls (*Larus* spp.), sand crabs (*Emerita* spp.) and plovers/lapwings (*Charadrius* spp.).

### **3.0 FIELD INVESTIGATIONS**

Field investigations of vernal pools and field/desktop habitat assessment studies were conducted within the New Jersey Study Area by EDR in June, July, and October of 2022. During all field studies, wildlife species observed, including threatened and endangered species, within the Study Areas were noted.

#### **3.1 Vernal Pool Methodology**

Vernal Pool Surveys consisted of systematically investigating the entire New Jersey Study Area. For each potential vernal pool area, data was collected that included photographs, documenting existing conditions within and adjacent to potential vernal pool areas, and collecting geographic location data for vernal pool features (as applicable) using a Global Positioning System [GPS] with reported sub-meter accuracy. Vernal pools were identified based on a variety of biological, hydrological, and physical characteristics including:

1. Evidence suggesting inundation for at least two consecutive months between March and September
2. Hydrological isolation (no permanent inlets or outlets of flowing surface water)
3. Observed absence of fish species within the pool
4. Presence of standing water
5. Sparse or no vegetation growing within pool
6. Water-stained leaves within/adjacent to the pool
7. Evidence of moss trim lines/buttressing/watermarks on nearby trees
8. Connectivity to adjacent upland forest habitat
9. The presence of obligate and/or facultative indicator species within and/or near the pools.

#### **3.2 Habitat Suitability Assessment Methodology**

Habitat surveys were performed within the New Jersey Study Area and immediately adjacent areas in June and July of 2022. Visual assessments were conducted to determine the type of habitats observed based on vegetation community types, as well as immediately adjacent areas wherever possible. Wildlife species observed during field investigations, including threatened and endangered species, were GPS located and habitat usage noted.

As the Project has matured, modifications to the onshore routes and parcels under consideration for onshore components such as substation have occurred following field efforts. To supplement for areas that



were not field-delineated, a desktop analysis was performed using Geographic Information System, current aerial imagery, and local knowledge from experienced professionals. Habitat types were digitized based on these resources and included in this assessment.

Areas that could not be field evaluated were desktop evaluated using publicly available mapping, databases, and aerial photography. As design progresses, these areas will be verified in the field and this report will be updated with those results accordingly.

## 4.0 RESULTS

This section presents the habitats observed within the New Jersey Study Area and summarizes the results of the vernal pool survey and an assessment of the observed habitats to support regulated wildlife species.

### 4.1 Habitat Types within Study Area

Generally, the New Jersey Study Area occurs within established linear developed rights-of-way (ROWs) such as roadways, railroads, transmission line ROWs, and recreational trails. As a result, many of the habitats observed have experienced some level of past and ongoing disturbance, particularly due to established populations of non-native invasive species. The following habitat types were observed within the New Jersey Study Area:

- **Developed/Disturbed Areas:** This type of habitat included areas such as roads, recreational trails, railroad corridors, buildings (residential, commercial, or industrial) maintained landscapes, and other areas associated with the built environment including agricultural lands.
- **Forest – Mixed:** This habitat type generally occurred inland along the pedestrian bike path/transmission line ROW and was dominated by white oak, pitch pine (*Pinus rigida*), black gum (*Nyssa sylvatica*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), and red maple (*Acer rubrum*) in the canopy. The understory was dominated by pitch pine, spicebush (*Lindera benzoin*), honeysuckle (*Lonicera japonica*), raspberry (*Rubus idaeus*), and eastern red cedar (*Juniperus virginiana*). The herbaceous layer was dominated by grasses, round greenbrier (*Smilax rotundifolia*), Canada goldenrod (*Solidago canadensis*), and spotted knapweed (*Centaurea stoebe*).
- **Forest – Deciduous:** This habitat type occurred throughout the New Jersey Study Area, along public roads and undeveloped areas. The canopy was dominated by black gum, sweet gum (*Liquidambar styraciflua*), red oak, white oak, black locust (*Robinia pseudoacacia*), Norway maple (*Acer platanoides*), wild cherry (*Prunus avium*), and sassafras (*Sassafras albidum*). The understory was dominated by roundleaf greenbrier, multiflora rose (*Rosa multiflora*), pitch pine, and black raspberry (*Rubus occidentalis*). The herbaceous layer was dominated by garlic mustard (*Alliaria petiolate*), Canada goldenrod, poison ivy (*Toxicodendron radicans*) and numerous grass species.
- **Forest – Evergreen:** This habitat type occasionally occurred in the New Jersey Study Area in forested areas off of public roads and maintained ROWs. This habitat type was dominated by pitch pine

(*Pinus rigida*), white pine (*Pinus strobus*), white oak (*Quercus alba*) in the canopy and mountain laurel (*Kalmia latifolia*) in the shrub layer.

- Scrub-Shrub: This habitat is generally comprised of deciduous, mixed, and evergreen species, and is typically occurred along artificial berms such as the railroad and roadway corridors, maintained portions transmission line ROWs, and isolated patches adjacent to residential and open space recreational areas. Common species found in the shrub layers included: black oak saplings, wild cherry saplings, shining sumac (*Rhus copallinum*), sassafras saplings, silver maple saplings (*Acer saccharinum*), eastern red cedar, tree of heaven (*Ailanthus altissima*), multiflora rose, poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), Japanese honeysuckle (*Lonicera japonica*), high tide bush (*Iva frutescens*), common reed, and poison ivy.
- Herbaceous Field: This habitat type was mainly located in heavily disturbed areas within the ROW. Dominant herbaceous species included grasses, Chinese bush clover (*Lespedeza cuneata*), roundleaf greenbrier, deer tongue (*Dichanthelium clandestinum*), Canada goldenrod, mugwort (*Artemisia vulgaris*), wrinkle-leaf goldenrod (*Solidago rugosa*), spotted knapweed, white clover (*Trifolium repens*), asters (*Symphyotrichum novae*), poison ivy, pokeweed, crown vetch (*Securigera varia*), Virginia creeper, and wild grape. Shrubs occurred occasionally and usually in small patches and included red cedar, multiflora rose and holly (*Ilex aquifolium*). Trees lined the outskirts of the fields and were dominated by red oak, white oak, black oak, sassafras and wild cherry.
- Forested Wetlands: Mainly found in wooded areas within a gully along the pedestrian bike path. The canopy is dominated by red maples; spicebush, black gum, red maple saplings, and blueberry (*Vaccinium corymbosum*) in the understory. The herbaceous layer is dominated by a sparse cover of cinnamon fern (*Osmundastrum cinnamomeum*) and black gum seedlings.
- Shrub-Scrub Wetlands: Occurred along the transmission line ROW and in disturbed areas. The shrub layer was dominated by Eastern red cedar and multiflora rose. Herbaceous species consisted of grasses, Virginia creeper and poison ivy.
- Herbaceous Wetlands occurred throughout the New Jersey Study Area and consisted of freshwater and tidal wetland areas within the New Jersey Study Area.
  - Tidal areas were dominated by smooth cordgrass (*Spartina alterniflora*), glasswort (*Salicornia depressa*), seaside goldenrod (*Solidago sempervirens*), saltmeadow cordgrass (*Spartina patens*), sea lavender (*Limonium carolinianum*), and common reed.
  - Freshwater areas were dominated by reed canary grass (*Phalaris arundinacea*), broadleaf cattail (*Typha latifolia*), marsh-mallow (*Althaea officinalis*) and hairgrass (*Deschampsia cespitosa*).
- Water/Open Water Wetland: The majority of water features in the New Jersey Study Area are comprised of streams and rivers. Waterways within the New Jersey Study Area are associated with tributaries of Jumping Brook, Hollow Brook, Dicks Brook, Judas Creek, Haystack Brook, Beaverdam

Creek, Watson Creek, Squankum Brook, Muddy Ford Brook, Sandyhill Brook, Hannabrand Brook, Tarkiln Brook, Laurel Gully Brook, Roberts Swamp Brook, Musquash Brook, Shark River, Wreck Pond Brook, Manasquan River and North Branch Metedeconk River,. Many of these waterways are channelized and flow via culverts under roadways. Poned areas in the New Jersey Study Area appeared to be man-made structures. This category also includes the Atlantic Ocean.

- Agricultural: Small areas of agricultural fields were identified within the New Jersey Study Area. The majority of those identified are open fields, potentially used for livestock or hayfields.
- Beach: Beach habitat occurred near the Monmouth Landfall site and consisted of sand and sparse dune vegetation.

Developed/Disturbed areas comprised over half of the New Jersey Study Area, making it the most dominant habitat type. The remainder of habitat types occurred along roadways, railroads, transmission line ROWs, as well as pedestrian/bike lanes and therefore few species were observed. Table 5 provides the types and acreage of habitat types found within the New Jersey Study Area. Wildlife species that were observed include transient individuals flying overhead and included species such as: Herring Gull (*Larus argentatus*), Laughing Gull (*Leucophaeus atricilla*), House Sparrow (*Passer domesticus*), Mourning Dove (*Zenaida macroura*) and other common avian species adapted to developed/disturbed habitat types. No reptile, amphibian or mammal species were observed. No federal- or state-listed threatened and endangered species were observed within the New Jersey Study Area during field studies. Each of these habitats' location and extent within the New Jersey Study Area is shown on the mapping presented in Appendix D.

**Table 5. Habitat Type Cover Within the New Jersey Study Area**

Habitat Type	Area (acres)	Area (m <sup>2</sup> )	Percent Cover (%)
Developed/Disturbed	904.4	3,659,991.6	64.5
Forest – Mixed	116.3	470,651.3	8.3
Forest – Deciduous	97.1	392,951.3	6.9
Forested Wetland	96.9	392,142	6.9
Herbaceous	43	174,015.5	3.1
Scrub-Shrub – Evergreen	38.2	154,590.5	2.7
Scrub-Shrub Wetland	25.8	104,409.3	1.8
Scrub-Shrub	20.1	81,342.1	1.4
Water/Open Water Wetland	18.9	76,485.9	1.3
Forest – Evergreen	18.3	74,057.8	1.3
Agricultural	12.5	50,585.7	0.9
Herbaceous Wetland	10.8	43,706.2	0.8
Beach	0.5	2,023.4	<0.1

## 4.2 Vernal Pool Survey Results

An evaluation based on the methodology presented in Section 3.1 determined that no areas within the New Jersey Study Area would satisfy the criteria to be classified as a vernal pool.

## 4.3 Observed Habitat Suitability for Federal and State-Listed Species

As described in Section 4.1, most of the habitat observed within the New Jersey Study Area are disturbed and influenced by human activity and/or degraded due to non-native invasive species and does not provide critical habitat for any of the federal- or state-listed threatened and endangered species documented to occur in this area. The USFWS defines critical habitat as areas that are essential to the conservation of an endangered or threatened species and that may require special management and protection. Table 4 summarizes the federal- and state-listed threatened and endangered species and provides an assessment on whether any critical habitat was observed within the New Jersey Study Area based on the requirements presented in Tables 1 and 3.

**Table 6. Federal- and State-Listed Species – Critical Habitat Assessment Summary**

<b>Species</b>	<b>Common Name</b>	<b>Federal/State Status</b>	<b>Critical Habitat in New Jersey Study Area</b>	<b>Comments</b>
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	Federal - Threatened	Potentially	Individuals could utilize the New Jersey Study Area for foraging opportunities. Dead trees in some areas could also provide roosting habitat.
<i>Perimyotis subflavus</i>	Tricolored Bat	Federal - Proposed – Endangered	Potentially	Individuals could utilize the New Jersey Study Area for summer roosting and foraging opportunities. Dead trees in some areas could also provide roosting habitat.
<i>Charadrius melodus</i>	Piping Plover	Federal – Threatened State – Endangered	No	Habitat does not occur within the Study Area. Habitat occurs near the Monmouth Landfall site in the dune areas.
<i>Calidris canutus rufa</i>	Red Knot	Federal – Threatened State - Endangered	No	Individuals could utilize beach areas adjacent to the Study Area for foraging opportunities.
<i>Glyptemys muhlenbergii</i>	Bog Tutle	Federal – Threatened State - Endangered	Potentially	Mapped habitat occurs within and adjacent to the Study Area. Open water habitat in the New Jersey Study Area appears to be hydrologically connected to

Species	Common Name	Federal/State Status	Critical Habitat in New Jersey Study Area	Comments
				streams and could provide suitable habitat.
<i>Danaus plexippus</i>	Monarch Butterfly	Federal - Candidate	Potentially	Individuals could utilize the New Jersey Study Area for breeding where milkweed occurs.
<i>Schwalbea americana</i>	American Chaffseed	Federal – Endangered State - Endangered	No	Habitat does not occur in the New Jersey Study Area. Species relies on consistent natural fire activities which does not occur at a frequency suitable to supporting this species.
<i>Rhynchospora knieskernii</i>	Knieskern's Beaked-rush	Federal – Threatened State - Endangered	Potentially	Species typically found on bare or sparsely vegetated sites that experience period disturbances (fires, floods, or human-caused disturbances). Common around roadsides and ROWs.
<i>Amaranthus pumilus</i>	Seabeach Amaranth	Federal – Threatened State - Endangered	Potentially	Habitat does not occur in the New Jersey Study Area. Potential habitat occurs near the Monmouth Landfall site in the dune areas. The most recently identified habitat (2014) is seaward of Wreck Pond (see Appendix B NHP Database results).
<i>Helonias bullata</i>	Swamp Pink	Federal – Threatened State - Endangered	Potentially	Species could be found in the forested wetlands which occur in the New Jersey Study Area. The most recently identified habitat (2006) is along the northeast edge of Manasquan River Golf Club (see Appendix B NHP Database results).
<i>Falco sparverius</i>	American Kestrel	State - Threatened	Potentially	Individuals could use the few areas of open herbaceous habitat located in the New Jersey Study Area for breeding and foraging.
<i>Strix varia</i>	Barred Owl	State - Threatened	Potentially	Individuals could utilize the mixed and deciduous forests for

Species	Common Name	Federal/State Status	Critical Habitat in New Jersey Study Area	Comments
				breeding, nesting, and foraging habitat.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	State - Endangered	No	New Jersey Study Area does not provide suitable habitat due to the lack of large open bodies of water and significant ongoing human disturbance.
<i>Nycticorax nycticorax</i>	Black-Crowned Night-Heron	State - Threatened	Potentially	Individuals could utilize areas along streams and ponds in the New Jersey Study Area for feeding and forests/scrub-shrub for nesting and roosting.
<i>Eremophila alpestris</i>	Horned Lark	State - Threatened	Potentially	Individuals could occur in areas of open space that occur in the New Jersey Study Area.
<i>Sternula antillarum</i>	Least Tern	State - Endangered	Potentially	Individuals could utilize areas along the beachfront adjacent to the National Guard Training Facility and proposed landfill for foraging and nesting.
<i>Circus cyaneus</i>	Northern Harrier	State - Endangered	Potentially	Individuals could utilize herbaceous habitat sparsely located in the New Jersey Study Area.
<i>Pandion haliaetus</i>	Osprey	State - Threatened	Potentially	Individuals could utilize the area along the beach for nesting and foraging.
<i>Hyla andersonii</i>	Pine Barrens Treefrog	State - Threatened	Potentially	Individuals could utilize wetlands, streams, and ponds in the New Jersey Study Area for suitable breeding habitat, dependent on pH of water and presence of fish-free bodies of water for breeding.
<i>Glyptemys insculpta</i>	Wood Turtle	State - Threatened	Potentially	New Jersey Study Area does not likely contain suitable habitat due to the developed nature of the surrounding areas and unlikely occurrence of pristine water features (i.e., pollution – and litter-free). However, the Manasquan River and its

Species	Common Name	Federal/State Status	Critical Habitat in New Jersey Study Area	Comments
				associated wetlands could provide habitat for this species.
<i>Nyctanassa violacea</i>	Yellow-Crowned Night-Heron	State - Threatened	Potentially	Individuals could utilize the area around the Monmouth Landfall site and along waterbodies within the New Jersey Study Area for nesting and foraging.

Additionally, many of these species (particularly avian species) could occur within the New Jersey Study Area as transient individuals for foraging opportunities or during migrations.

#### 4.4 Habitat Suitability for Migratory and Resident Wildlife Species

As previously described, the New Jersey Study Areas is characterized by significant development and disturbed vegetation habitats because most of the Study Area encompasses roadways and developed/disturbed sites. Most habitats within the New Jersey Study Area or directly adjacent serve as edge habitat between larger contiguous habitat and the developed/disturbed nature of most of the New Jersey Study Area. While these habitats have the potential to provide critical habitat for federal- and/or state-listed threatened and endangered species, these habitats provide nesting, cover, foraging and other life cycle stages for species adapted to human development and disturbance.

Migratory bird species identified in Section 2.1 could occur within the New Jersey Study Area during their spring and autumn migration and use the forested and wetland areas within the New Jersey Study Area. Species use of habitats within the New Jersey Study Area would be temporary and for short durations. Migratory bird species could also occur as transient individuals; however, this area exhibits a distinct lack of natural vegetation to support most wildlife species, including migrating bird species.

Resident wildlife species occur through the New Jersey Study Area in developed and natural areas. These species are well adapted to use of disturbed and natural habitats and transition between these areas as needed.

## 5.0 CONCLUSIONS

EDR conducted a vernal pool survey and habitat suitability assessment in June and July 2022. Due to ongoing project development, EDR also conducted a desktop analysis for habitat suitability to account for additional areas potentially by Project components. The habitat suitability assessment identified 13 habitat types within the New Jersey Study Area with the most abundant habitat type being developed/disturbed (64.5%) due to the location of the Study Area within highway, bike/pedestrian lanes and generally within the suburban landscape of Monmouth and Ocean Counties, New Jersey. The remainder of the habitat types are considered marginal because of the edge effect being within or adjacent to existing linear development (e.g., highways, railroads, utility transmission lines, and pedestrian/bike lanes) and other commercial, residential, and industrial development. These habitats have been disturbed from previous development and is subject to ongoing disturbance in the form of high-traffic use of roads, railroads and pedestrian/bike lanes. No vernal pools were identified or are mapped within the New Jersey Study Area.

Although no federally designated critical habitat exists in the New Jersey Study Area, it is possible for critical habitat to occur. Habitat mapped in the New Jersey Study Area could provide habitat to federal and state-listed species; however, it should be noted that much of the habitat mapped is surrounded by developed areas with frequent and ongoing anthropogenic effects. Therefore, while the habitat may be present, such disturbances may deter many listed species. Wildlife species that were observed and are expected to occur in the New Jersey Study Area include transient individuals flying overhead and included species such as: the herring gull (*Larus argentatus*), laughing gull (*Leucophaeus atricilla*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*) and other common avian species adapted to developed/disturbed habitat types. Continued discussions with the USFWS and NJDEP Division of Fish and Wildlife will continue to occur to determine the need for any avoidance/mitigation measures.



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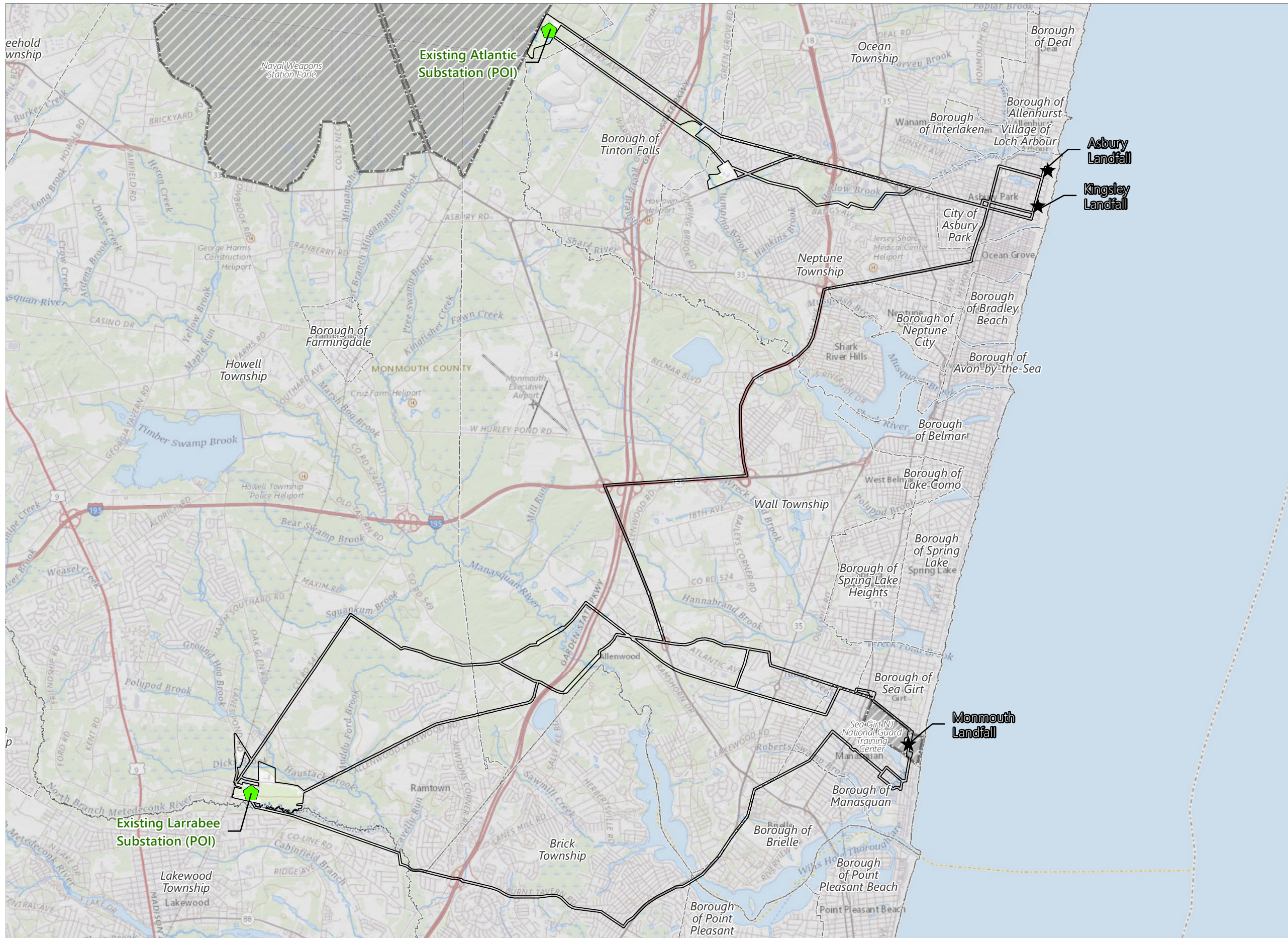
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## **Appendix A**

### Figures

**Figure 1. Project Location Map**

**Figure 1. Project Location**



Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County,  
New Jersey

**Habitat Suitability Assessment  
Report**

- ★ Landfall Location
- ◆ Point of Interconnection
- ▨ Military Installations Ranges and Training Areas
- ▭ Study Area
- ⋯ Municipal Boundary



Prepared January 5, 2023  
Basemap: Esri ArcGIS Online "USGS Topo" map service.





**Figure 2. Landscape Project Mapping**

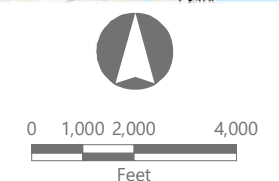
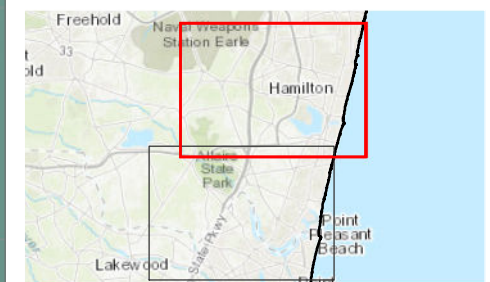


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County, New Jersey

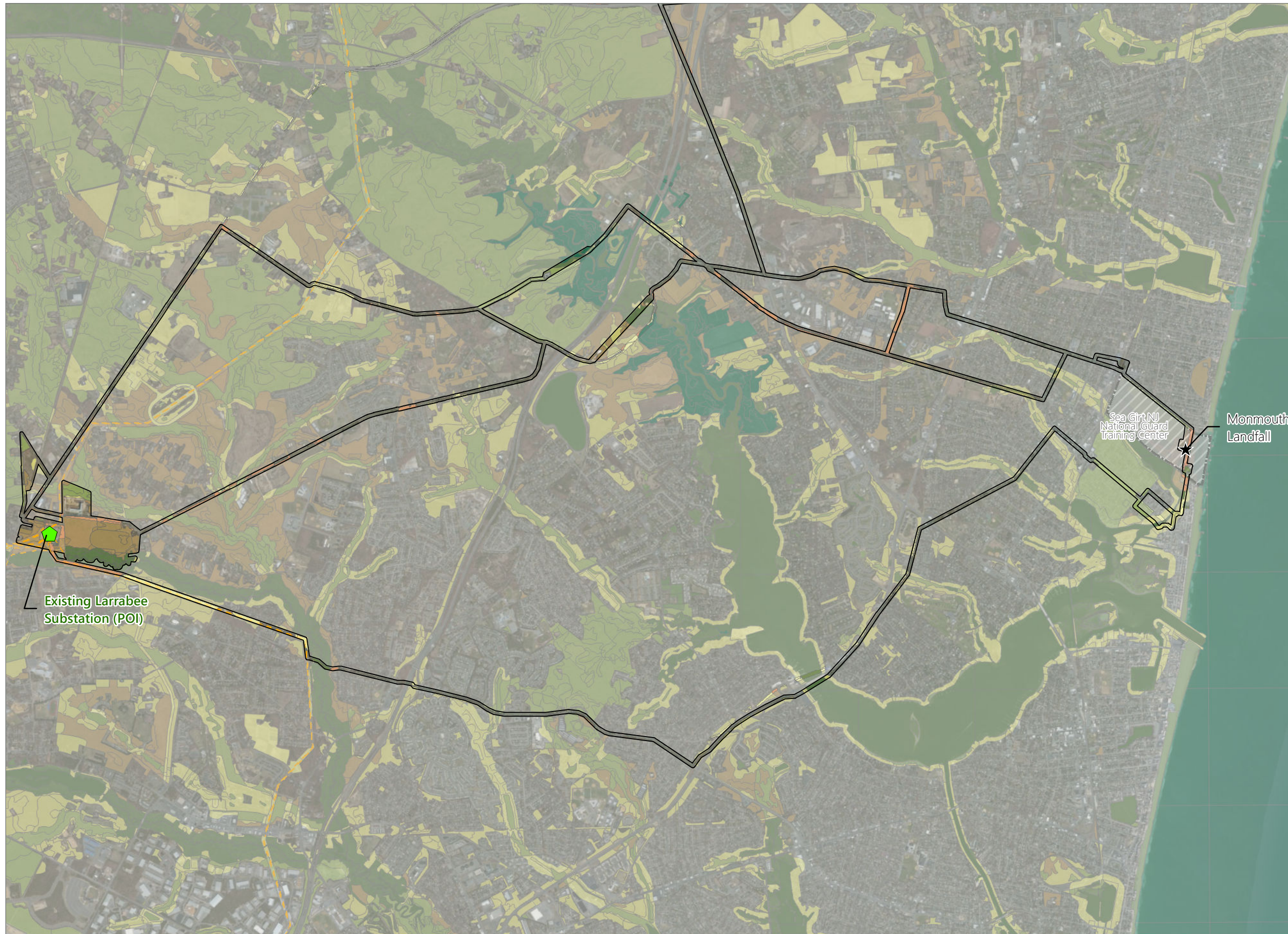
#### Habitat Suitability Assessment Report

- Landscape Project - Species Based Habitat
- Rank 1 - Habitat Specific Requirements
  - Rank 2 - Special Concern
  - Rank 3 - State Threatened
  - Rank 4 - State Endangered
  - Rank 5 - Federally Listed
  - Landfall Location
  - Point of Interconnection
  - Existing Transmission Line
  - Military Installations Ranges and Training Areas
  - Study Area



Prepared January 5, 2023  
Basemap: NJ Office of GIS 2015 Natural Color Imagery



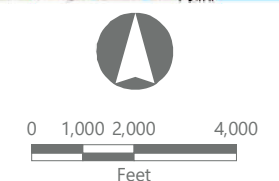
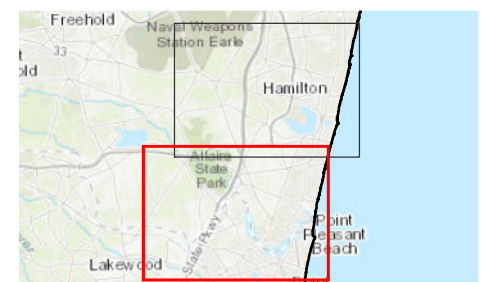


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

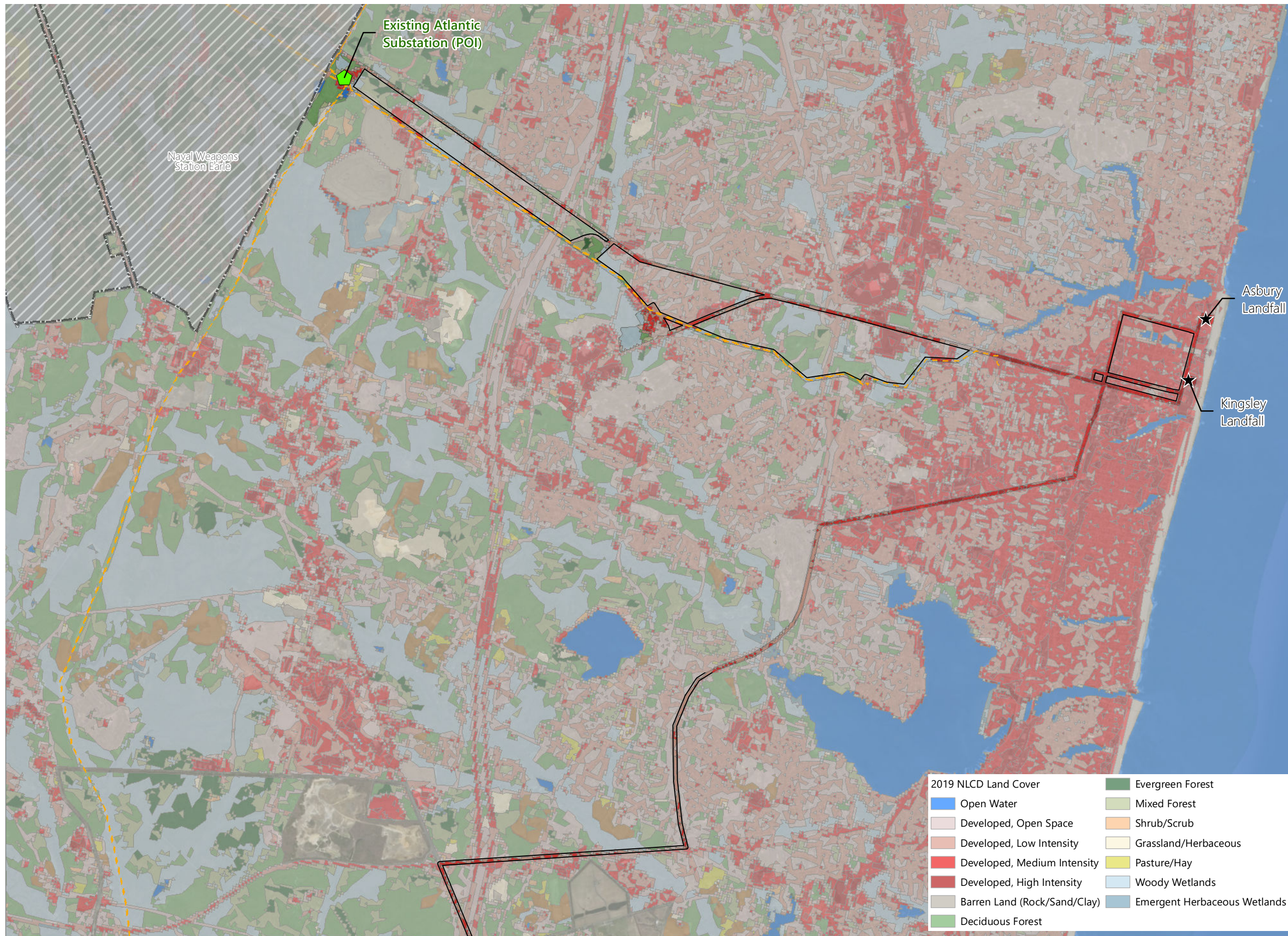
- Landscape Project - Species Based Habitat
- Rank 1 - Habitat Specific Requirements
  - Rank 2 - Special Concern
  - Rank 3 - State Threatened
  - Rank 4 - State Endangered
  - Rank 5 - Federally Listed
  - Landfall Location
  - Point of Interconnection
  - Existing Transmission Line
  - Military Installations Ranges and Training Areas
  - Study Area



Prepared January 5, 2023  
Basemap: NJ Office of GIS 2015 Natural Color Imagery



**Figure 3. Land Use/Land Cover**

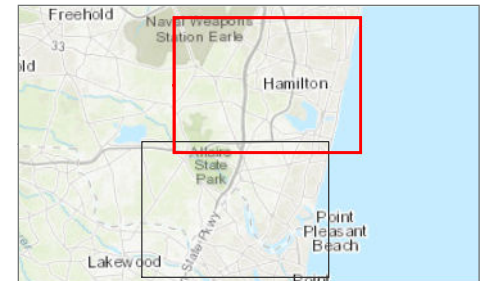


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

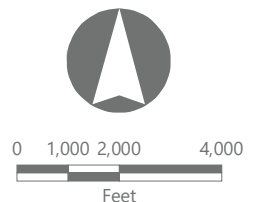
Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

- ★ Landfall Location
- ◀ Point of Interconnection
- - - Existing Transmission Line
- ▭ Study Area
- ▨ Military Installations Ranges and Training Areas

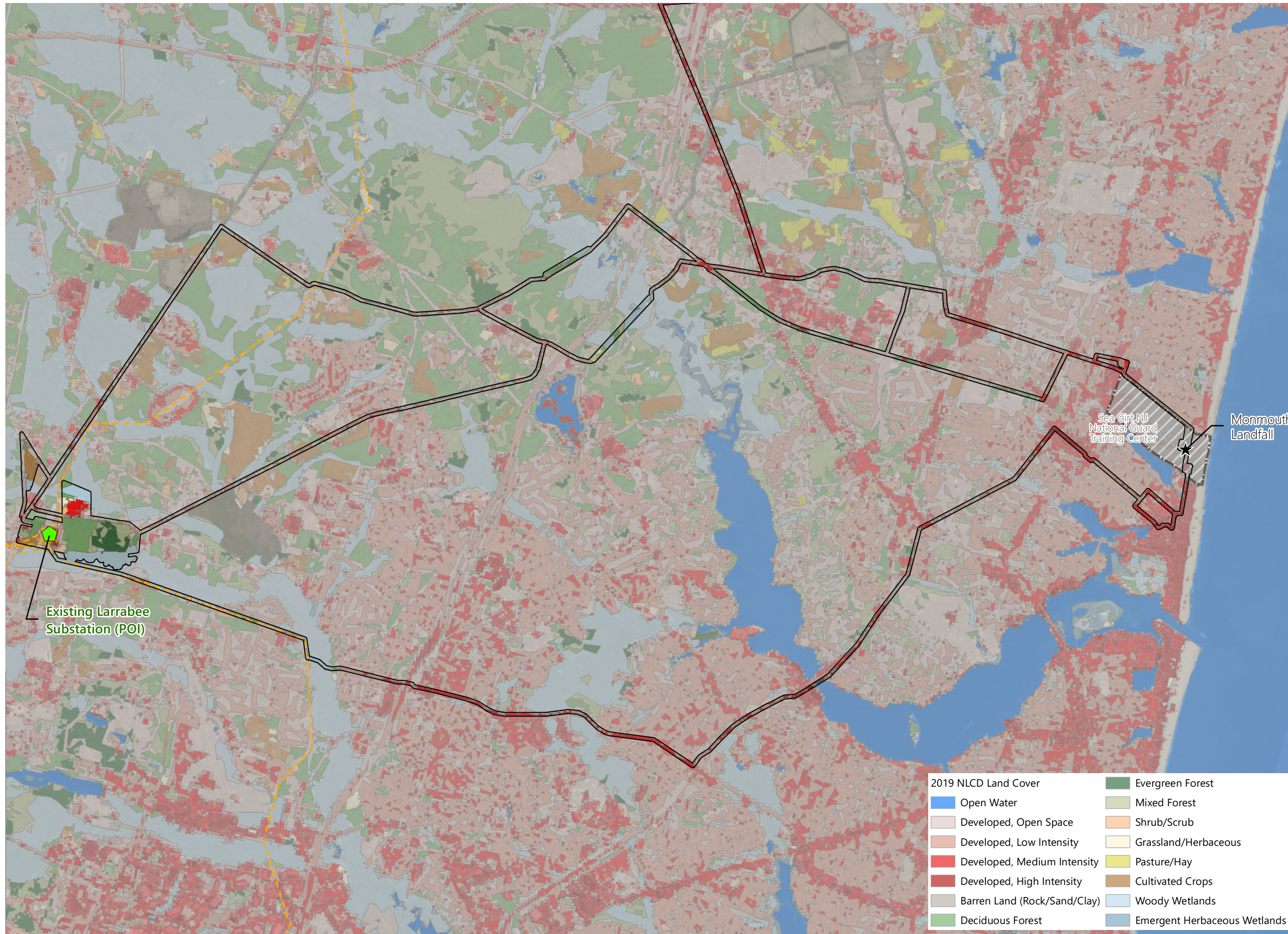


2019 NLCD Land Cover	
Open Water	Evergreen Forest
Developed, Open Space	Mixed Forest
Developed, Low Intensity	Shrub/Scrub
Developed, Medium Intensity	Grassland/Herbaceous
Developed, High Intensity	Pasture/Hay
Barren Land (Rock/Sand/Clay)	Woody Wetlands
Deciduous Forest	Emergent Herbaceous Wetlands



Prepared January 5, 2023  
Basemap: NJ Office of GIS 2015 Natural Color Imagery





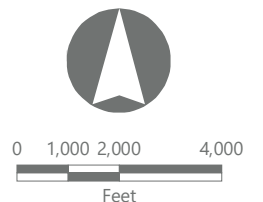
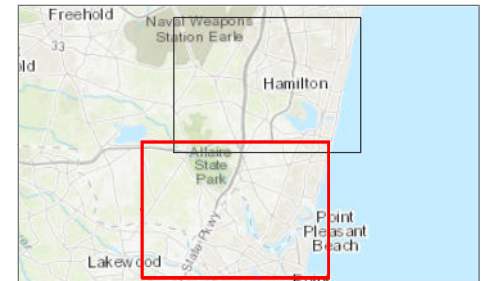
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Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
 Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

- ★ Landfall Location
- ◆ Point of Interconnection
- - - Existing Transmission Line
- ▭ Study Area
- ▨ Military Installations Ranges and Training Areas

2019 NLCD Land Cover	
Open Water	Evergreen Forest
Developed, Open Space	Mixed Forest
Developed, Low Intensity	Shrub/Scrub
Developed, Medium Intensity	Grassland/Herbaceous
Developed, High Intensity	Pasture/Hay
Barren Land (Rock/Sand/Clay)	Cultivated Crops
Deciduous Forest	Woody Wetlands
	Emergent Herbaceous Wetlands



Prepared January 5, 2023  
 Basemap: NJ Office of GIS 2015 Natural Color Imagery



## **Appendix B**

USFWS IPaC , NHP Database Results, and NJDEP Landscape Project Records



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New Jersey Ecological Services Field Office  
4 E. Jimmie Leeds Road, Suite 4  
Galloway, NJ 08205  
Phone: (609) 646-9310

In Reply Refer To:  
Project Code: 2023-0018284  
Project Name: Atlantic Shores NJ

November 22, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

If the enclosed list indicates that any listed species may be present in your action area, please visit the New Jersey Field Office consultation web page as the next step in evaluating potential project impacts: <http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html>

On the New Jersey Field Office consultation web page you will find:

- habitat descriptions, survey protocols, and recommended best management practices for listed species;
- recommended procedures for submitting information to this office; and
- links to other Federal and State agencies, the Section 7 Consultation Handbook, the Service's wind energy guidelines, communication tower recommendations, the National Bald Eagle Management Guidelines, and other resources and recommendations for protecting wildlife resources.

The enclosed list may change as new information about listed species becomes available. As per Federal regulations at 50 CFR 402.12(e), the enclosed list is only valid for 90 days. Please return to the ECOS-IPaC website at regular intervals during project planning and implementation to obtain an updated species list. When using ECOS-IPaC, be careful about drawing the boundary of your Project Location. Remember that your action area under the ESA is not limited to just the footprint of the project. The action area also includes all areas that may be indirectly affected through impacts such as noise, visual disturbance, erosion, sedimentation, hydrologic



change, chemical exposure, reduced availability or access to food resources, barriers to movement, increased human intrusions or access, and all areas affected by reasonably foreseeable future that would not occur without ("but for") the project that is currently being proposed.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

We appreciate your concern for threatened and endangered species. The Service encourages Federal and non-Federal project proponents to consider listed, proposed, and candidate species early in the planning process. Feel free to contact this office if you would like more information or assistance evaluating potential project impacts to federally listed species or other wildlife resources. Please include the Consultation Tracking Number in the header of this letter with any correspondence about your project.

Attachment(s):

- Official Species List
  - USFWS National Wildlife Refuges and Fish Hatcheries
  - Migratory Birds
  - Wetlands
-

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

### **New Jersey Ecological Services Field Office**

4 E. Jimmie Leeds Road, Suite 4

Galloway, NJ 08205

(609) 646-9310

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## Project Summary

Project Code: 2023-0018284

Project Name: Atlantic Shores NJ

Project Type: Power Gen - Wind - Offshore

Project Description: Onshore study area for transmission siting in Monmouth County, New Jersey

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.17273415,-74.07231979222149,14z>



Counties: Monmouth and Ocean counties, New Jersey

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## Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>▪ The specified area occurs within the range of the northern long-eared bat.</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

### Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a>	Threatened
Red Knot <i>Calidris canutus rufa</i> There is <b>proposed</b> critical habitat for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>	Threatened

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## Reptiles

NAME	STATUS
<b>Bog Turtle <i>Glyptemys muhlenbergii</i></b> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6962">https://ecos.fws.gov/ecp/species/6962</a>	Threatened

## Insects

NAME	STATUS
<b>Monarch Butterfly <i>Danaus plexippus</i></b> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>▪ The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: <a href="https://www.fws.gov/savethemonarch/FAQ-Section7.html">https://www.fws.gov/savethemonarch/FAQ-Section7.html</a>).</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Flowering Plants

NAME	STATUS
<b>American Chaffseed <i>Schwalbea americana</i></b> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1286">https://ecos.fws.gov/ecp/species/1286</a>	Endangered
<b>Knieskern's Beaked-rush <i>Rhynchospora knieskernii</i></b> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/3280">https://ecos.fws.gov/ecp/species/3280</a>	Threatened
<b>Seabeach Amaranth <i>Amaranthus pumilus</i></b> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8549">https://ecos.fws.gov/ecp/species/8549</a>	Threatened
<b>Swamp Pink <i>Helonias bullata</i></b> Population: No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4333">https://ecos.fws.gov/ecp/species/4333</a>	Threatened

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

# **USFWS National Wildlife Refuge Lands And Fish Hatcheries**

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

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## Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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1. The [Migratory Birds Treaty Act](#) of 1918.
  2. The [Bald and Golden Eagle Protection Act](#) of 1940.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

**The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location.** To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/8935">https://ecos.fws.gov/ecp/species/8935</a>	Breeds Apr 15 to Aug 31
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

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NAME	BREEDING SEASON
<p><b>Black Guillemot <i>Cepphus grylle</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds May 15 to Sep 10
<p><b>Black Scoter <i>Melanitta nigra</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Black Skimmer <i>Rynchops niger</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/5234">https://ecos.fws.gov/ecp/species/5234</a></p>	Breeds May 20 to Sep 15
<p><b>Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a></p>	Breeds May 15 to Oct 10
<p><b>Black-legged Kittiwake <i>Rissa tridactyla</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Blue-winged Warbler <i>Vermivora pinus</i></b>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds May 1 to Jun 30
<p><b>Bobolink <i>Dolichonyx oryzivorus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 20 to Jul 31
<p><b>Brown Pelican <i>Pelecanus occidentalis</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jan 15 to Sep 30
<p><b>Canada Warbler <i>Cardellina canadensis</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 20 to Aug 10
<p><b>Cerulean Warbler <i>Dendroica cerulea</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a></p>	Breeds Apr 29 to Jul 20
<p><b>Chimney Swift <i>Chaetura pelagica</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 25



NAME	BREEDING SEASON
<p><b>Common Eider <i>Somateria mollissima</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jun 1 to Sep 30
<p><b>Common Loon <i>gavia immer</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/4464">https://ecos.fws.gov/ecp/species/4464</a></p>	Breeds Apr 15 to Oct 31
<p><b>Common Murre <i>Uria aalge</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Apr 15 to Aug 15
<p><b>Cory's Shearwater <i>Calonectris diomedea</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p><b>Double-crested Cormorant <i>phalacrocorax auritus</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/3478">https://ecos.fws.gov/ecp/species/3478</a></p>	Breeds Apr 20 to Aug 31
<p><b>Dovekie <i>Alle alle</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/6041">https://ecos.fws.gov/ecp/species/6041</a></p>	Breeds elsewhere
<p><b>Eastern Whip-poor-will <i>Antrastomus vociferus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Aug 20
<p><b>Great Shearwater <i>Puffinus gravis</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Gull-billed Tern <i>Gelochelidon nilotica</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9501">https://ecos.fws.gov/ecp/species/9501</a></p>	Breeds May 1 to Jul 31
<p><b>Hudsonian Godwit <i>Limosa haemastica</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere

NAME	BREEDING SEASON
<p><b>Kentucky Warbler <i>Oporornis formosus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 20 to Aug 20
<p><b>Lesser Yellowlegs <i>Tringa flavipes</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a></p>	Breeds elsewhere
<p><b>Long-eared Owl <i>asio otus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a></p>	Breeds Mar 1 to Jul 15
<p><b>Long-tailed Duck <i>Clangula hyemalis</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/7238">https://ecos.fws.gov/ecp/species/7238</a></p>	Breeds elsewhere
<p><b>Prairie Warbler <i>Dendroica discolor</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Jul 31
<p><b>Prothonotary Warbler <i>Protonotaria citrea</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 1 to Jul 31
<p><b>Purple Sandpiper <i>Calidris maritima</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p><b>Razorbill <i>Alca torda</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jun 15 to Sep 10
<p><b>Red-breasted Merganser <i>Mergus serrator</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 10 to Sep 10
<p><b>Red-necked Phalarope <i>Phalaropus lobatus</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere

NAME	BREEDING SEASON
<p><b>Red-throated Loon <i>Gavia stellata</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Ring-billed Gull <i>Larus delawarensis</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Roseate Tern <i>Sterna dougallii</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds May 10 to Aug 31
<p><b>Royal Tern <i>Thalasseus maximus</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Apr 15 to Aug 31
<p><b>Ruddy Turnstone <i>Arenaria interpres morinella</i></b>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds elsewhere
<p><b>Rusty Blackbird <i>Euphagus carolinus</i></b>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds elsewhere
<p><b>Short-billed Dowitcher <i>Limnodromus griseus</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a></p>	Breeds elsewhere
<p><b>Surf Scoter <i>Melanitta perspicillata</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Thick-billed Murre <i>Uria lomvia</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Apr 15 to Aug 15
<p><b>White-winged Scoter <i>Melanitta fusca</i></b>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p><b>Willet <i>Tringa semipalmata</i></b>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 20 to Aug 5

NAME	BREEDING SEASON
Wilson's Storm-petrel <i>Oceanites oceanicus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

## Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

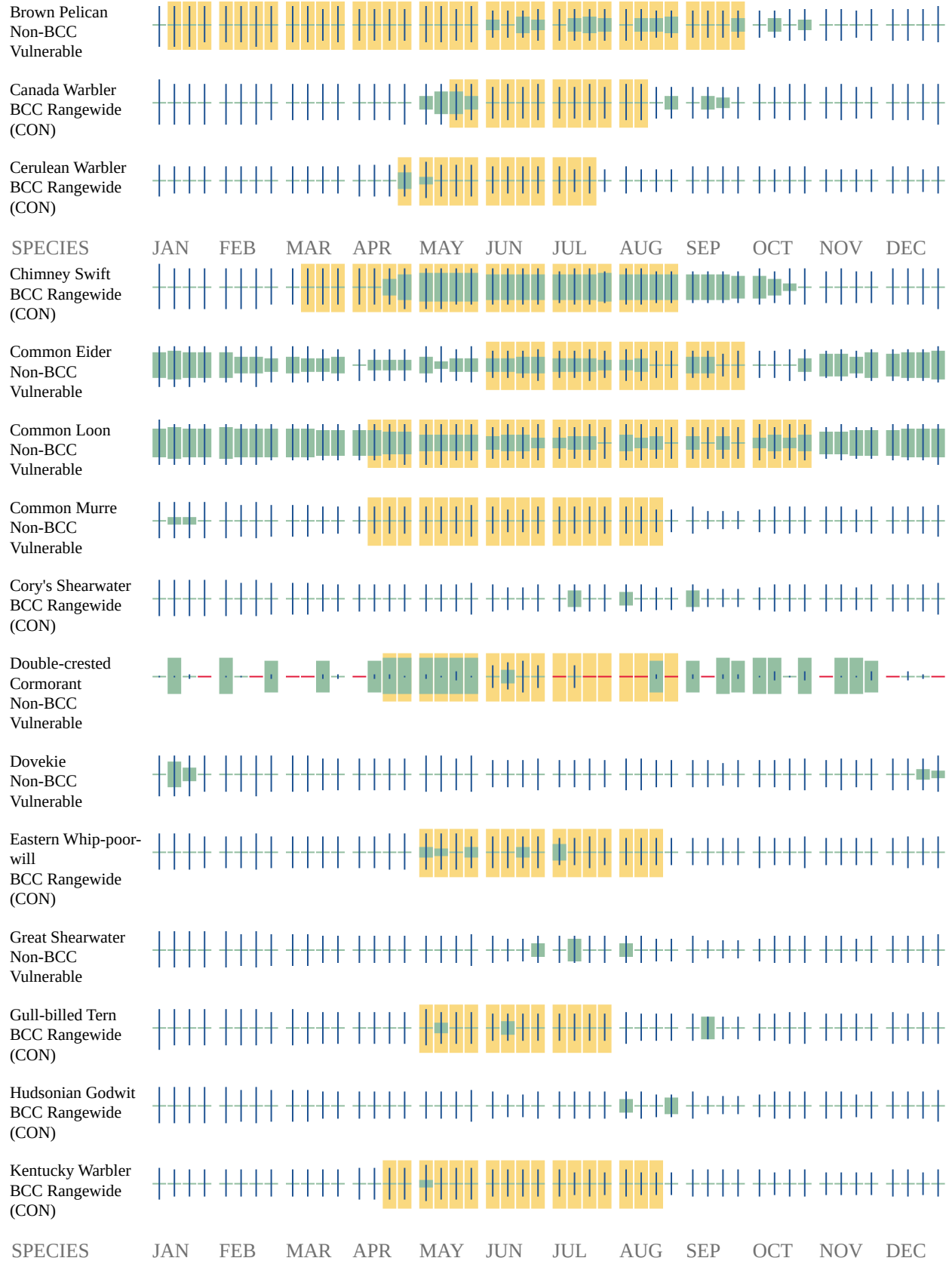
How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

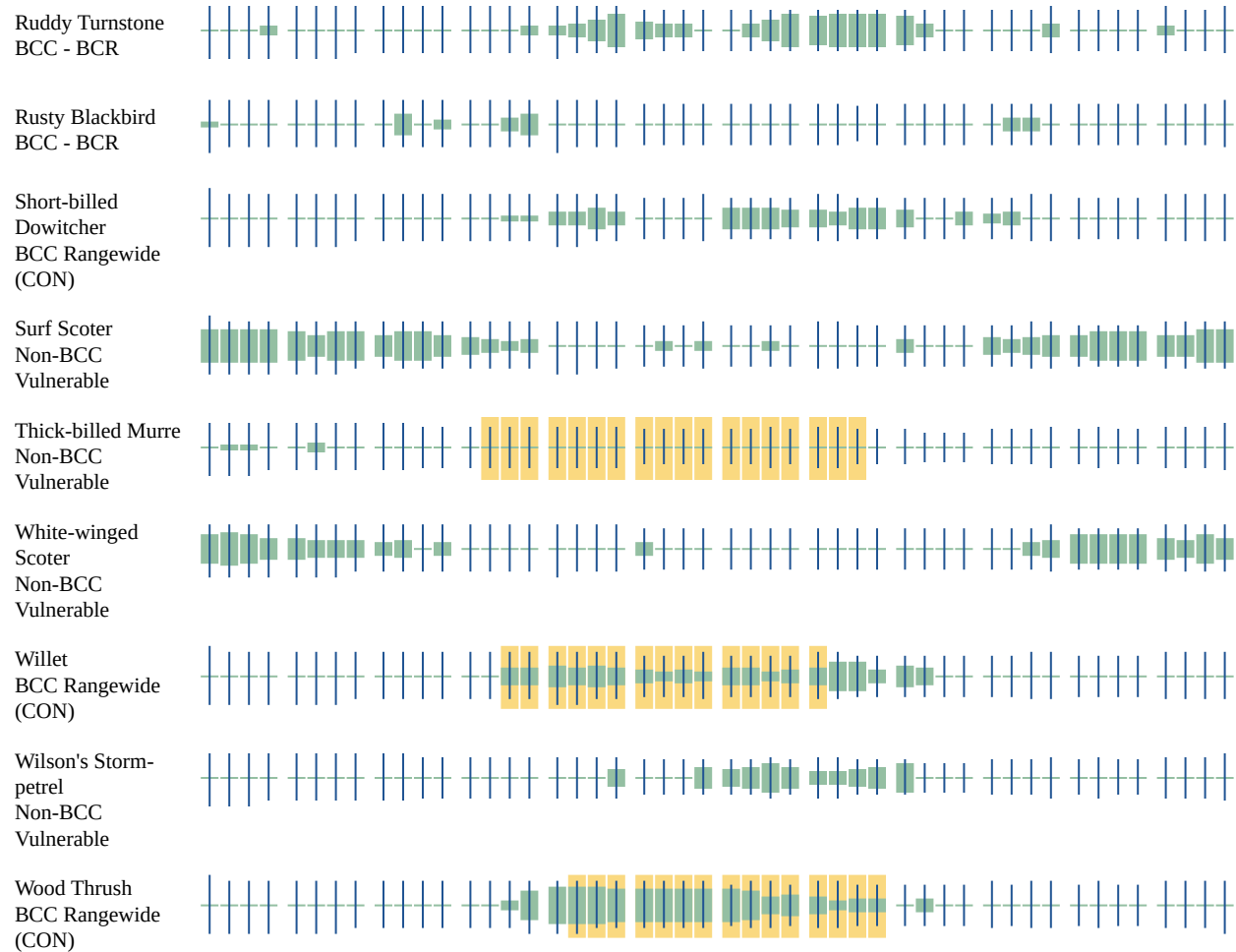
### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.









Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

## Migratory Birds FAQ

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#)



may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### **What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### **How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
-

2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### **What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### **Proper Interpretation and Use of Your Migratory Bird Report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities,

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should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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## Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

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## **IPaC User Contact Information**

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

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
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	Yes	1 page(s) 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	4 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) 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	Yes	1 page(s) included

**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**

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Regional Status	Grank	Srank	Identified	Last Observed	Location
<i>Vascular Plants</i>									
Amaranthus pumilus	Seabeach Amaranth	LT	E	LP, HL	G2	S1	Y	2014-09-12	Wreck Pond on both sides of Spring Lake/Sea Girt border, and south 2.8 km to Main St. in Manasquan, in Monmouth County.
Helonias bullata	Swamp-pink	LT	E	LP, HL	G3	S3	Y	2006-05-18	Along northeast edge of Manasquan River Golf Club, between Old Bridge Road and Riverview Drive, Brielle.  

Total number of records: 2

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

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i>Amphibia</i>								
	Fowler's Toad	Anaxyrus fowleri	Occupied Habitat	2	NA	Special Concern	G5	S3
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
<i>Aves</i>								
	American Kestrel	Falco sparverius	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	American Kestrel	Falco sparverius	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	American Oystercatcher	Haematopus palliatus	Nesting Area	2	NA	Special Concern	G5	S3B,S3N
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Caspian Tern	Hydroprogne caspia	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Common Tern	Sterna hirundo	Foraging	2	NA	Special Concern	G5	S3B,S4N



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

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
	Cooper's Hawk	<i>Accipiter cooperii</i>	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	<i>Accipiter cooperii</i>	Nest	2	NA	Special Concern	G5	S3B,S4N
	Glossy Ibis	<i>Plegadis falcinellus</i>	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	<i>Ardea herodias</i>	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	<i>Ardea herodias</i>	Nesting Colony	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	<i>Wilsonia citrina</i>	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Horned Lark	<i>Eremophila alpestris</i>	Non-breeding Sighting	2	NA	Special Concern	G5	S2B,S3N
	Least Tern	<i>Sternula antillarum</i>	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Least Tern	<i>Sternula antillarum</i>	Nesting Colony	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	<i>Egretta caerulea</i>	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Northern Harrier	<i>Circus cyaneus</i>	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Osprey	<i>Pandion haliaetus</i>	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Osprey	<i>Pandion haliaetus</i>	Nest	3	NA	State Threatened	G5	S2B,S4N
	Piping Plover	<i>Charadrius melodus</i>	Nesting Area	5	Federally Listed Threatened	State Endangered	G3	S1B,S1N
	Snowy Egret	<i>Egretta thula</i>	Foraging	2	NA	Special Concern	G5	S3B,S4N

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

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
	Tricolored Heron	<i>Egretta tricolor</i>	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Veery	<i>Catharus fuscescens</i>	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Wood Thrush	<i>Hylocichla mustelina</i>	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	Foraging	3	NA	State Threatened	G5	S2B,S2N
	Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	Nesting Colony	3	NA	State Threatened	G5	S2B,S2N
<b><i>Mammalia</i></b>								
	Fin Whale	<i>Balaenoptera physalus</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G3G4	S1
	Humpback Whale	<i>Megaptera novaeangliae</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G4	S1
	North Atlantic Right Whale	<i>Eubalaena glacialis</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G1	S1
<b><i>Reptilia</i></b>								
	Atlantic Leatherback	<i>Dermochelys coriacea</i>	Occupied Habitat	5	Federally Listed Endangered	State Endangered	G2	S1
	Bog Turtle	<i>Glyptemys muhlenbergii</i>	Occupied Habitat	5	Federally Listed Threatened	State Endangered	G3	S1

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

<b>Class</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Feature Type</b>	<b>Rank</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
	Eastern Box Turtle	Terrapene carolina carolina	Occupied Habitat	2	NA	Special Concern	G5T5	S3
	Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G3	S2

**Vernal Pool Habitat on the  
Project Site Based on Search of  
Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Potential vernal habitat area	1365
Potential vernal habitat area	1367
Potential vernal habitat area	1415
Potential vernal habitat area	1418
Potential vernal habitat area	1419
Potential vernal habitat area	1421
Potential vernal habitat area	1433
Potential vernal habitat area	1510
Potential vernal habitat area	1513
Potential vernal habitat area	1535
Potential vernal habitat area	1541
Total number of records:	11

**Other Animal Species  
On the Project Site Based on  
Additional Species Tracked by  
Endangered and Nongame Species Program**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i>Invertebrate Animals</i>					
Chytonix sensilis	A Noctuid Moth			G4	S1S3
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Grammia placentia	Placentia Tiger Moth			G3G4	S1S3
Metarranthis pilosaria	Coastal Bog Metarranthis			G3G4	S3S4
Total number of records:	4				

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

<b><u>Report Name</u></b>	<b><u>Included</u></b>	<b><u>Number of Pages</u></b>
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	Yes	1 page(s) 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	3 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	Yes	2 page(s) 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	Yes	1 page(s) included

**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**

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Regional Status	Grank	Srank	Identified	Last Observed	Location
<b><i>Vascular Plants</i></b>									
<i>Amaranthus pumilus</i>	Seabeach Amaranth	LT	E	LP, HL	G2	S1	Y	2014-09-12	Wreck Pond on both sides of Spring Lake/Sea Girt border, and south 2.8 km to Main St. in Manasquan, in Monmouth County.
<i>Arnoglossum atriplicifolium</i>	Pale Wild Caraway		E	LP, HL	G4G5	S1	Y	1953-07-25	One mile southwest of Allenwood.
<i>Helonias bullata</i>	Swamp-pink	LT	E	LP, HL	G3	S3	Y	1954-04-22	One mile west of Allenwood.
<i>Helonias bullata</i>	Swamp-pink	LT	E	LP, HL	G3	S3	Y	2006-05-18	Along northeast edge of Manasquan River Golf Club, between Old Bridge Road and Riverview Drive, Brielle.   
<i>Honckenya peploides</i> var. <i>robusta</i>	Seabeach Sandwort		E	LP, HL	G5T5	S1	Y	1902-08-02	Asbury Park.
<i>Polygonum glaucum</i>	Sea-beach Knotweed		E	LP, HL	G3	S1	Y	2011-08-12	Asbury Park.
<i>Polygonum glaucum</i>	Sea-beach Knotweed		E	LP, HL	G3	S1	Y	2011-08-25	Sea Girt, from northern border by Wreck Pond south to National Guard Training Center.
<i>Schoenoplectus maritimus</i>	Saltmarsh Bulrush		E	LP, HL	G5	S1	Y	2013-07-08	Shark River. Upland edge of salt marsh, north side of Shark River, between Lakewood Avenue [Brighton Avenue according to Google Earth and TIGER data] and Route 18.

Total number of records: 8

<p><b>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</b></p>
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Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Strank
<i>Amphibia</i>								
	Fowler's Toad	Anaxyrus fowleri	Occupied Habitat	2	NA	Special Concern	G5	S3
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
<i>Aves</i>								
	American Kestrel	Falco sparverius	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	American Kestrel	Falco sparverius	Non-breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	American Oystercatcher	Haematopus palliatus	Nesting Area	2	NA	Special Concern	G5	S3B,S3N
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Bald Eagle	Haliaeetus leucocephalus	Nest	4	NA	State Endangered	G5	S1B,S2N
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Brown Thrasher	Toxostoma rufum	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Caspian Tern	Hydroprogne caspia	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Cliff Swallow	Petrochelidon pyrrhonota	Breeding Sighting-Confirmed	2	NA	Special Concern	G5	S3B,S4N
	Common Tern	Sterna hirundo	Foraging	2	NA	Special Concern	G5	S3B,S4N



**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
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Cooper's Hawk	Accipiter cooperii	Nest	2	NA	Special Concern	G5	S3B,S4N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Nesting Colony	2	NA	Special Concern	G5	S3B,S4N
	Hooded Warbler	Wilsonia citrina	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Horned Lark	Eremophila alpestris	Non-breeding Sighting	2	NA	Special Concern	G5	S2B,S3N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Least Tern	Sternula antillarum	Nesting Colony	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	Egretta caerulea	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Northern Harrier	Circus cyaneus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Osprey	Pandion haliaetus	Nest	3	NA	State Threatened	G5	S2B,S4N
	Piping Plover	Charadrius melodus	Nesting Area	5	Federally Listed Threatened	State Endangered	G3	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
	Veery	Catharus fuscescens	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N

**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
	Wood Thrush	<i>Hylocichla mustelina</i>	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
	Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	Foraging	3	NA	State Threatened	G5	S2B,S2N
	Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	Nesting Colony	3	NA	State Threatened	G5	S2B,S2N
<b><i>Mammalia</i></b>								
	Fin Whale	<i>Balaenoptera physalus</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G3G4	S1
	Humpback Whale	<i>Megaptera novaeangliae</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G4	S1
	North Atlantic Right Whale	<i>Eubalaena glacialis</i>	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G1	S1
<b><i>Reptilia</i></b>								
	Atlantic Leatherback	<i>Dermochelys coriacea</i>	Occupied Habitat	5	Federally Listed Endangered	State Endangered	G2	S1
	Bog Turtle	<i>Glyptemys muhlenbergii</i>	Occupied Habitat	5	Federally Listed Threatened	State Endangered	G3	S1
	Eastern Box Turtle	<i>Terrapene carolina carolina</i>	Occupied Habitat	2	NA	Special Concern	G5T5	S3
	Wood Turtle	<i>Glyptemys insculpta</i>	Occupied Habitat	3	NA	State Threatened	G3	S2

**Vernal Pool Habitat  
In the Immediate Vicinity of  
Project Site Based on Search of  
Landscape Project 3.3**

<b>Vernal Pool Habitat Type</b>	<b>Vernal Pool Habitat ID</b>
Vernal habitat area	2821
Potential vernal habitat area	1365
Potential vernal habitat area	1367
Potential vernal habitat area	1415
Potential vernal habitat area	1418
Potential vernal habitat area	1419
Potential vernal habitat area	1421
Potential vernal habitat area	1423
Potential vernal habitat area	1433
Potential vernal habitat area	1457
Potential vernal habitat area	1479
Potential vernal habitat area	1508
Potential vernal habitat area	1510
Potential vernal habitat area	1513
Potential vernal habitat area	1524
Potential vernal habitat area	1525
Potential vernal habitat area	1535

**Vernal Pool Habitat  
In the Immediate Vicinity of  
Project Site Based on Search of  
Landscape Project 3.3**

**Vernal Pool Habitat Type**

**Vernal Pool Habitat ID**

Potential vernal habitat area

1540

Potential vernal habitat area

1541

Total number of records: 19

**Other Animal Species  
In the Immediate Vicinity of the Project Site Based on  
Additional Species Tracked by  
Endangered and Nongame Species Program**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Federal Protection Status</b>	<b>State Protection Status</b>	<b>Grank</b>	<b>Srank</b>
<i><b>Invertebrate Animals</b></i>					
Chytonix sensilis	A Noctuid Moth			G4	S1S3
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Grammia placentia	Placentia Tiger Moth			G3G4	S1S3
Metarranthis pilosaria	Coastal Bog Metarranthis			G3G4	S3S4
Total number of records:	4				

**Appendix C**  
Photo Documentation



Photo 1. Open Water Habitat along Watson Creek



Photo 2. Forested Wetland Habitat Off Old Bridge Road.



Photo 3. Mixed Forest Habitat Located Along Burnt Tavern Road



Photo 4. Evergreen Forest Located Along Burnt Tavern Road





Photo 5. Herbaceous Habitat Located Along Squankum Allenwood Road.



Photo 6. Deciduous Forest Located Along Squankum Allenwood Road.



Photo 7. Agriculture Cover Along Allenwood Lakewood Road.



Photo 8. Scrub-Shrub Habitat Located Along ROW.



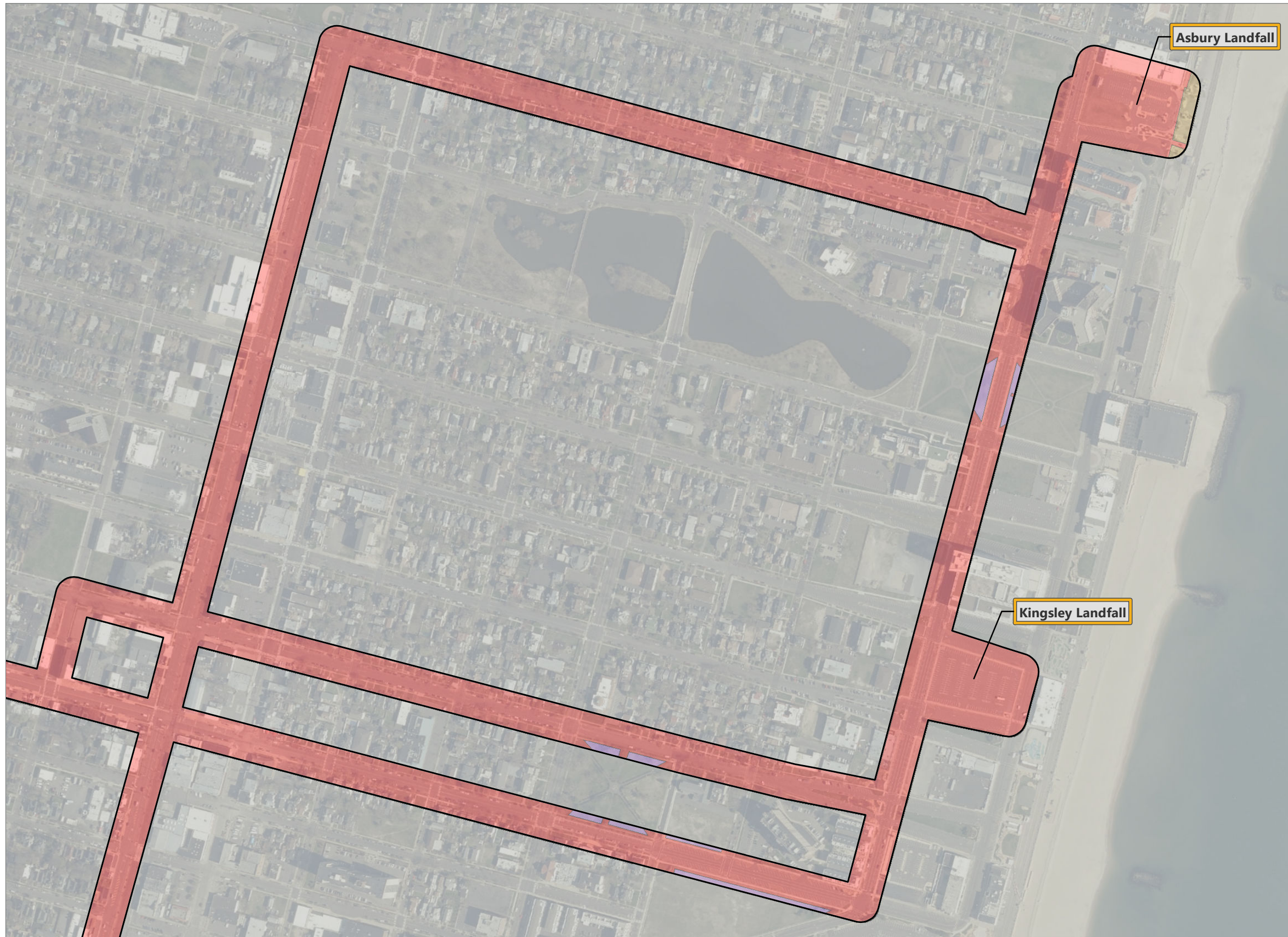
Photo 9. Developed/Disturbed Habitat (Transmission ROW and Road) Along Shafto Road.



Photo 10. Herbaceous Wetland Located Along Highway 70.

## **Appendix D**






Habitat Assessment Mapping

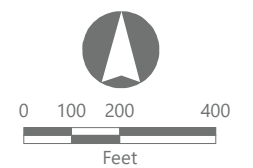
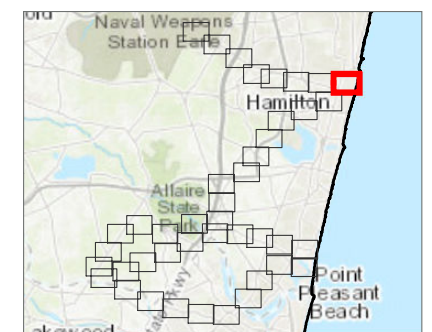


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

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New Jersey

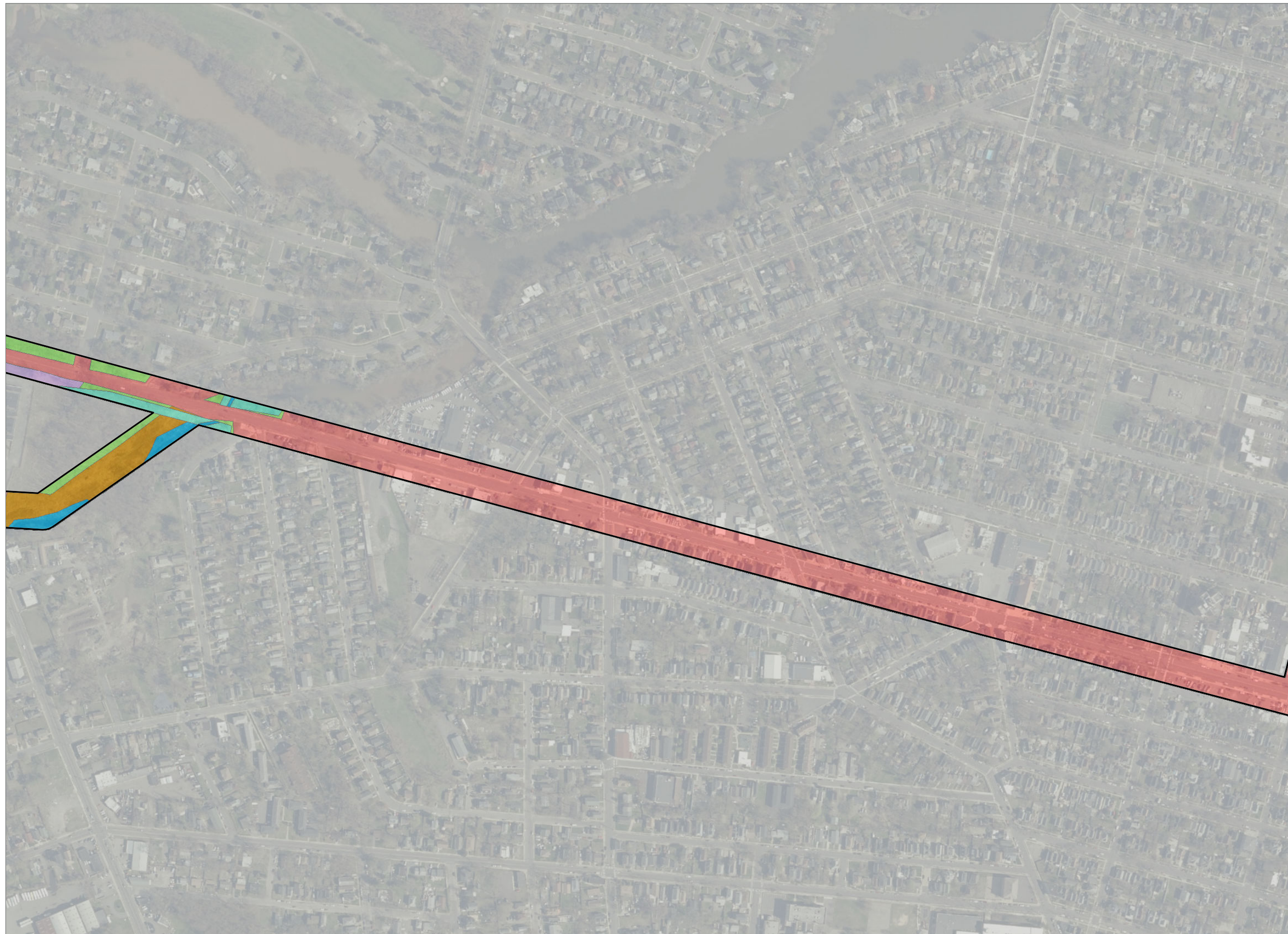
#### **Habitat Suitability Assessment Report**

-  Study Area
-  Habitat Assessment
-  Beach with Vegetation
-  Developed/Disturbed
-  Herbaceous



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery



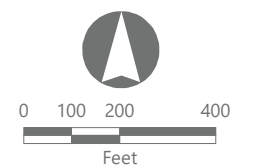
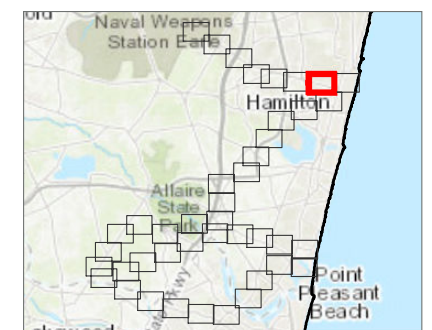


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Township  
Monmouth and Ocean County,  
New Jersey

#### **Habitat Suitability Assessment Report**

-  Study Area
-  Developed/Disturbed
-  Forest - Deciduous
-  Forested Wetland
-  Herbaceous
-  Scrub-Shrub Wetland
-  Water



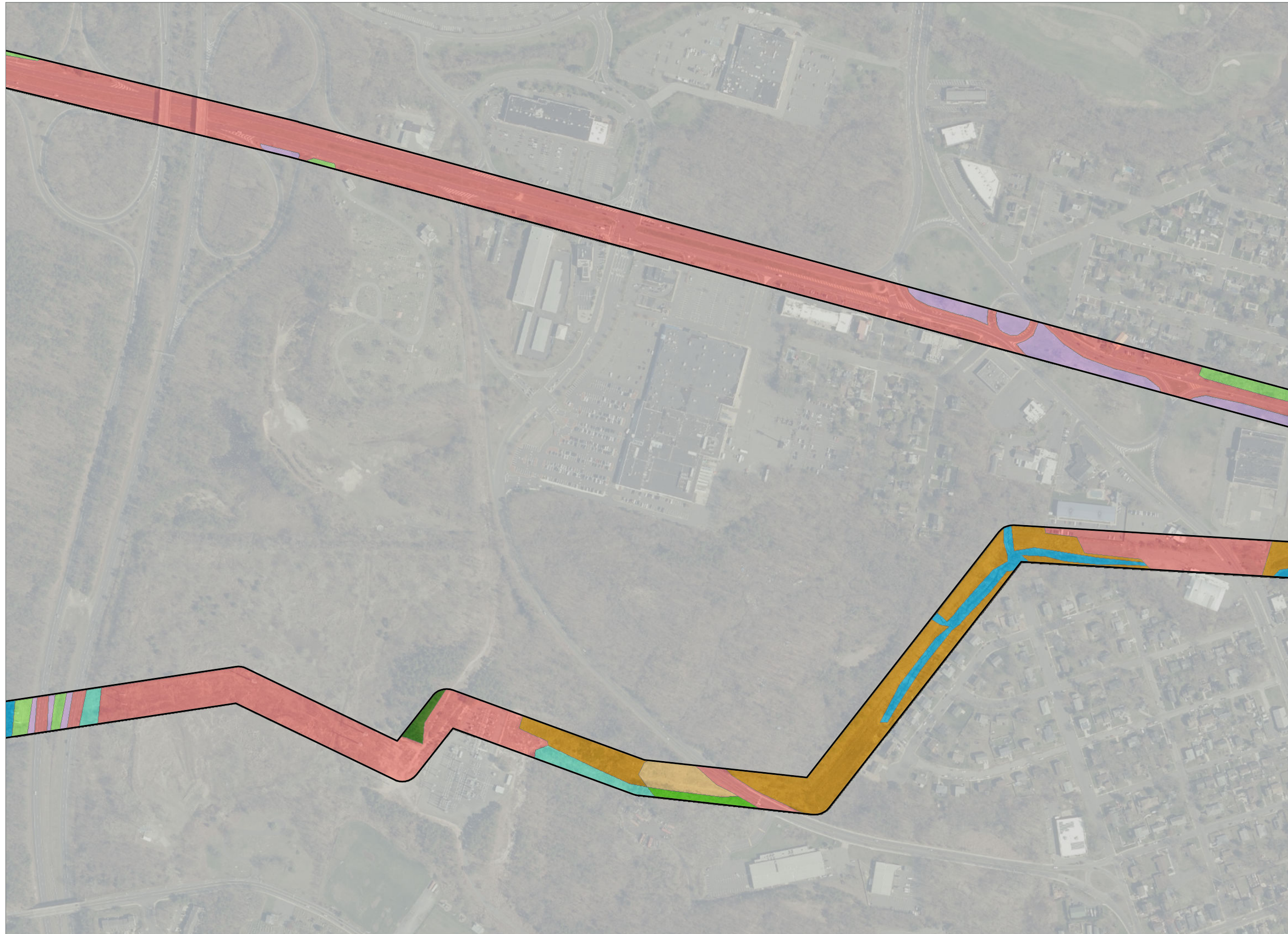
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Basemap: NJ Office of GIS 2020 Natural Color Imagery












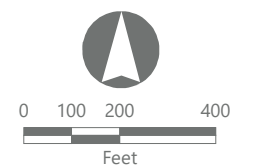
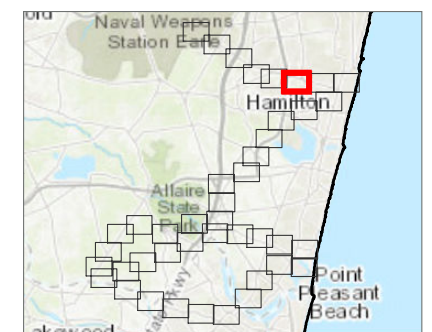
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#### Habitat Suitability Assessment Report



-  Study Area
- Habitat Assessment
  -  Developed/Disturbed
  -  Forest - Deciduous
  -  Forest - Evergreen
  -  Forest - Mixed
  -  Forested Wetland
  -  Herbaceous
  -  Scrub-Shrub
  -  Scrub-Shrub Wetland
  -  Water



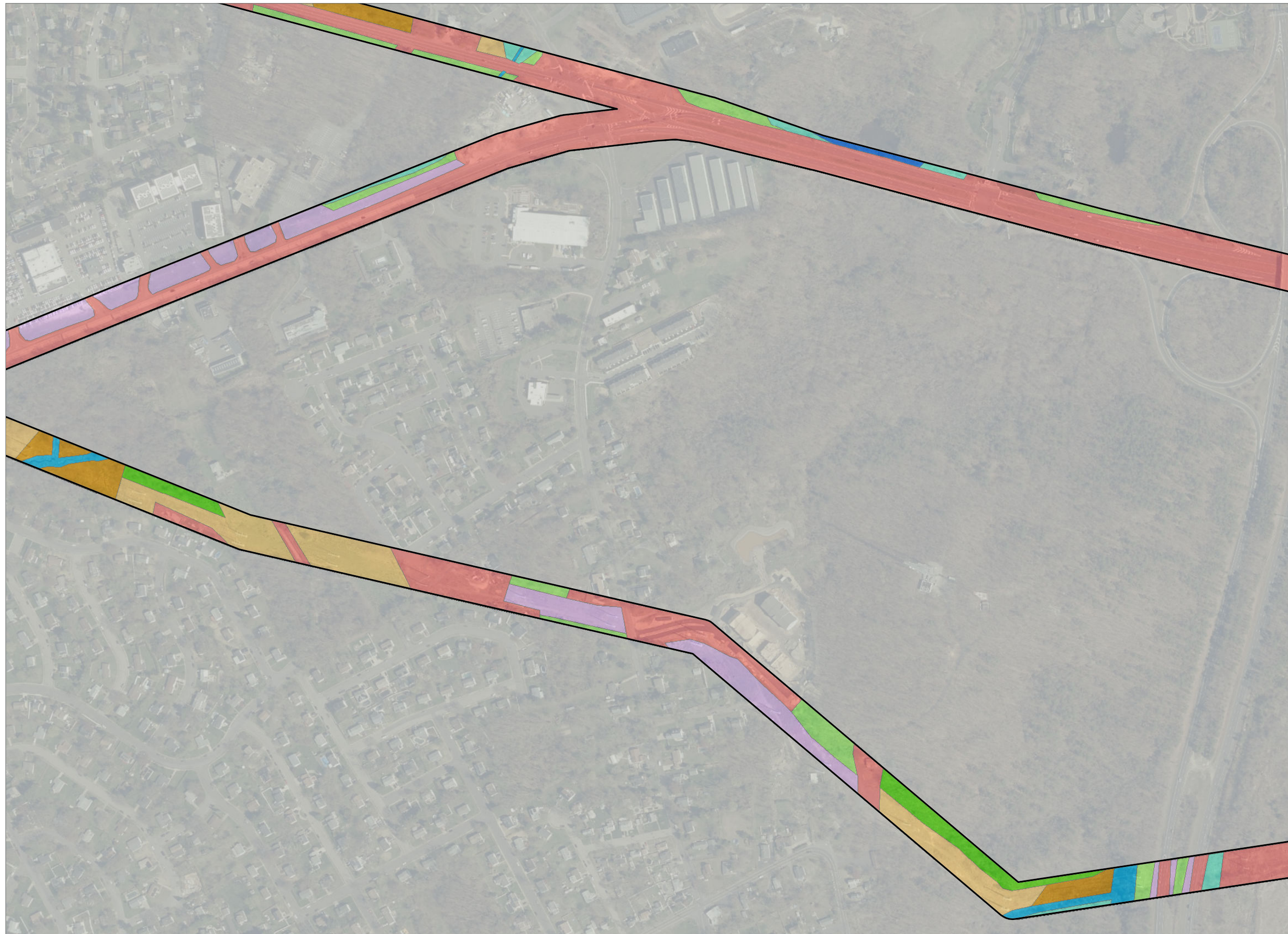
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









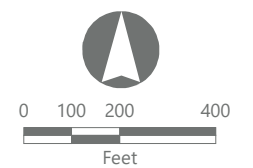
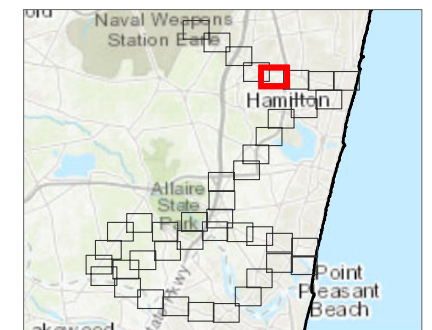
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New Jersey

#### Habitat Suitability Assessment Report



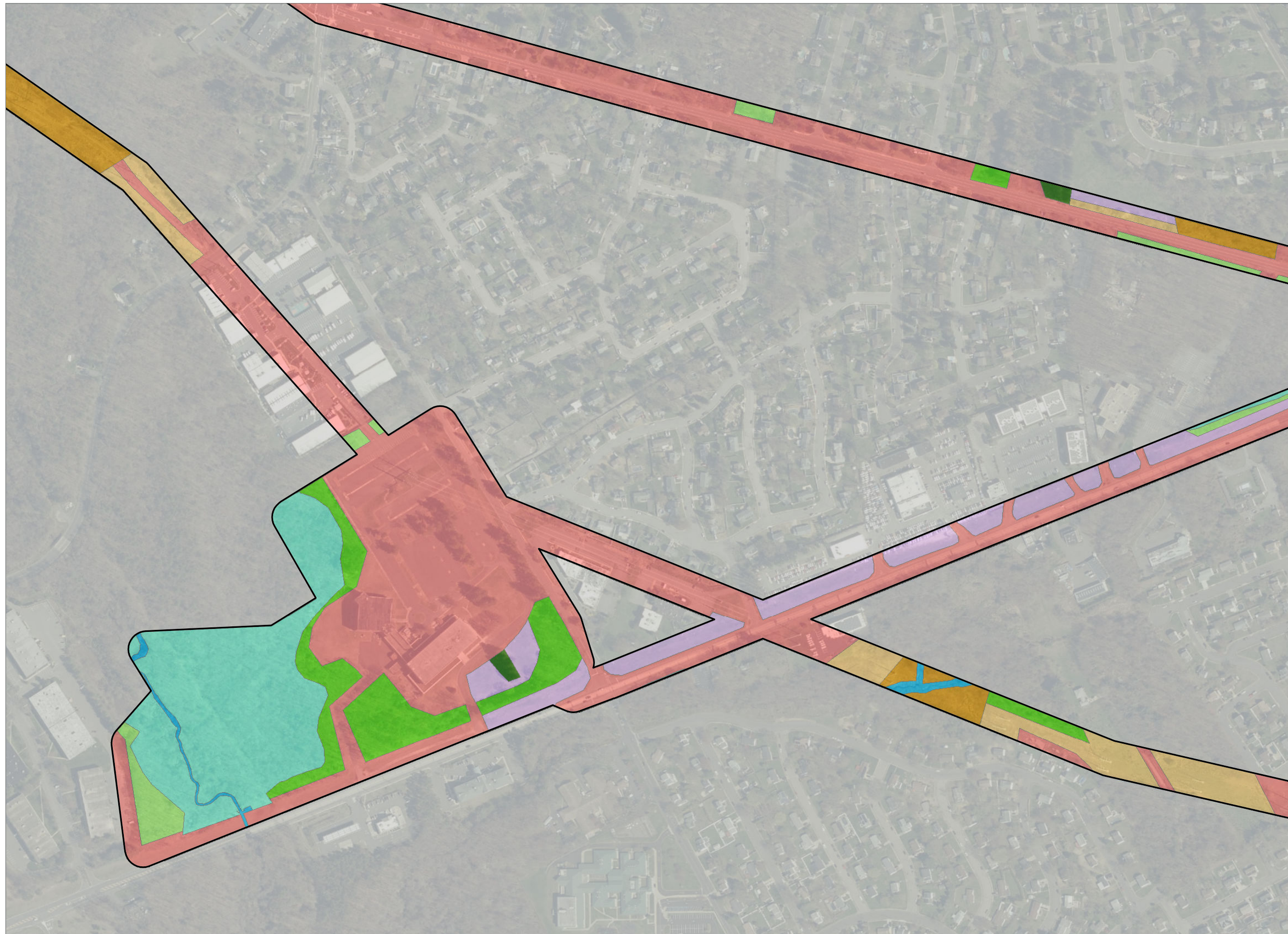
-  Study Area
- Habitat Assessment
  -  Developed/Disturbed
  -  Forest - Deciduous
  -  Forest - Mixed
  -  Forested Wetland
  -  Herbaceous
  -  Open Water Wetland
  -  Scrub-Shrub
  -  Scrub-Shrub Wetland
  -  Water



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery














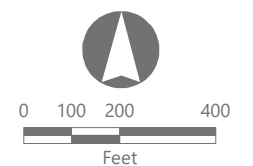
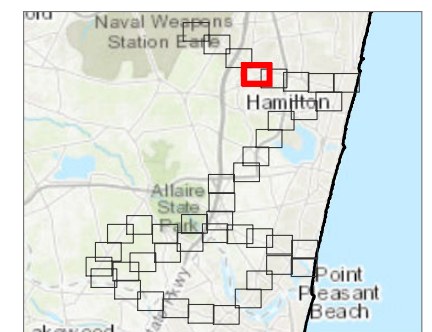


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#### **Habitat Suitability Assessment Report**

-  Study Area
- Habitat Assessment
  -  Developed/Disturbed
  -  Forest - Deciduous
  -  Forest - Evergreen
  -  Forest - Mixed
  -  Forested Wetland
  -  Herbaceous
  -  Scrub-Shrub
  -  Scrub-Shrub Wetland
  -  Water














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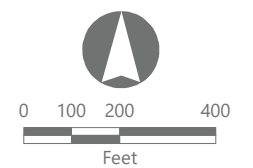
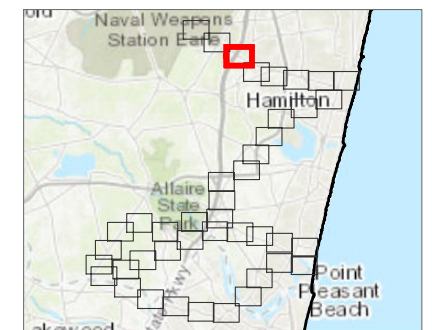


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New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Evergreen
-  Forest - Mixed
-  Forested Wetland
-  Herbaceous
-  Herbaceous Wetland
-  Scrub-Shrub
-  Scrub-Shrub Wetland
-  Water



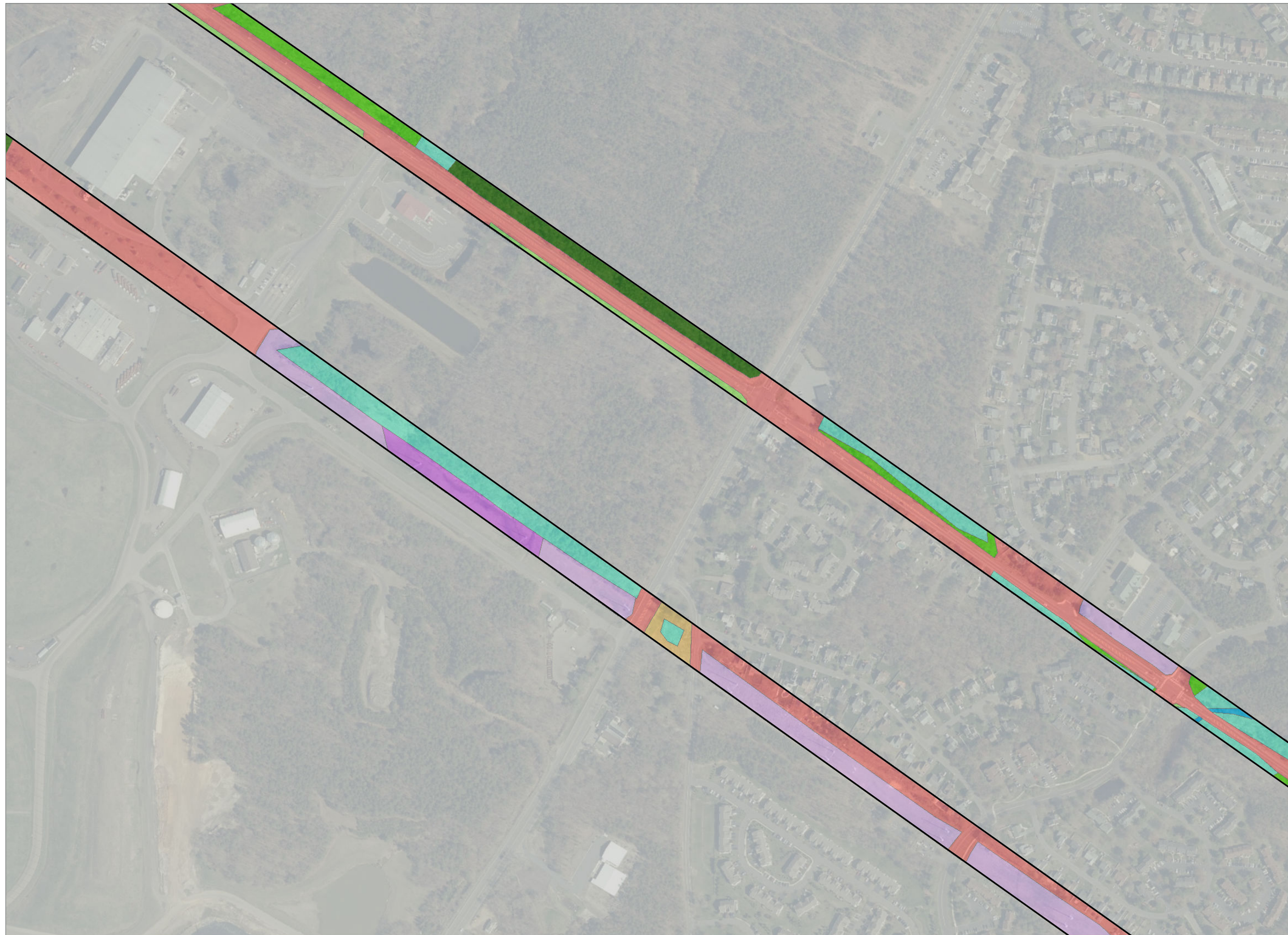
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










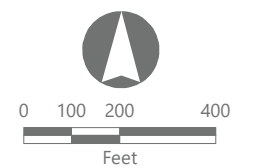
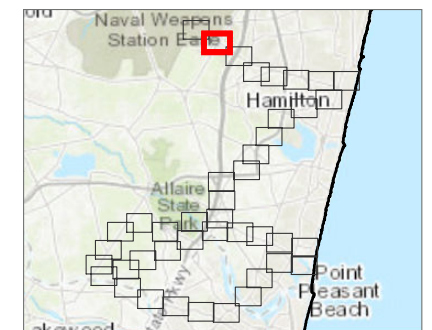
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New Jersey

#### Habitat Suitability Assessment Report



-  Study Area
- Habitat Assessment
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Evergreen
-  Forest - Mixed
-  Forested Wetland
-  Herbaceous
-  Herbaceous Wetland
-  Scrub-Shrub
-  Water



Prepared August 28, 2023  
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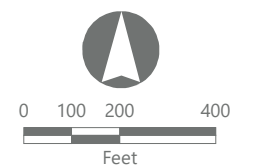
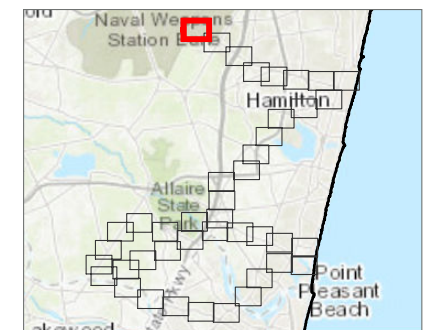


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#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous Wetland
  - Open Water Wetland
  - Scrub-Shrub
  - Scrub-Shrub Wetland
  - Water



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


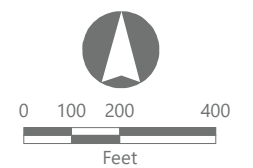
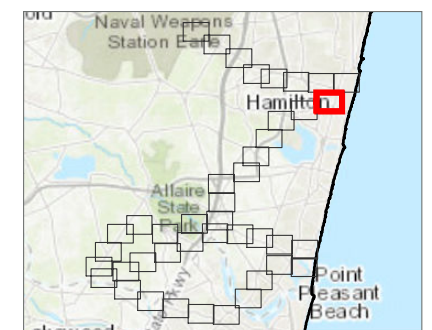


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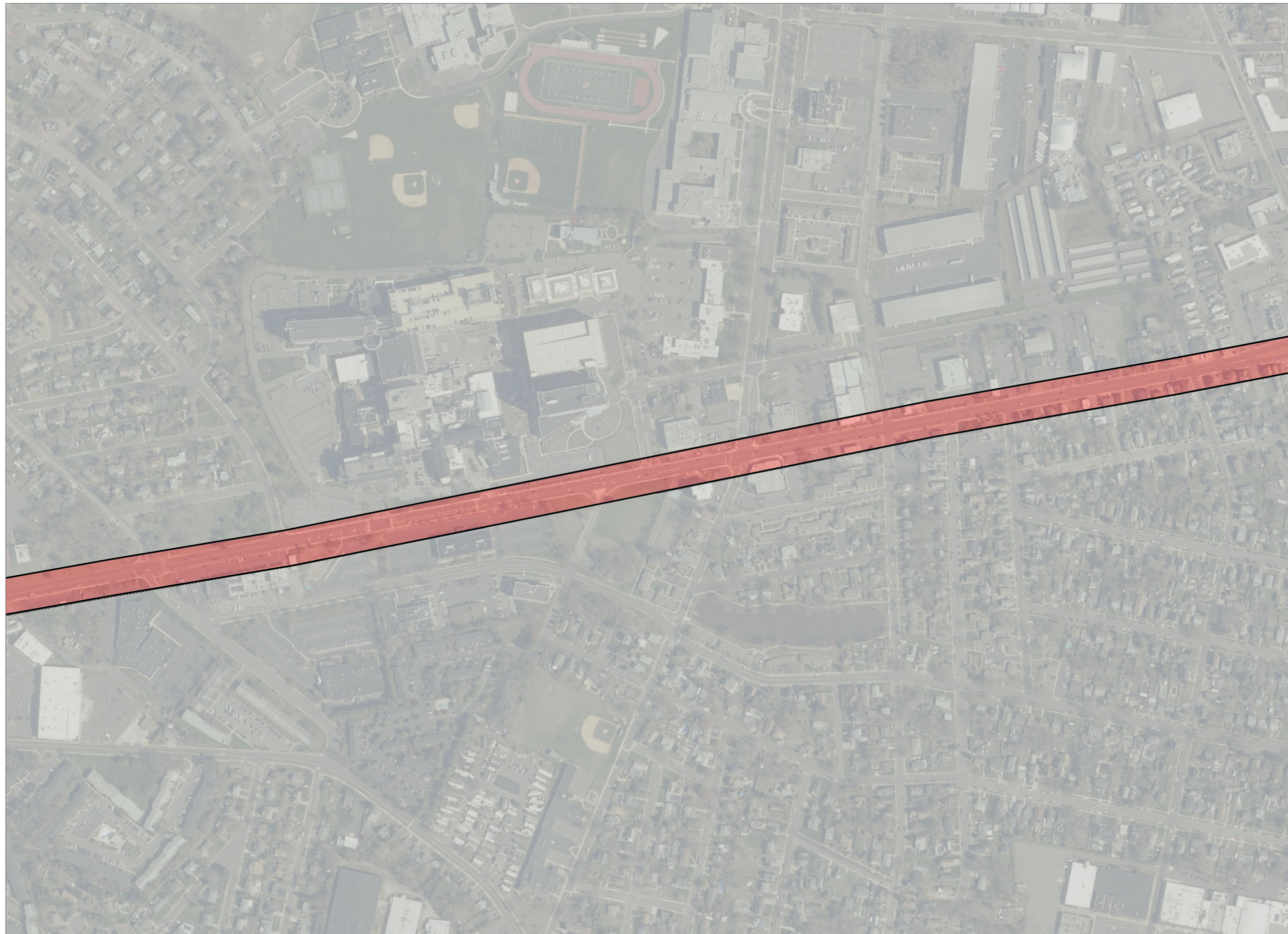
#### **Habitat Suitability Assessment Report**

-  Study Area
-  Developed/Disturbed



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



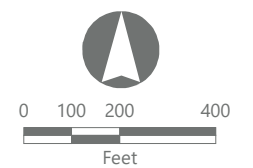
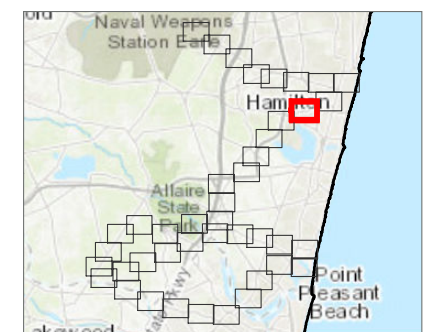


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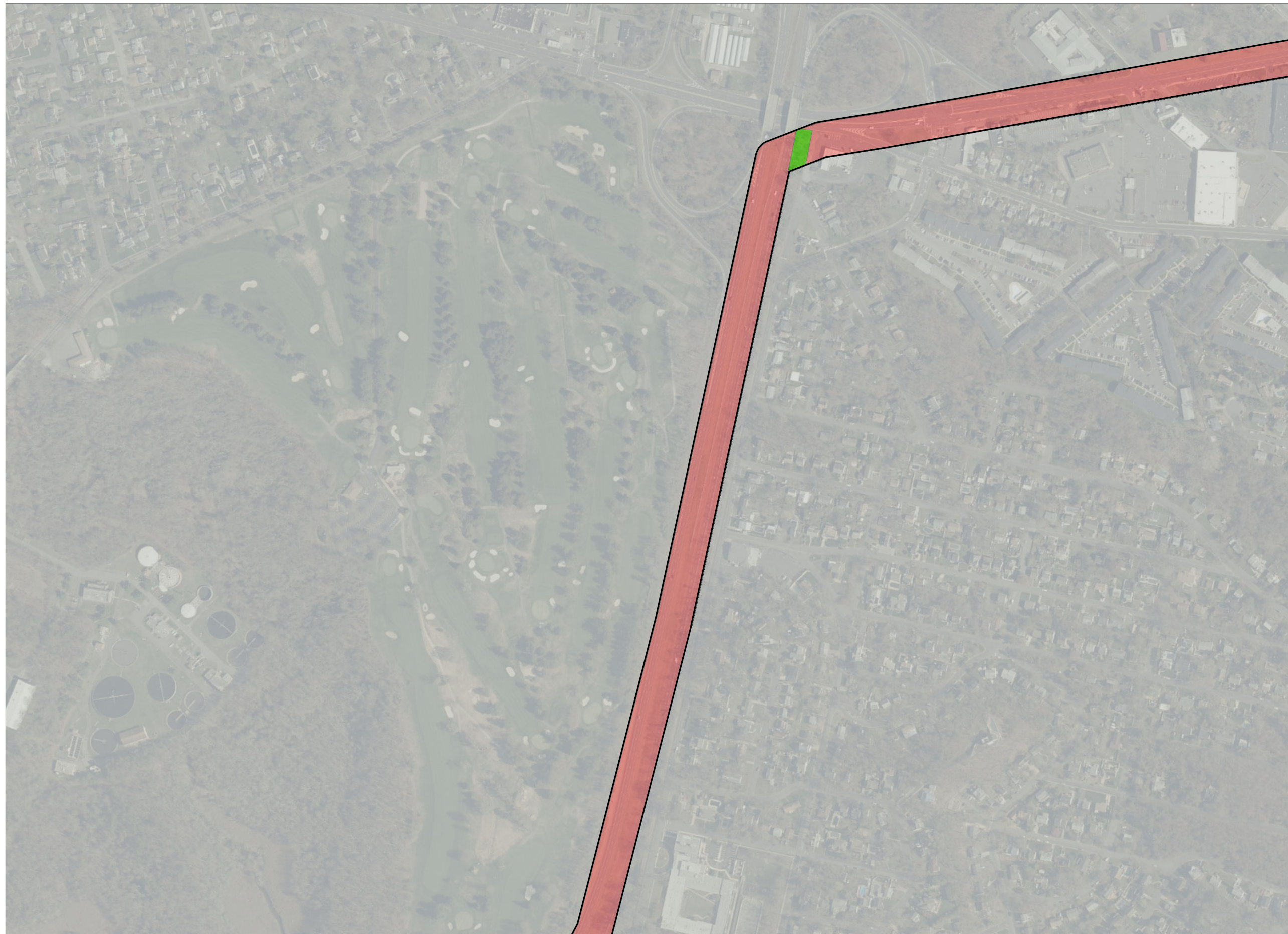
#### **Habitat Suitability Assessment Report**

-  Study Area
-  Habitat Assessment
-  Developed/Disturbed



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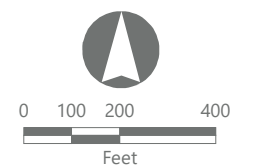
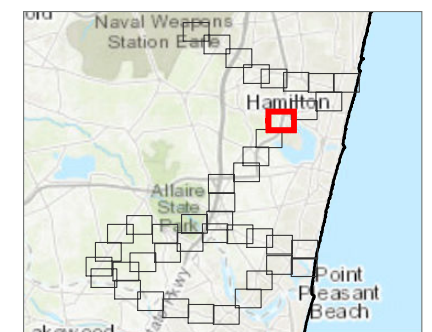


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#### **Habitat Suitability Assessment Report**

-  Study Area
-  Developed/Disturbed
-  Forest - Mixed
-  Water



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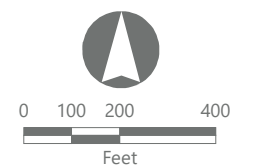
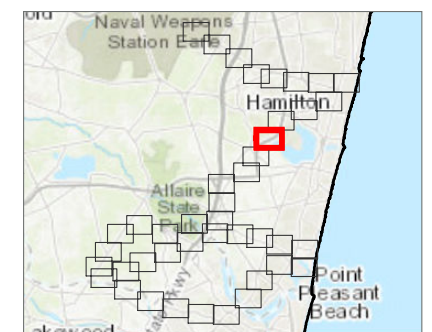


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#### Habitat Suitability Assessment Report

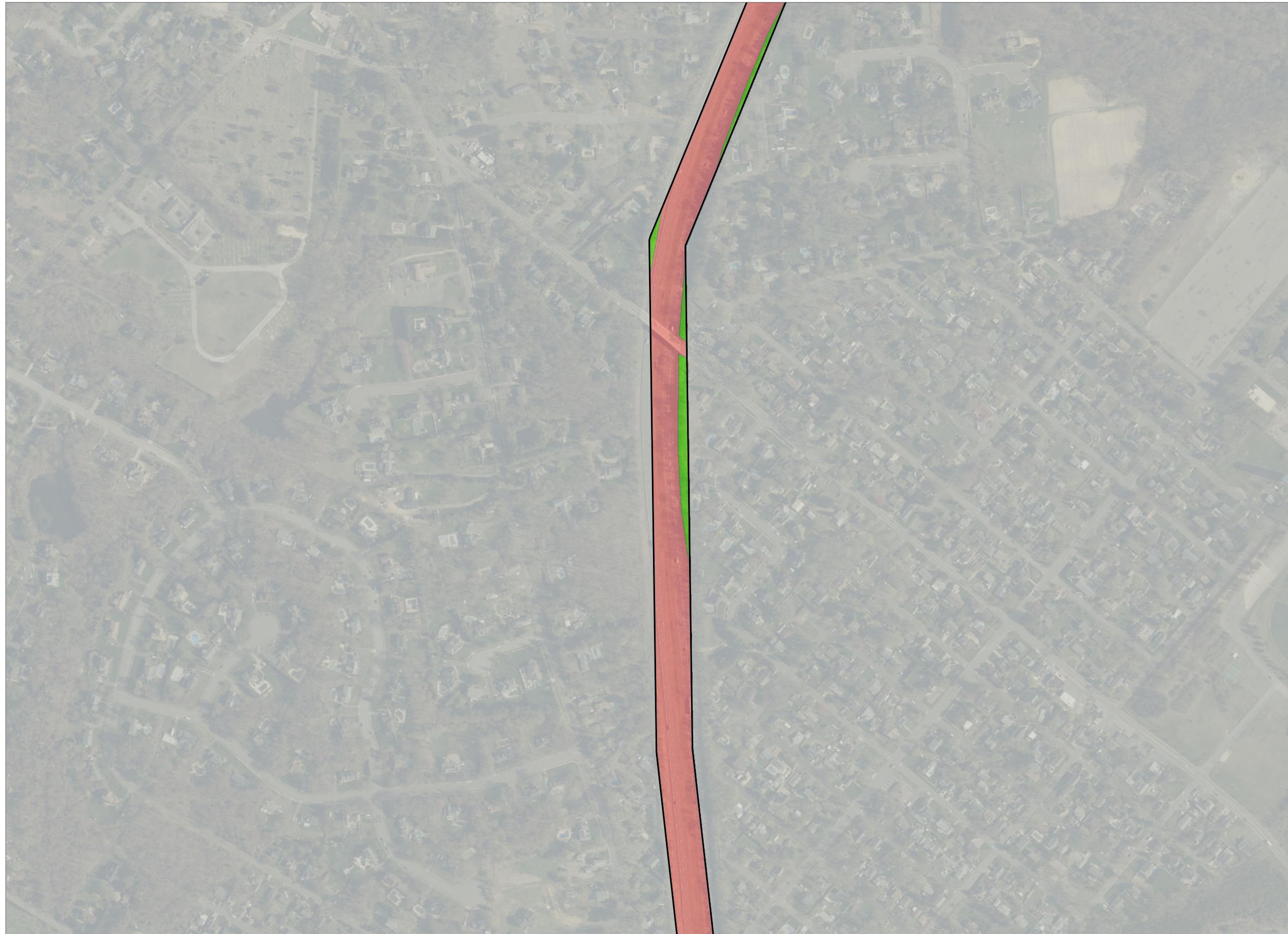
- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Mixed
  - Water



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery








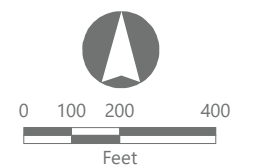
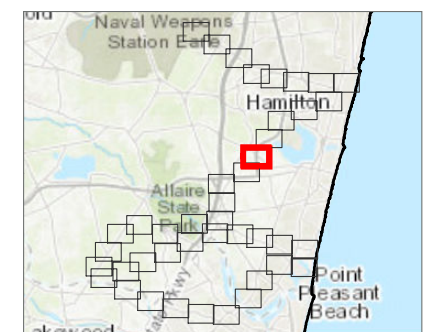


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#### **Habitat Suitability Assessment Report**

-  Study Area
-  Developed/Disturbed
-  Forest - Mixed



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




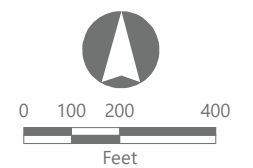
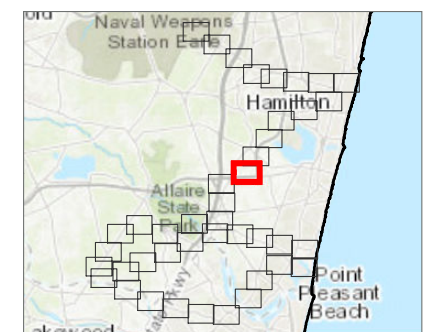


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood  
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Borough of Neptune City, City of  
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Borough of Manasquan, Neptune  
Township  
Monmouth and Ocean County,  
New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
-  Developed/Disturbed
-  Forest - Mixed
-  Forested Wetland
-  Herbaceous Wetland
-  Water



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery

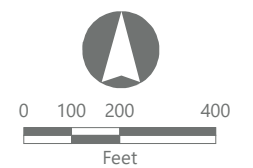
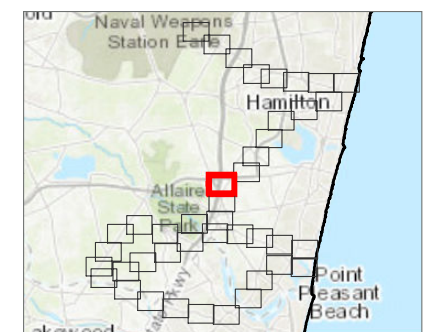


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County, New Jersey

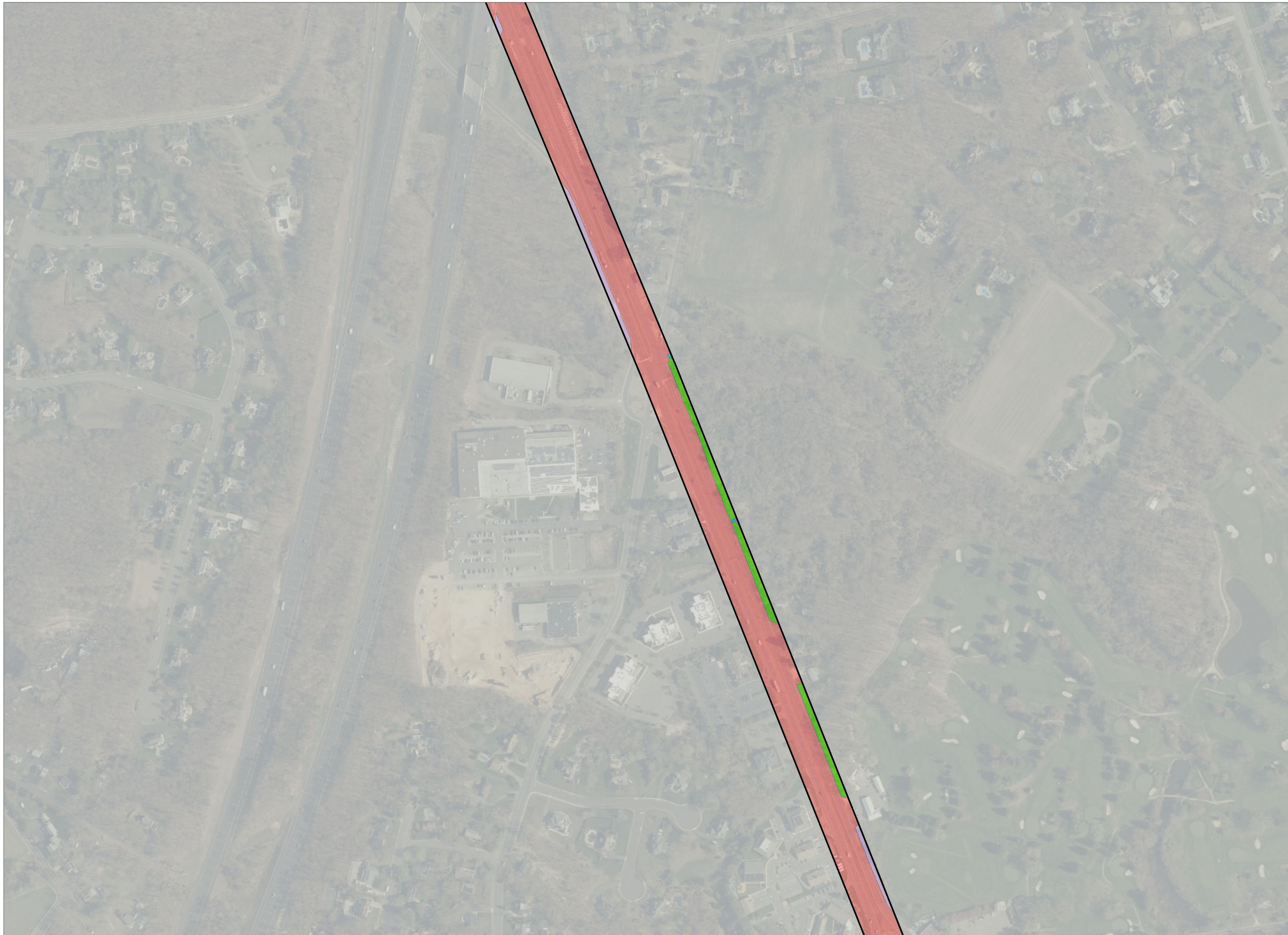
#### **Habitat Suitability Assessment Report**

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Mixed
  - Herbaceous
  - Scrub-Shrub



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery









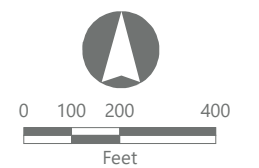
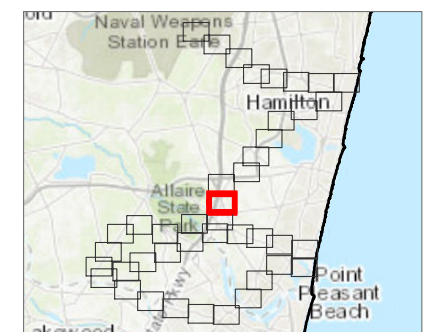


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

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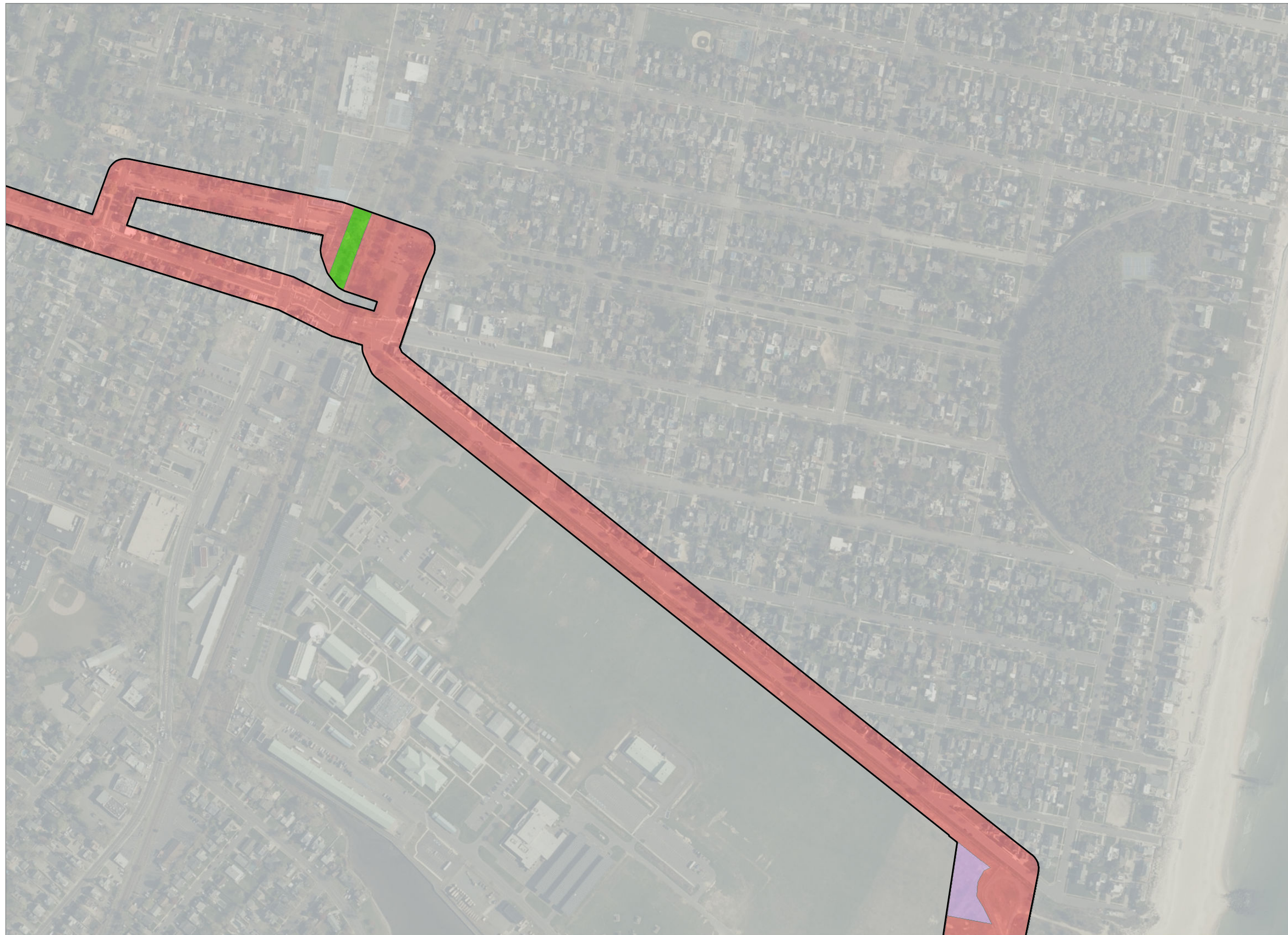
#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Developed/Disturbed
-  Forest - Mixed
-  Herbaceous
-  Herbaceous Wetland
-  Water



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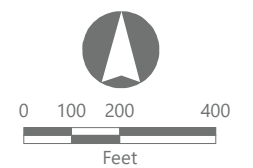
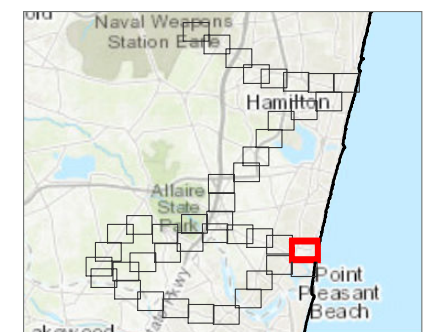


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New Jersey

#### **Habitat Suitability Assessment Report**

-  Study Area
-  Developed/Disturbed
-  Forest - Mixed
-  Herbaceous



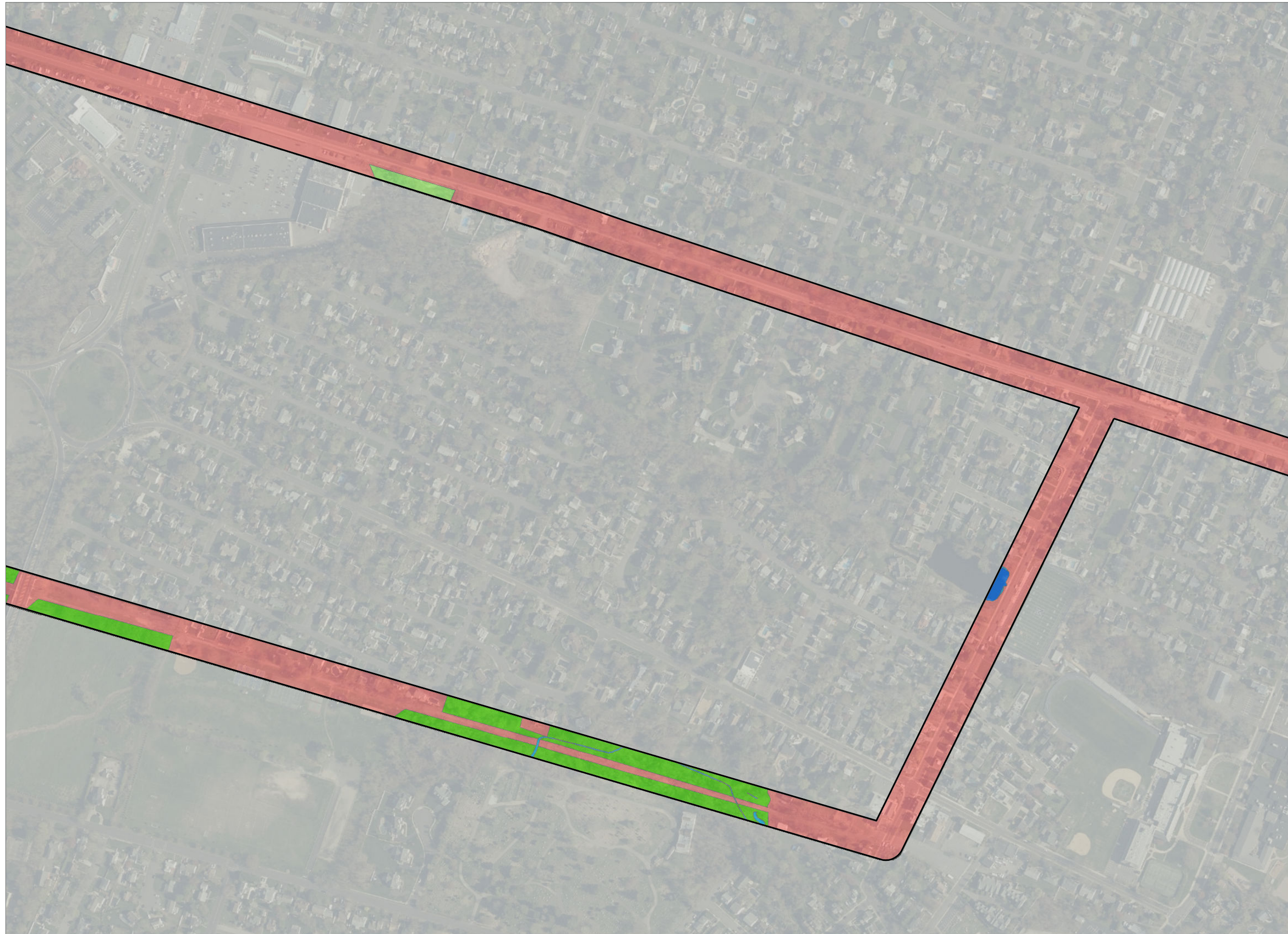
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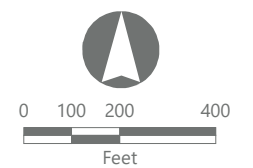
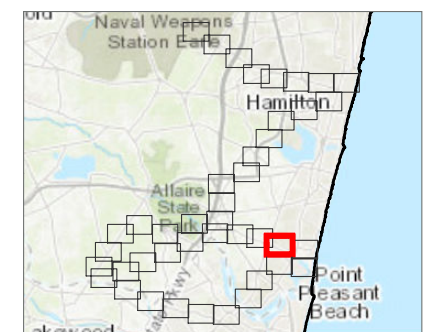
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New Jersey

#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Open Water Wetland
  - Water



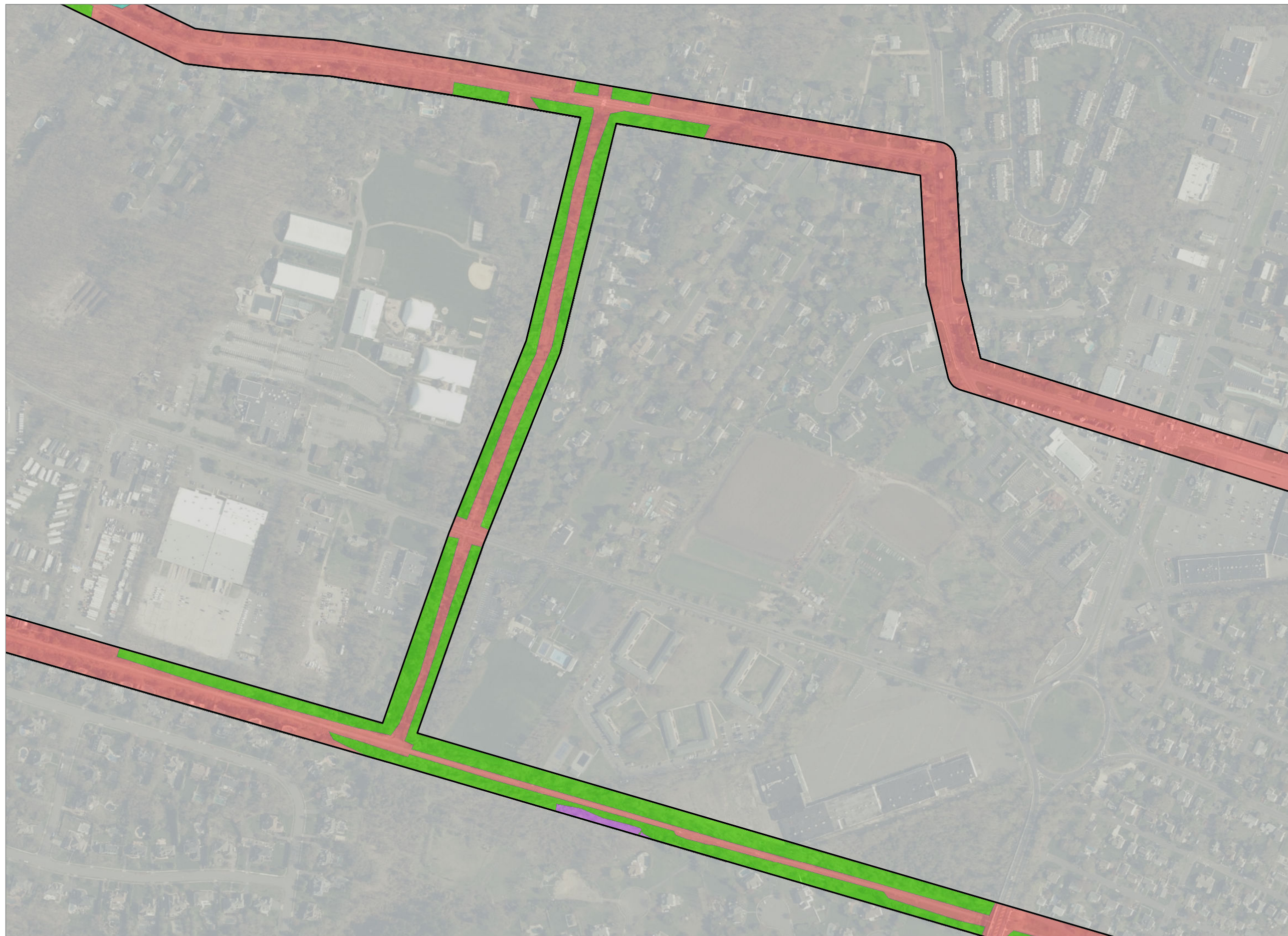
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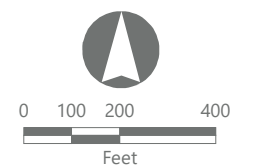
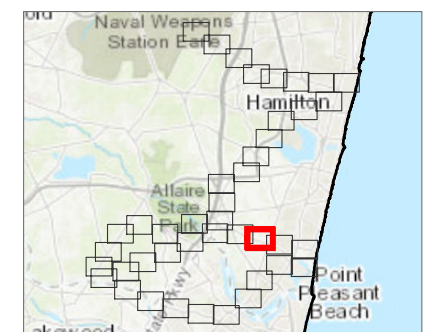
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#### **Habitat Suitability Assessment Report**

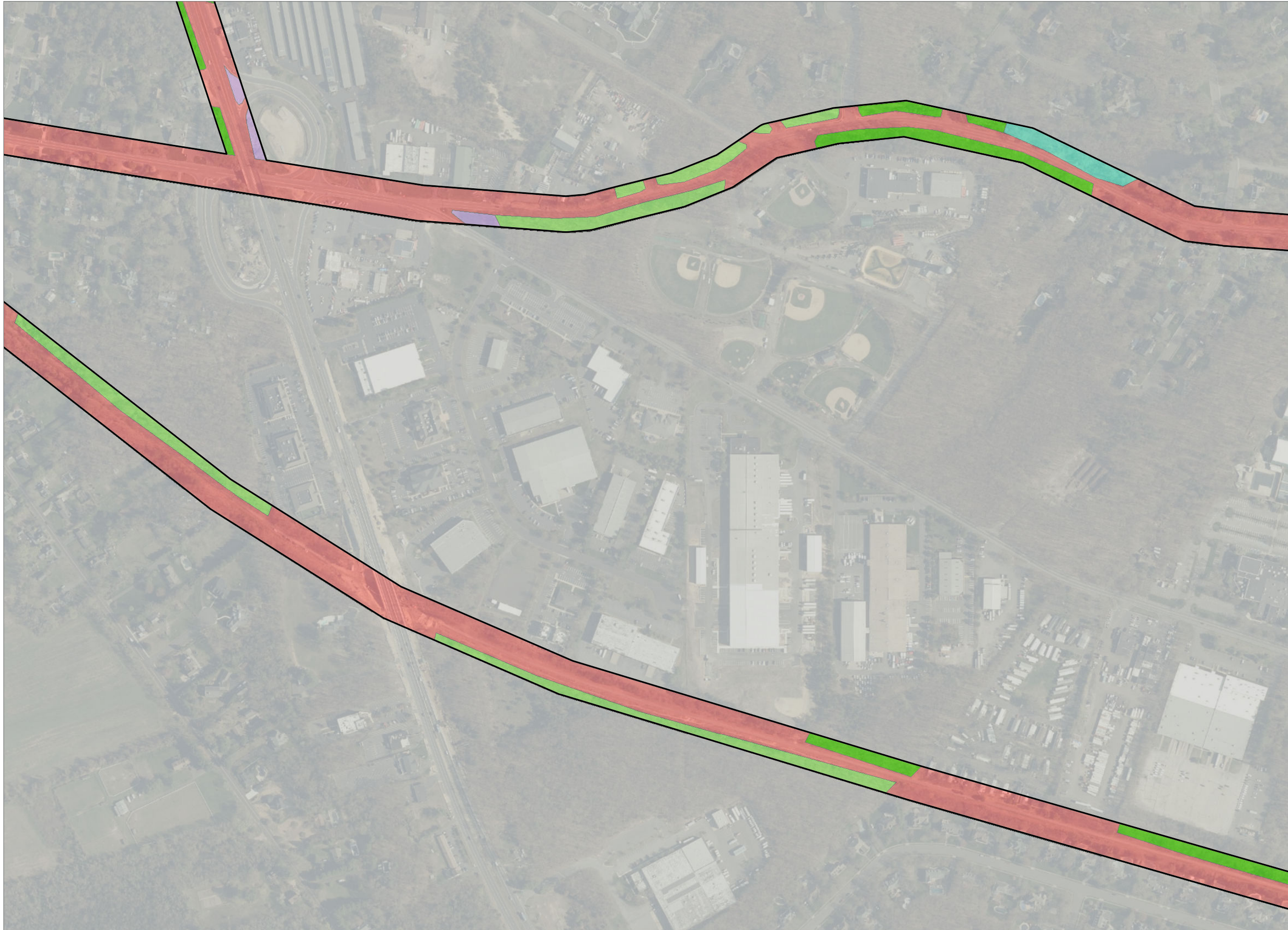


- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous Wetland



Prepared August 28, 2023  
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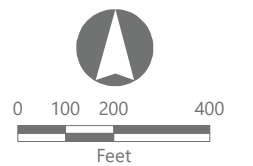
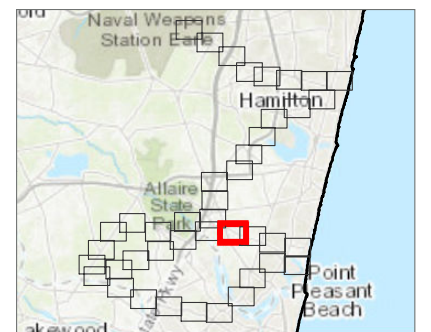


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New Jersey

#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous
  - Scrub-Shrub Wetland



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




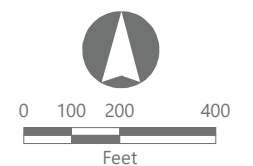
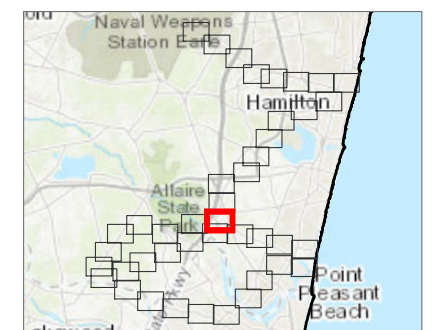


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

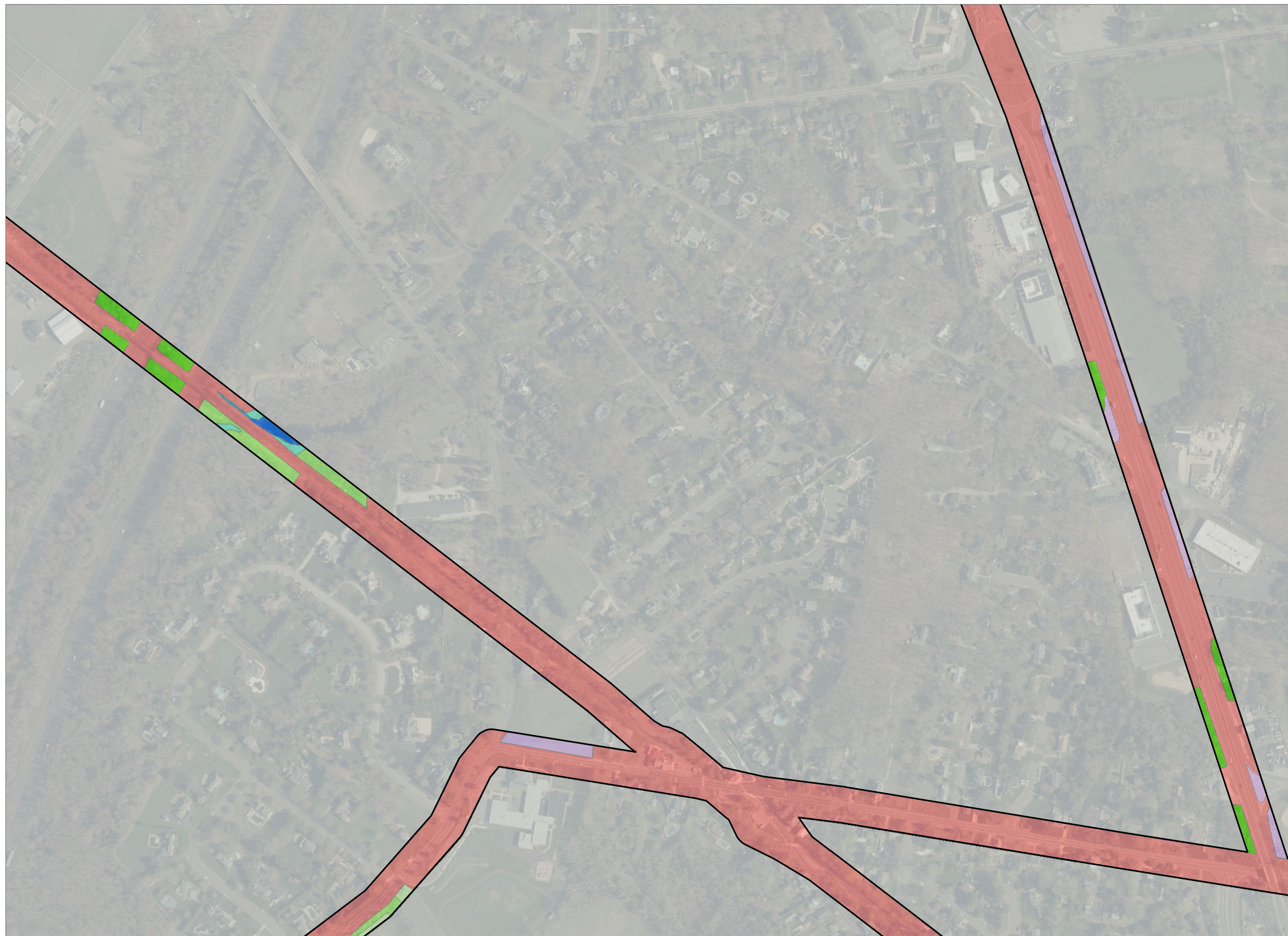
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New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Agricultural
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Mixed
-  Forested Wetland
-  Herbaceous
-  Open Water Wetland
-  Water












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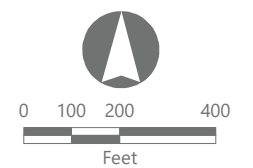
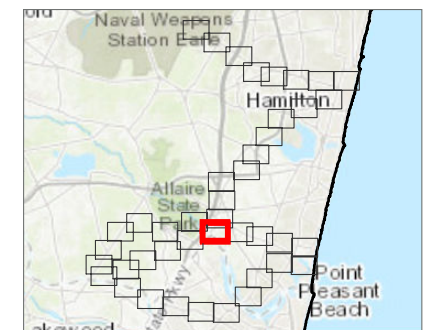


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#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Agricultural
-  Developed/Disturbed
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-  Forest - Mixed
-  Forested Wetland
-  Herbaceous
-  Scrub-Shrub Wetland
-  Water



Prepared August 28, 2023  
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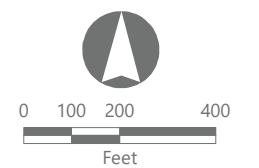
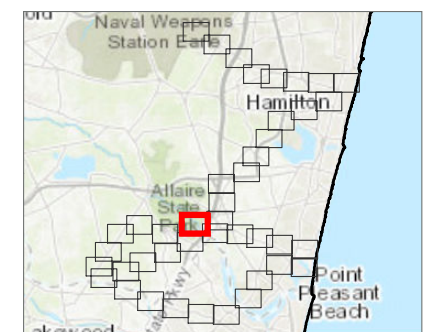


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Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
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#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Forested Wetland
  - Water



Prepared August 28, 2023  
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





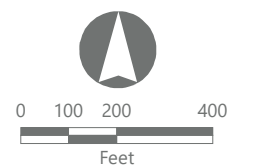
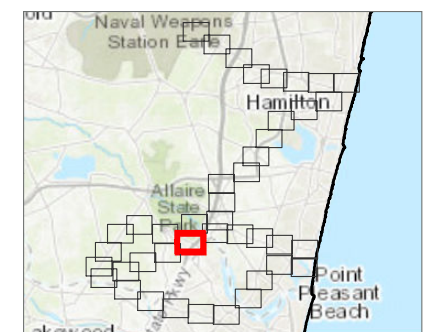


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New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Evergreen
-  Forest - Mixed
-  Herbaceous



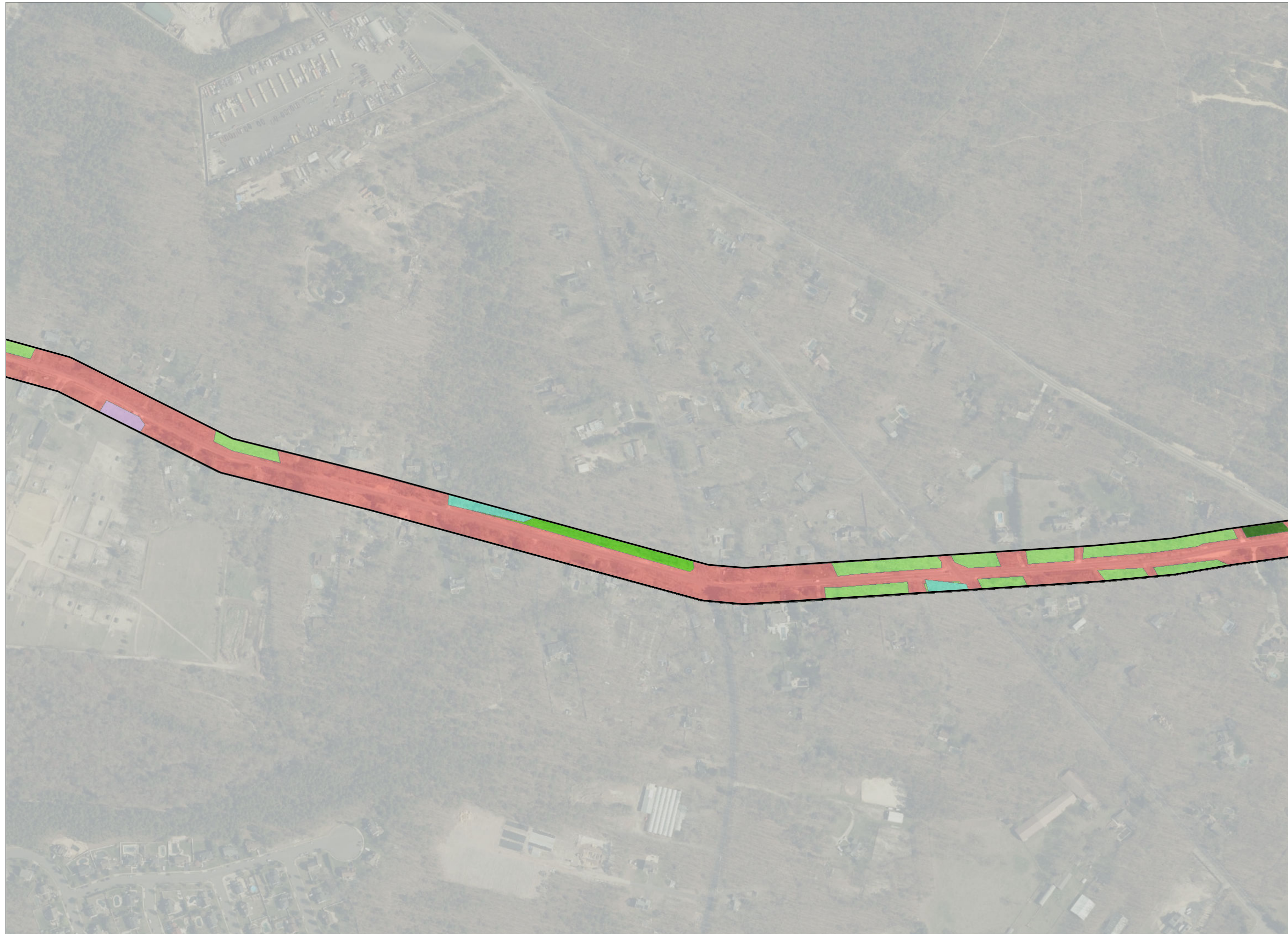
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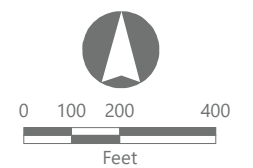
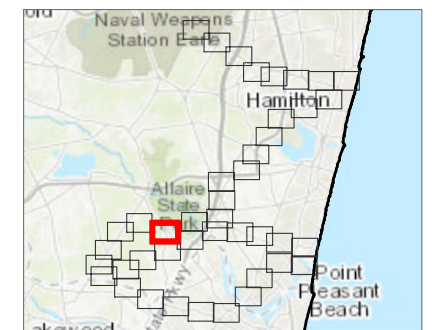
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#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous



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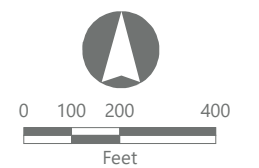
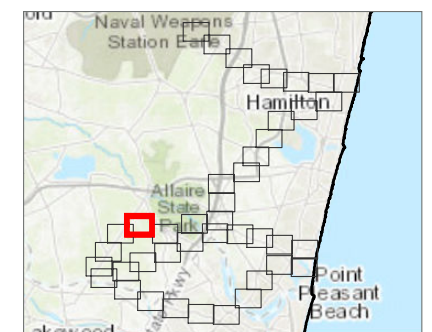


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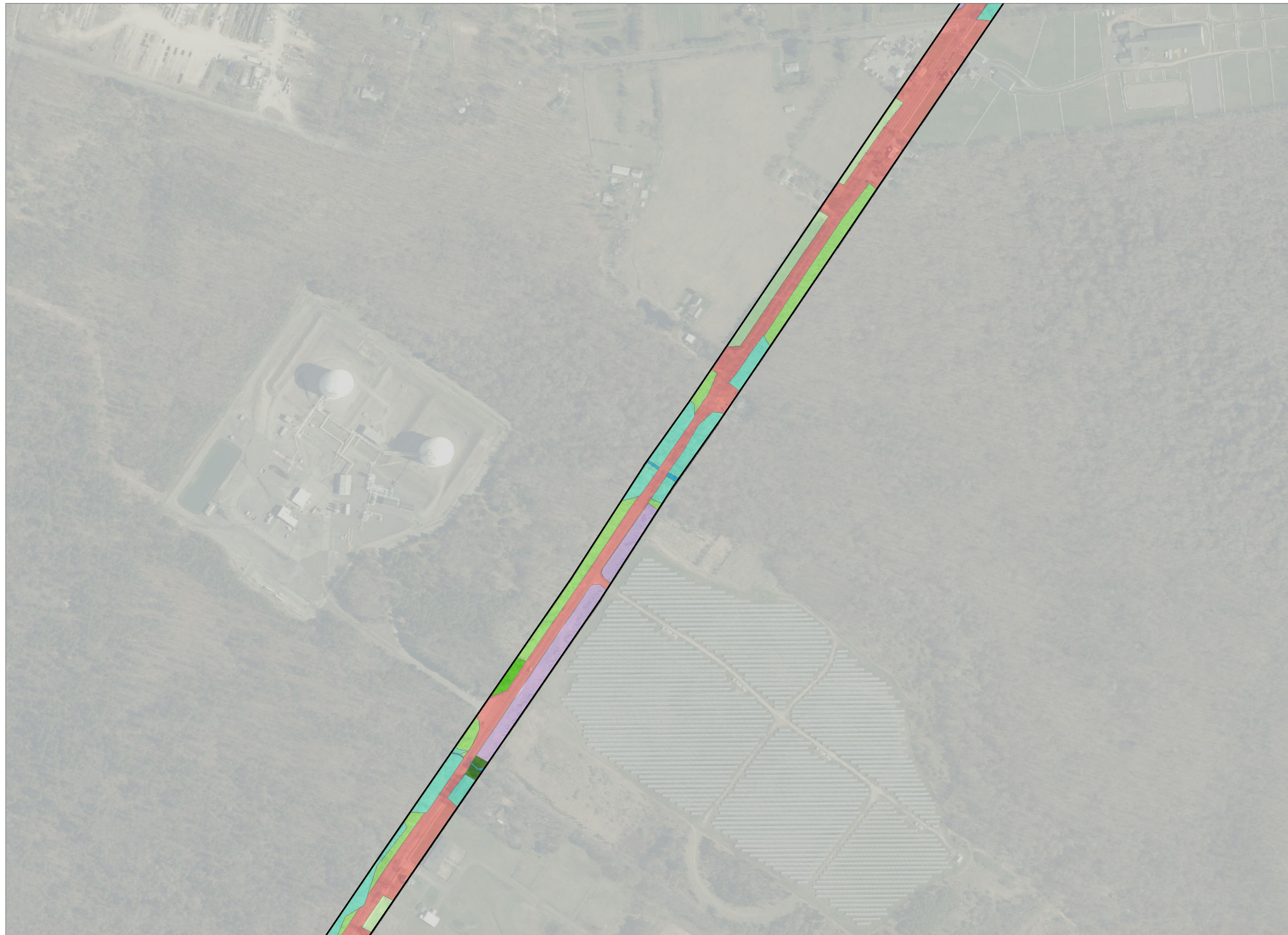
#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
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  - Open Water Wetland
  - Scrub-Shrub
  - Water



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









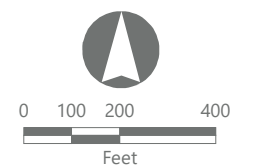
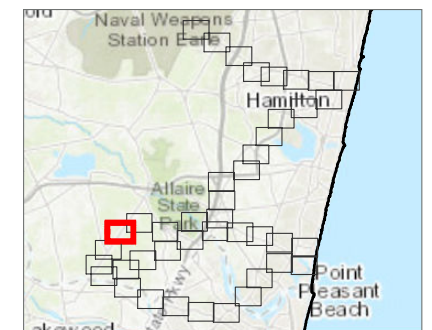


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#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Agricultural
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Evergreen
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-  Water












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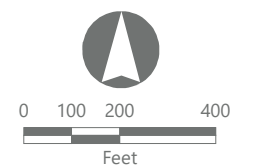
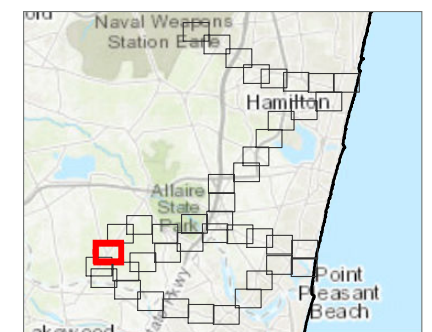


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#### Habitat Suitability Assessment Report

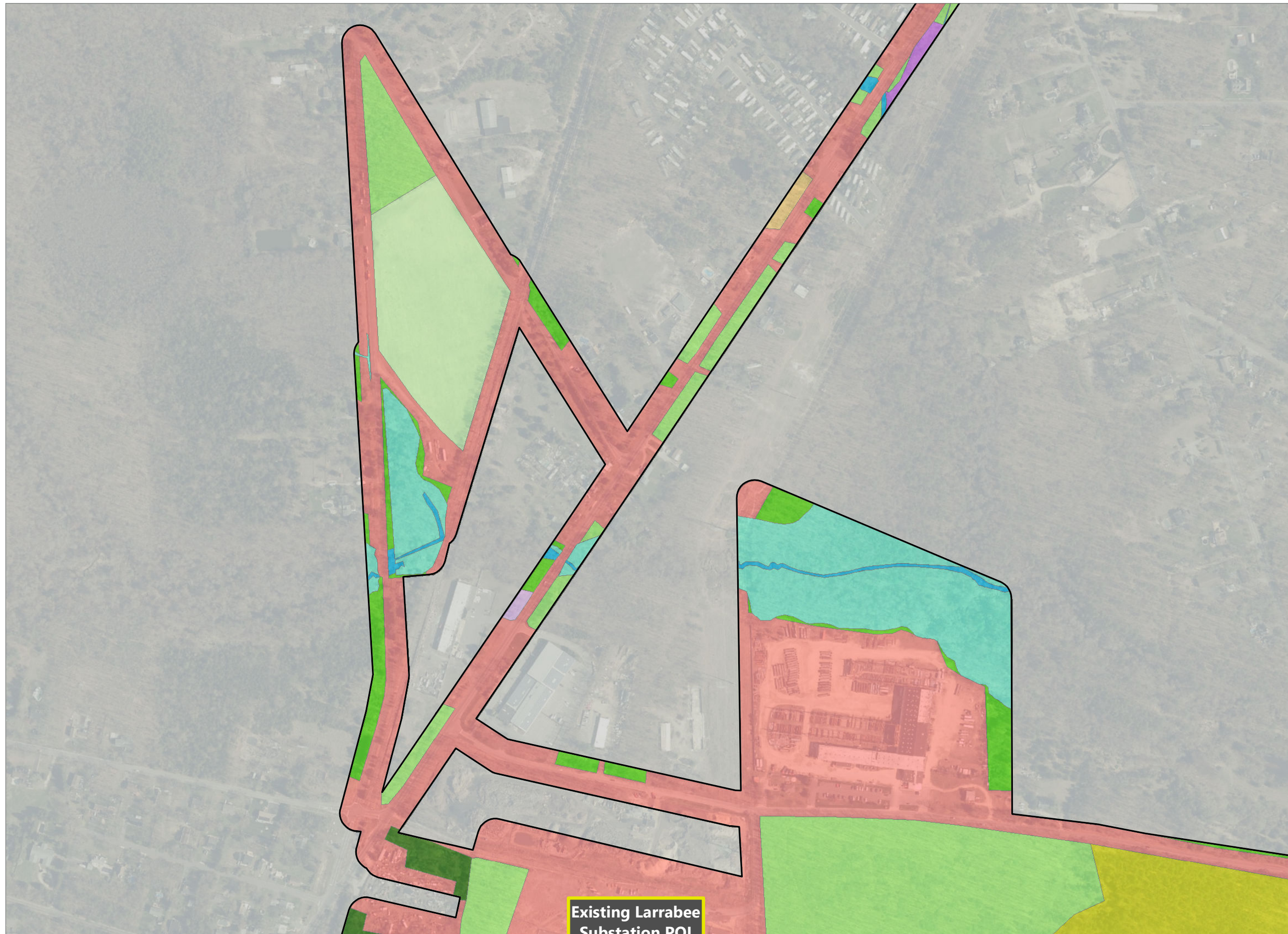
-  Study Area
- Habitat Assessment**
-  Agricultural
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-  Forested Wetland
-  Herbaceous Wetland
-  Scrub-Shrub
-  Water



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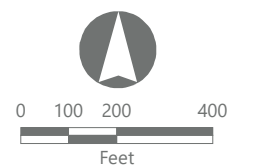
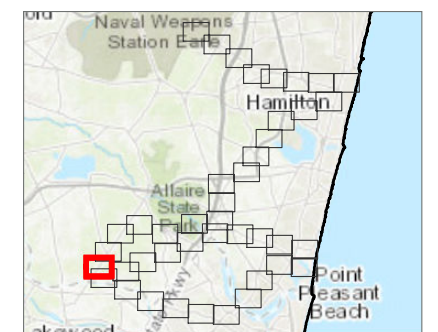


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#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Agricultural
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous
  - Herbaceous Wetland
  - Scrub-Shrub
  - Shrub - Evergreen
  - Water



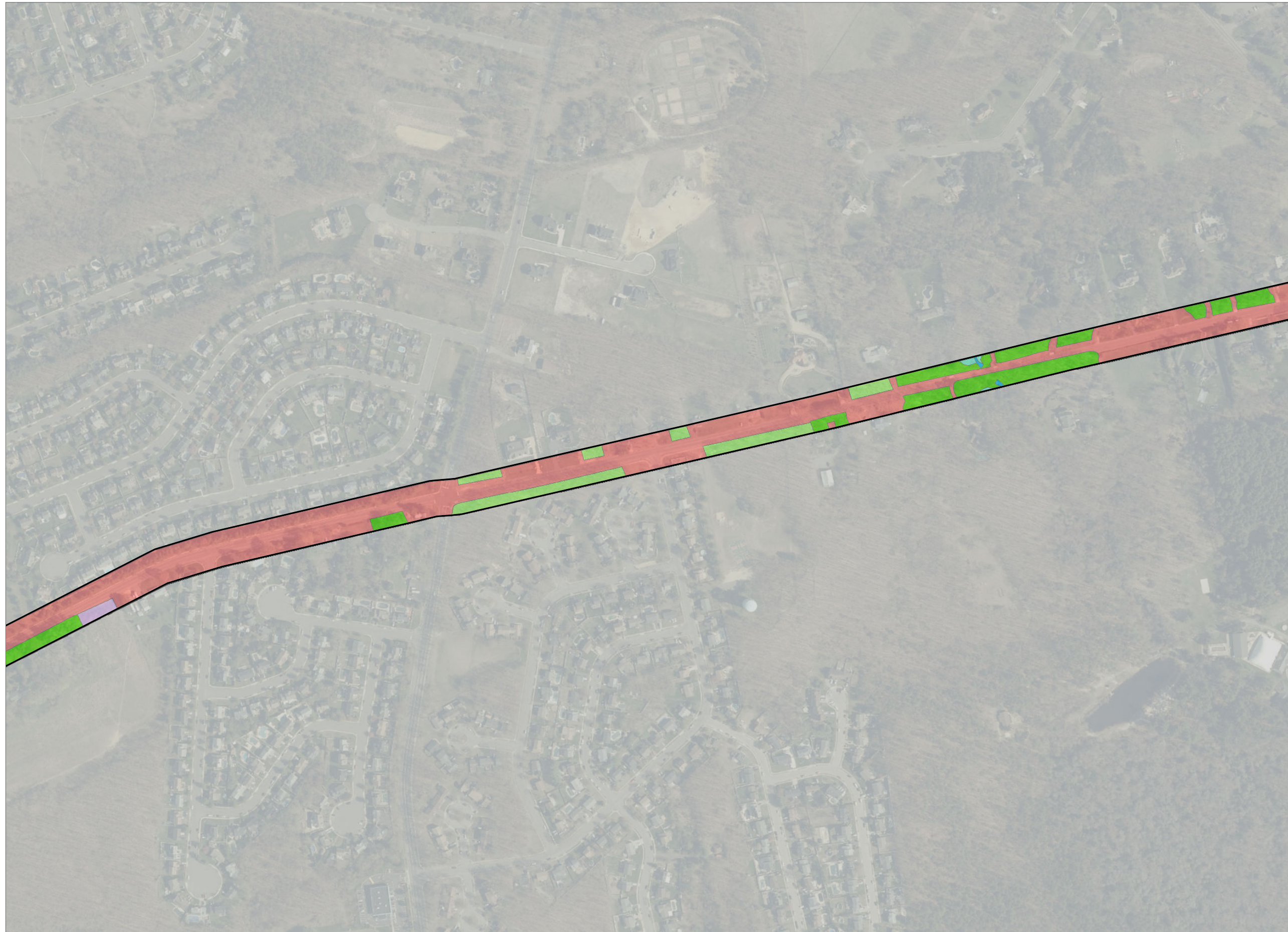
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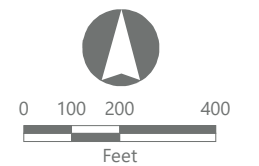
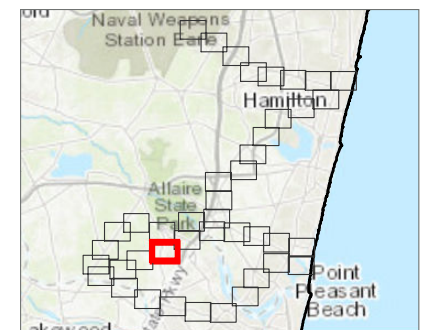
### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood Township, Borough of Brielle, Brick Township, Borough of Sea Girt, Borough of Neptune City, City of Asbury Park, Howell Township, Ocean Township, Borough of Tinton Falls, Colts Neck Township, Wall Township, Borough of Manasquan, Neptune Township  
Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

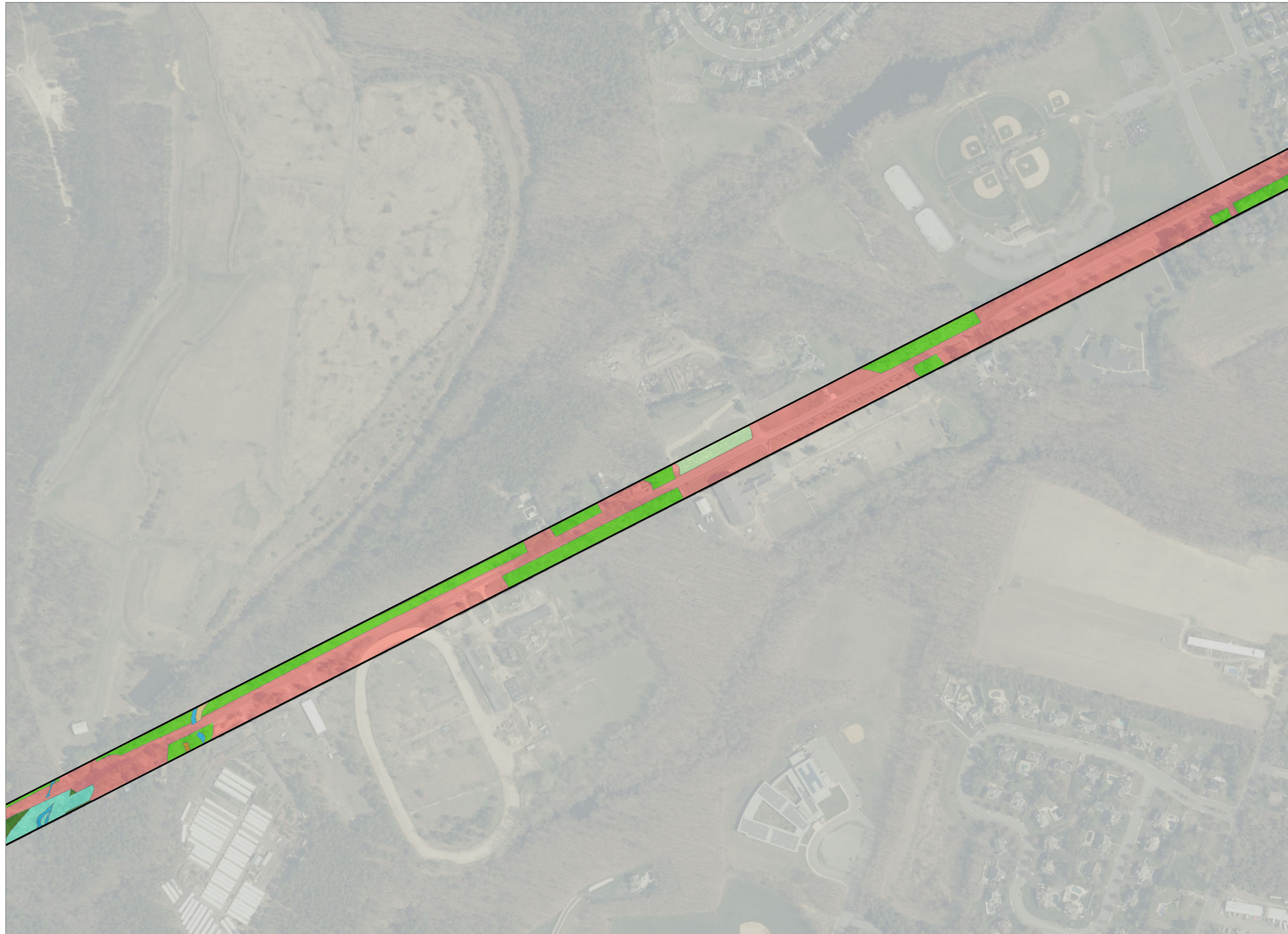


- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous
  - Water



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery











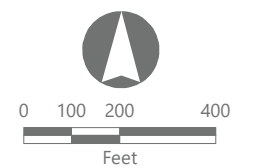
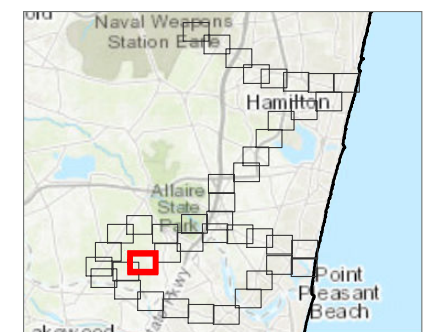


### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment
  -  Agricultural
  -  Developed/Disturbed
  -  Forest - Evergreen
  -  Forest - Mixed
  -  Forested Wetland
  -  Scrub-Shrub
  -  Scrub-Shrub Wetland
  -  Water



Prepared August 28, 2023  
Basemap: NJ Office of GIS 2020 Natural Color Imagery

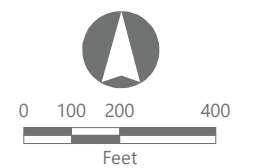
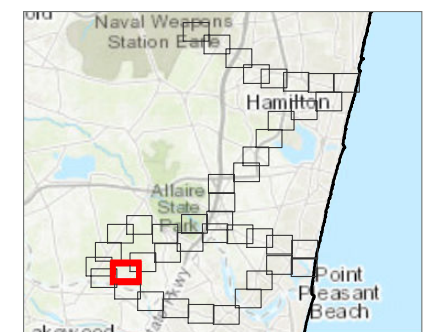


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Monmouth and Ocean County, New Jersey

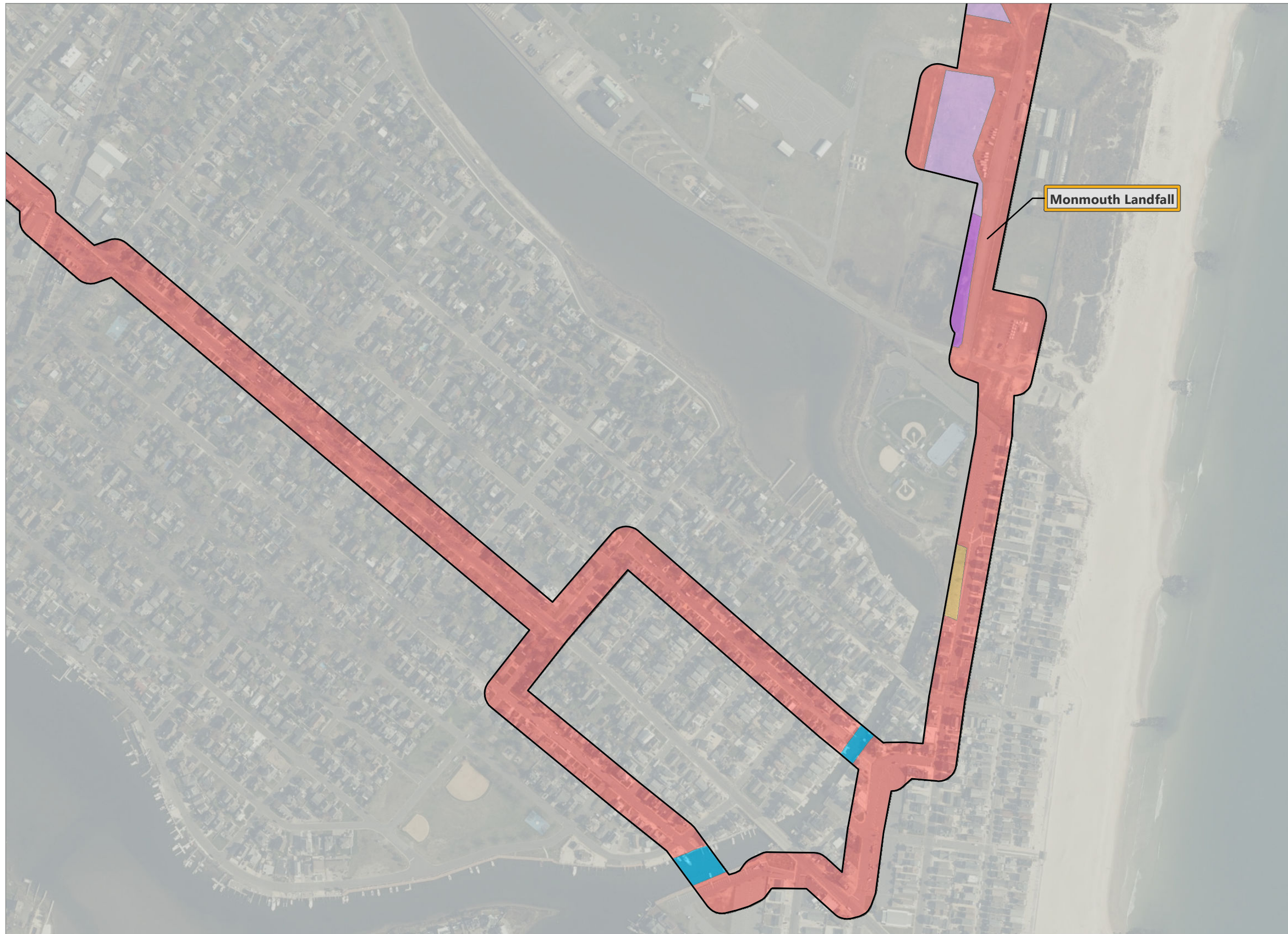
#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous Wetland
  - Scrub-Shrub
  - Scrub-Shrub Wetland
  - Shrub - Evergreen
  - Water



Prepared August 28, 2023  
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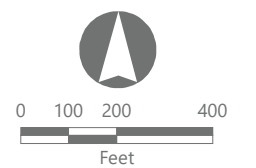
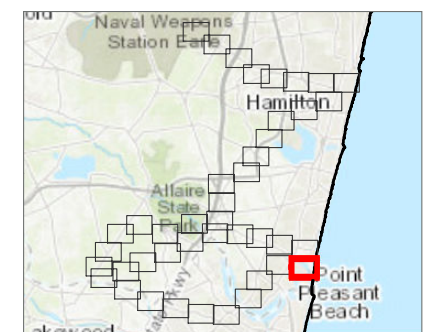


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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Herbaceous
  - Herbaceous Wetland
  - Scrub-Shrub
  - Water



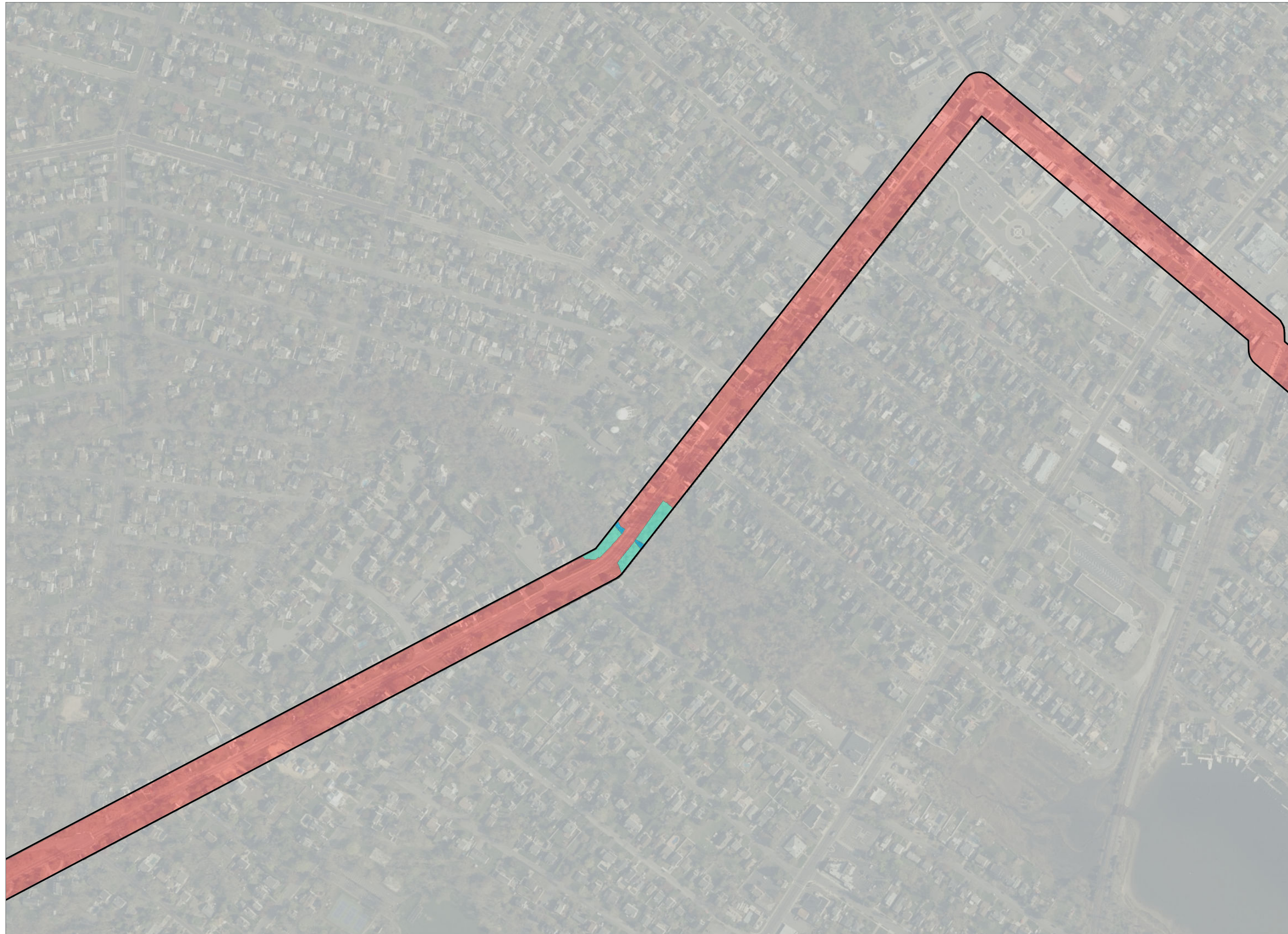
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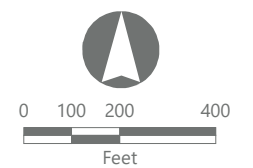
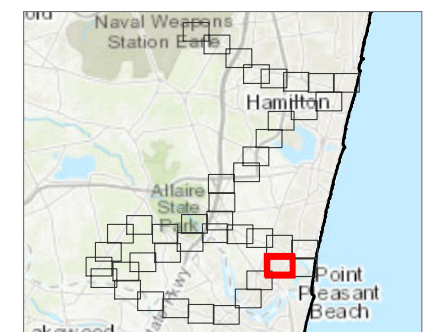
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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forested Wetland
  - Water










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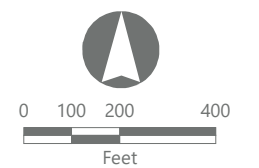
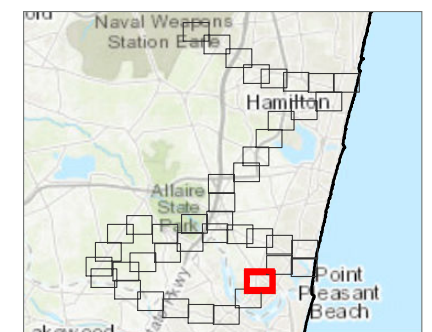


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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report

-  Study Area
- Habitat Assessment**
-  Developed/Disturbed
-  Forest - Deciduous
-  Forest - Mixed
-  Forested Wetland
-  Scrub-Shrub
-  Water



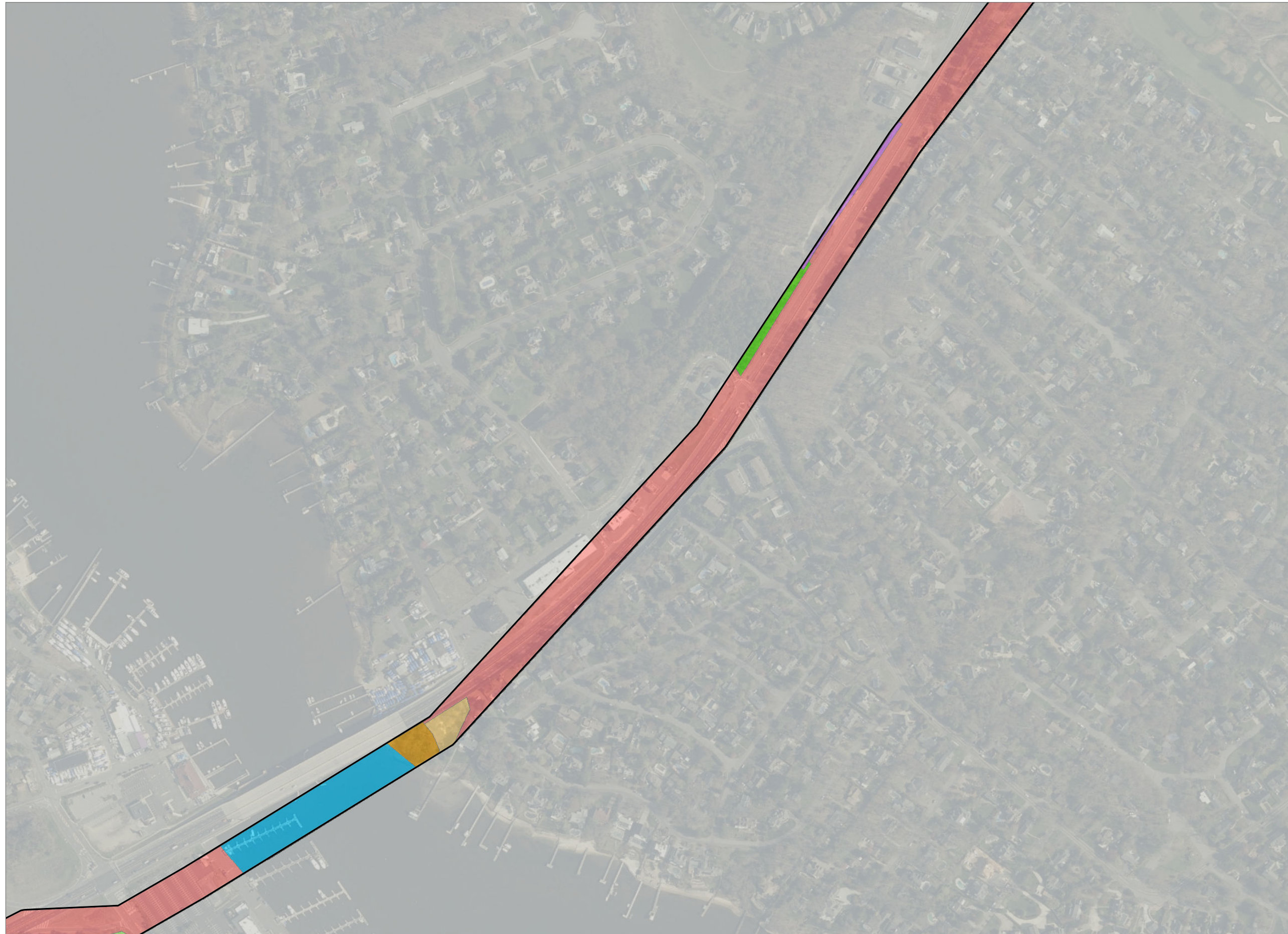
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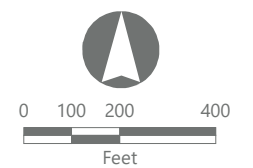
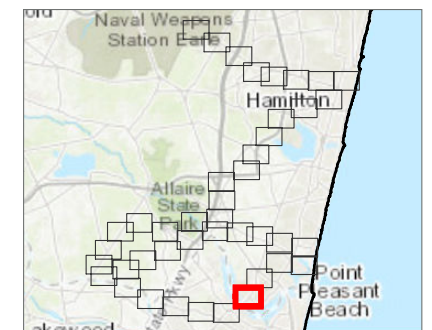
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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Herbaceous Wetland
  - Scrub-Shrub
  - Scrub-Shrub Wetland
  - Water



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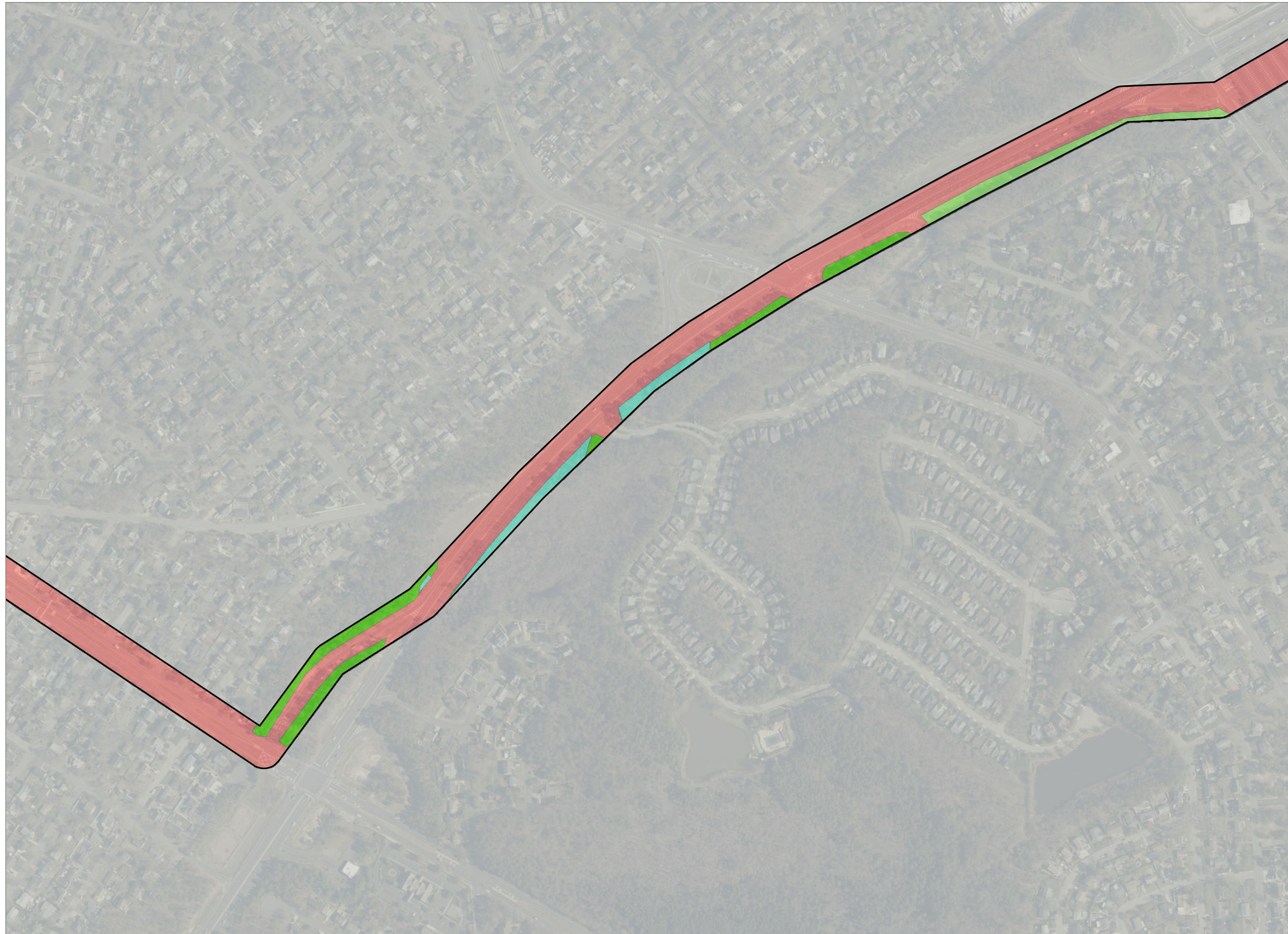




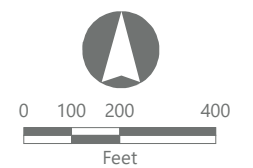
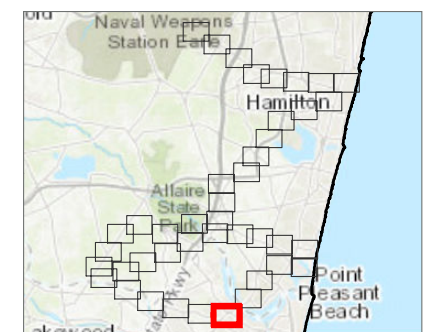
### Atlantic Shores North Offshore Wind – New Jersey Onshore Project Study Area

Borough of Point Pleasant, Lakewood  
Township, Borough of Brielle,  
Brick Township, Borough of Sea Girt,  
Borough of Neptune City, City of  
Asbury Park, Howell Township, Ocean  
Township, Borough of Tinton Falls,  
Colts Neck Township, Wall Township,  
Borough of Manasquan, Neptune  
Township  
Monmouth and Ocean County,  
New Jersey

#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Forested Wetland



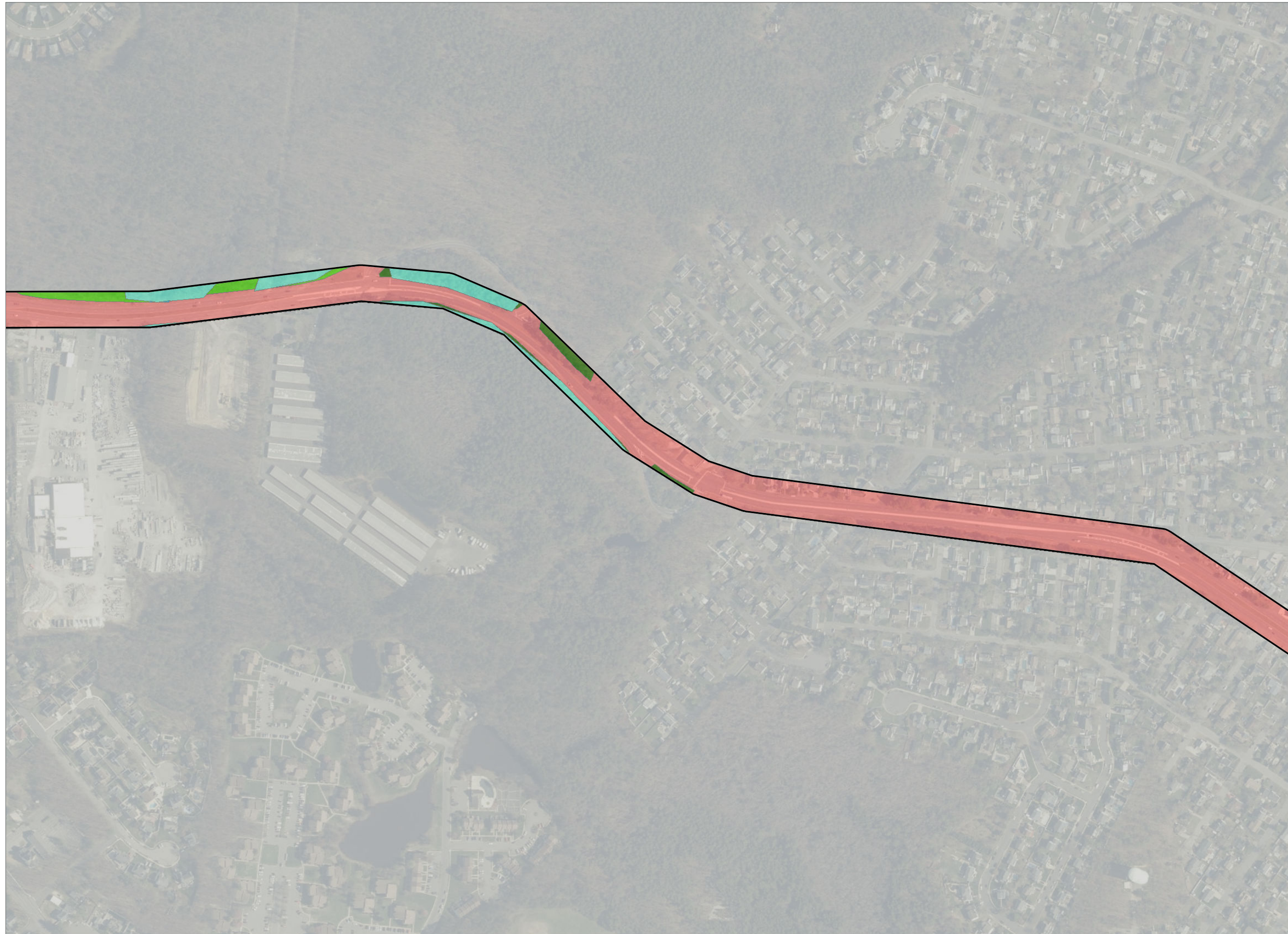
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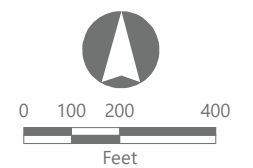
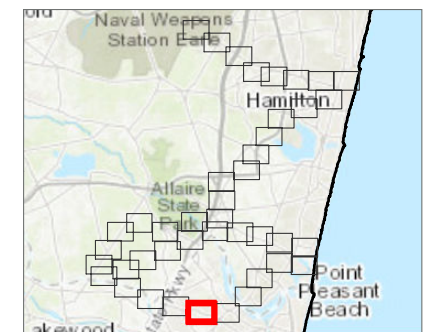
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Monmouth and Ocean County, New Jersey

#### **Habitat Suitability Assessment Report**



-  Study Area
- Habitat Assessment
-  Developed/Disturbed
-  Forest - Evergreen
-  Forest - Mixed
-  Forested Wetland
-  Water



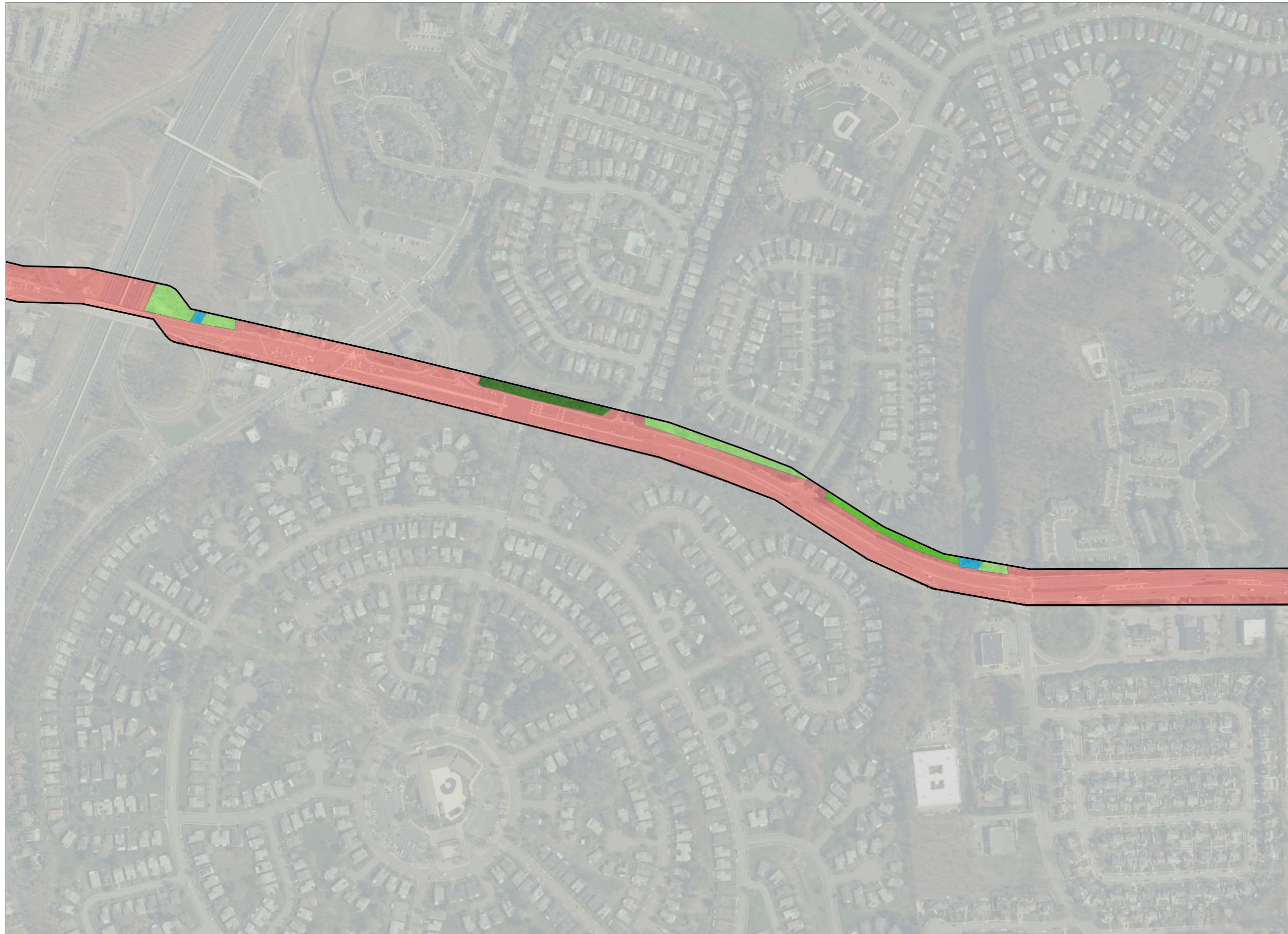
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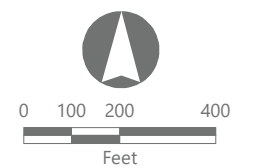
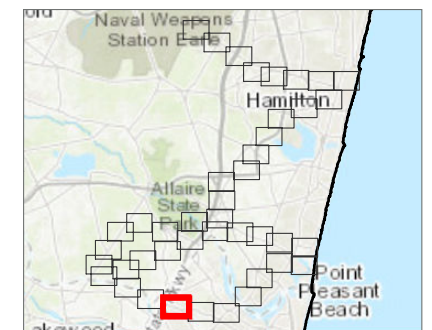
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Monmouth and Ocean County, New Jersey

#### Habitat Suitability Assessment Report



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Water



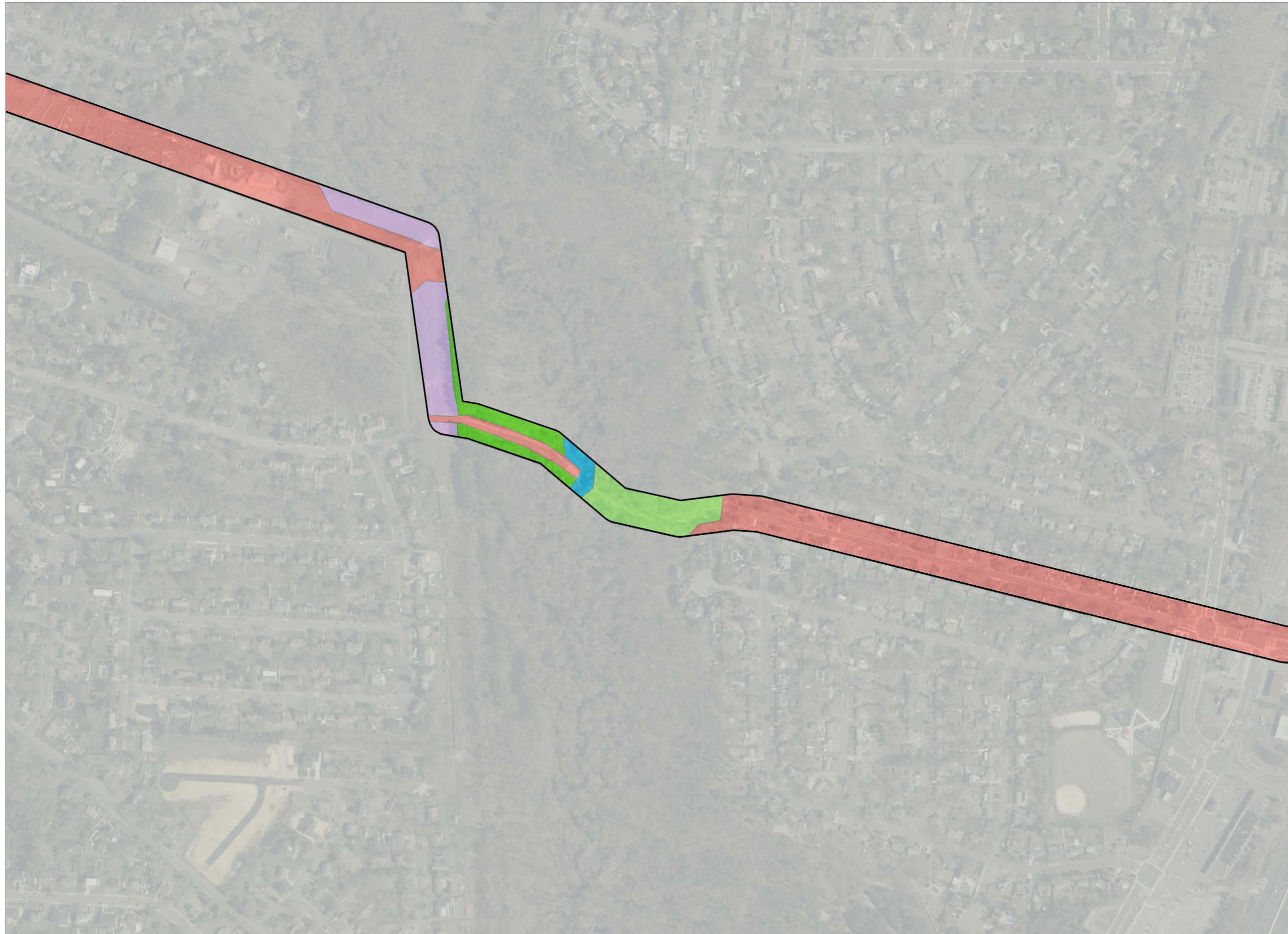
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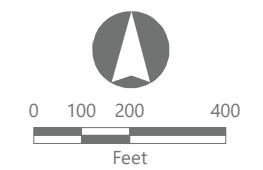
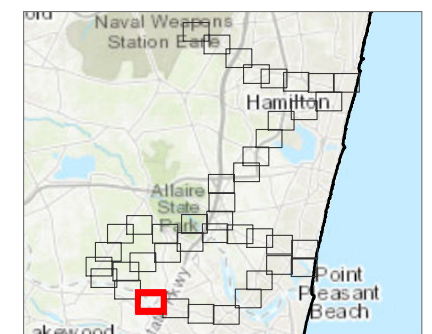
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Monmouth and Ocean County, New Jersey

#### **Habitat Suitability Assessment Report**



- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Mixed
  - Herbaceous
  - Water



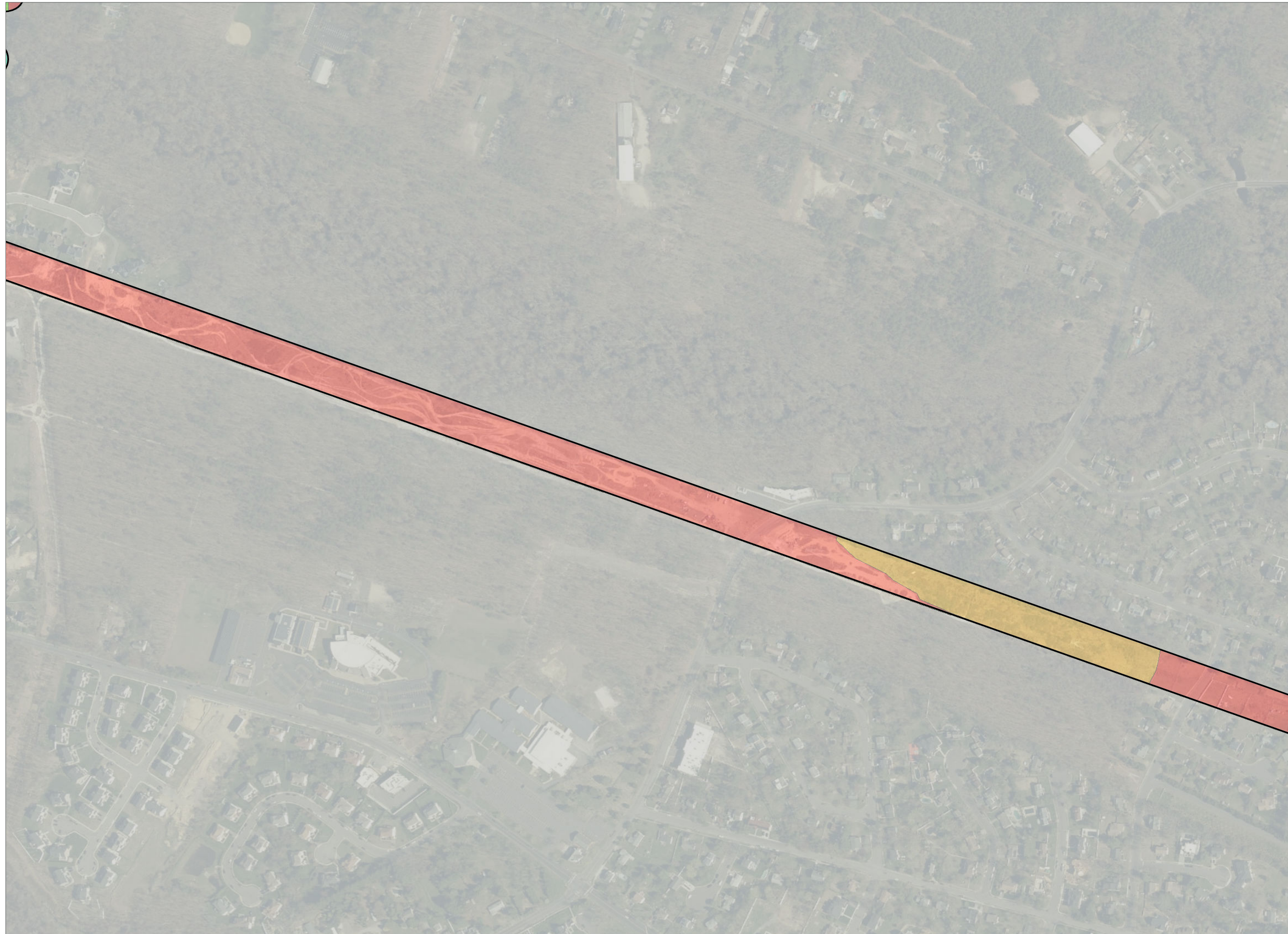
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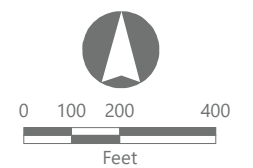
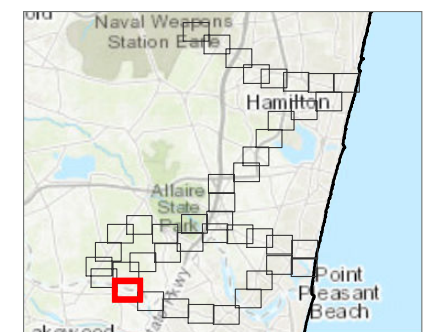
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#### Habitat Suitability Assessment Report

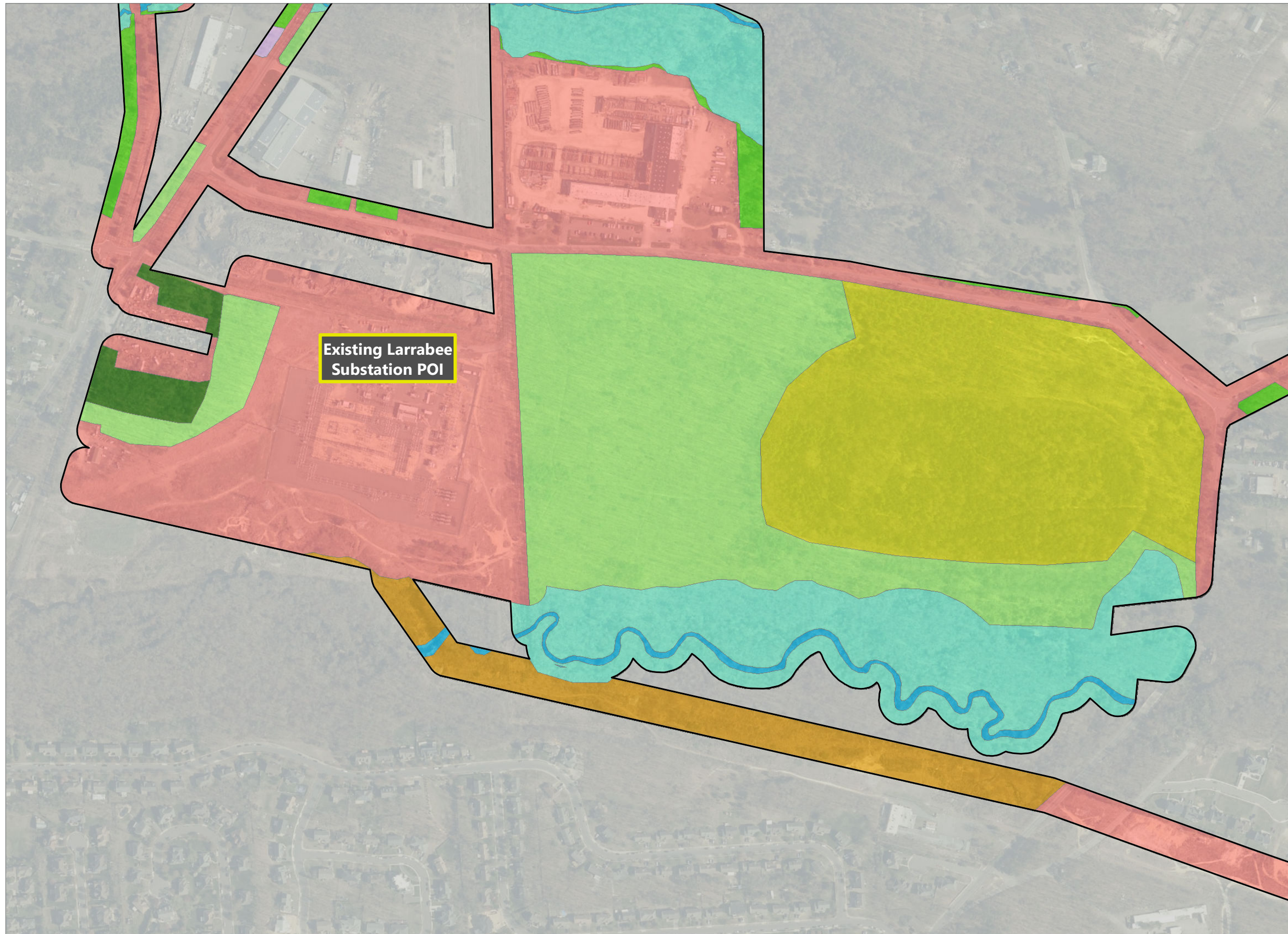


- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forested Wetland
  - Scrub-Shrub



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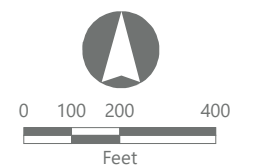
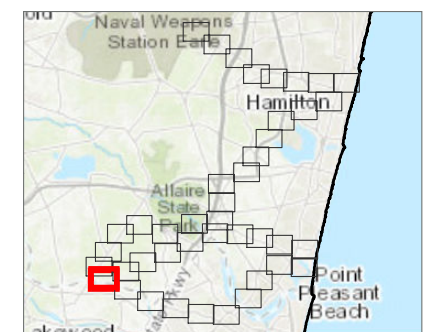


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#### Habitat Suitability Assessment Report

- Study Area
- Habitat Assessment
  - Developed/Disturbed
  - Forest - Deciduous
  - Forest - Evergreen
  - Forest - Mixed
  - Forested Wetland
  - Herbaceous
  - Scrub-Shrub Wetland
  - Shrub - Evergreen
  - Water



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